

IFB# GHURA06-16-2022-CDBG

**Specification
for the**

Construction of MTM Community Recreational Facility

**OWNER
Guam Housing and Urban Renewal Authority**

**BY: _____
Elizabeth F. Napoli, Acting EXECUTIVE DIRECTOR**

Contractor: _____

**By: _____
Signature and Title**

Date: _____

Table of Contents

IFB Number: GHURA-06-16-2022-CDBG		Submit bid to: GHURA 117 Bien Venida Ave. Sinajana, Guam 96910 Contact: Sonny Perez, 475-1404 or email sperez@ghura.org Michael Recuyal, 475-1318 or email msrecuyal@ghura.org
Bid Opening Date: July 07 ,2022	Bid Opening Time: 2:00 pm	
Project Title: Construction of MTM Community Recreational Facility		
Project Description: Design and Construction of Community Recreational Facility		

Section	Title
01	Cover and Title Page
02	Table of Contents
<hr/>	
Bidding Requirements	
03	Invitation for bids
04	Instructions to Bidders/Offerors HUD Form 5369
05	Representations, Certifications, and Other Statements of Bidders– HUD Form 5369-a
AG Forms	
06	Affidavit Disclosing Ownership & Commission - AG Form 002
06a	Affidavit re Non-Collusion - AG Form 003
06b	Affidavit re No Gratuities or Kickbacks - AG Form 004
06c	Affidavit re Ethical Standards - AG Form 005
06d	Affidavit re Contingent Fees - AG Form 007
Contracting Requirements	
07	Non- Collusion Affidavit and Section 3 preference in contracting – GHURA Form – 01B
08	Additional Supplemental Conditions - Mandatory Compliance for Section 3 - GHURA Form 13
09	Law to be observed – GHURA Form 09
010	Bidder's Qualification – GHURA Form 010
011	Supplemental General Conditions – HUD Form 5370
012	Wage Rates Transcript/ General Decision
013	Federal Labor Standards – HUD Form 4010
015	Bid Bond – GHURA Form 016
016	Contractor's Reporting Requirements-Contractor License
017	Form of Contract – GHURA Form 019
018	Bid Form – GHURA Form 014
019	Insurances- see General Conditions
Specification	
020	Special Condition and Project Location
021	Project Manual and Specifications



GHURA

Guahan Housing and Urban Renewal Authority
Aturidat Ginima' Yan Rinueban Siudad Guahan
117 Bien Venida Avenue, Sinajana, GU 96910
Phone: (671) 477-9851 • Fax: (671) 300-7565 • TTY: (671) 472-3701



Lourdes A. Leon Guerrero
Governor of Guam

Joshua F. Tenorio
Lt. Governor of Guam

Invitation for Bid
IFB#GHURA-06-16-2022-CDBG
Construction of MTM Community Recreational Facility
This ad is paid with HUD Funds by GHURA

Guam Housing and Urban Renewal Authority (GHURA) will receive sealed bids for the design and construction of a community recreational facility located in Aragon Street, Toto-Maite until **2:00 pm** on **July 7, 2022**, at GHURA's Main office in Sinajana.

GHURA has redesigned the bid process to comply with Executive Order 2020-14. GHURA maintains and enforces health and safety mitigation measures (i.e. social distancing, wearing of mask, frequent sanitization, occupancy limitation, etc.) which are outlined in the Guam DPHSS guidelines. An instructional video outlining the new bid process, the bid packet and bid forms are available on our website at:

<https://www.ghura.org/doing-business-us/bidsproposalsrelease-funds/invitation-bids>

To be deemed official, a non-refundable bid packet fee of \$50.00 (exact cash amount, money order, or company check) is required and can be submitted prior to or upon submission of a bid. A pre-bid conference will be held on **June 23, 2022 at 10:00 AM** in the **GHURA Main Office Conference Room** in Sinajana. Site visits will be conducted by GHURA staff on June 24, 2022. Attendance at the pre-bid conference is not mandatory but is highly encouraged. Any questions regarding the project or requirements must be submitted in writing or via email to Greta Balmeo at gbalmeo@ghura.org no later than **June 30, 2022**. Bid closing date and time is **July 7, 2022 at 2:00 PM**. All bid submittals will be opened publicly at **GHURA's Main Office Conference Room**, Sinajana.

Pursuant to 5GCA, Chapter 5, §5212, bid guarantees in the amount of 15% of the total base bid shall accompany each bid. Bid guarantee shall be a Bid Bond secured by a surety company authorized to do business in Guam and listed in the latest Department of Treasury Circular 570 published in the Federal Register; or as permitted by state law, a certified check, bank draft, or U.S. Government Bond at par value. All Bid Guarantees must be made payable to GHURA. **Personal checks will not be accepted.** GHURA reserves the right to waive irregularities and to reject any or all bids. Failure to submit a bid properly shall result in rejection of the bid.


For all contracts which exceed \$100,000, the successful bidder will be required to furnish and pay for satisfactory Performance and Payment bond for 100% of the contract price. GHURA will retain the bid guarantee until the performance bond is received and will release it soon thereafter. The Contractor must not discriminate on the basis of race, color, religion, sex, national origin, age, disability, or genetic information in employment or the provision of services. Restriction Against Contractors Employing Convicted Sex Offenders from Working at Government of Guam Venues. (§5253 of Title 5 Guam Code Annotated).

The successful bidder will be required to accomplish the following to the best possible and greatest extent feasible:

1. A goal of awarding at least 50 percent of the dollar value of construction contracts to Minority and/or Women Business Enterprises (MBE/WBE) or General Contractors with MBE/WBE participation.
2. In accordance with Section 3 of the U.S. Department of Housing and Urban Development Act of 1968, all construction contractors, to the maximum extent feasible, shall provide training, contracting, and employment opportunities to low income residents residing in GHURA.

GHURA intends to award a contract on the basis of the lowest and most responsible bid for the work described in the bid documents. No bid shall be withdrawn for a period of sixty (60) days subsequent to the opening of bids without the prior written consent of GHURA.

GHURA is an Equal Opportunity Employer


Elizabeth Napoli
Acting Executive Director

**U.S. Department of Housing and
Urban Development**
Office of Public and Indian Housing

**Instructions to Bidders for Contracts
Public and Indian Housing Programs**

Instructions to Bidders for Contracts

Public and Indian Housing Programs

Table of Contents

Clause	Page
1. Bid Preparation and Submission	1
2. Explanations and Interpretations to Prospective Bidders	1
3. Amendments to Invitations for Bids	1
4. Responsibility of Prospective Contractor	1
5. Late Submissions, Modifications, and Withdrawal of Bids	1
6. Bid Opening	2
7. Service of Protest	2
8. Contract Award	2
9. Bid Guarantee	3
10. Assurance of Completion	3
11. Preconstruction Conference	3
12. Indian Preference Requirements	3

1. Bid Preparation and Submission

(a) Bidders are expected to examine the specifications, drawings, all instructions, and, if applicable, the construction site (see also the contract clause entitled **Site Investigation and Conditions Affecting the Work** of the *General Conditions of the Contract for Construction*). Failure to do so will be at the bidders' risk.

(b) All bids must be submitted on the forms provided by the Public Housing Agency/Indian Housing Authority (PHA/IHA). Bidders shall furnish all the information required by the solicitation. Bids must be signed and the bidder's name typed or printed on the bid sheet and each continuation sheet which requires the entry of information by the bidder. Erasures or other changes must be initialed by the person signing the bid. Bids signed by an agent shall be accompanied by evidence of that agent's authority. (Bidders should retain a copy of their bid for their records.)

(c) Bidders must submit as part of their bid a completed form HUD-5369-A, "Representations, Certifications, and Other Statements of Bidders."

(d) All bid documents shall be sealed in an envelope which shall be clearly marked with the words "Bid Documents," the Invitation for Bids (IFB) number, any project or other identifying number, the bidder's name, and the date and time for receipt of bids.

(e) If this solicitation requires bidding on all items, failure to do so will disqualify the bid. If bidding on all items is not required, bidders should insert the words "No Bid" in the space provided for any item on which no price is submitted.

(f) Unless expressly authorized elsewhere in this solicitation, alternate bids will not be considered.

(g) Unless expressly authorized elsewhere in this solicitation, bids submitted by telegraph or facsimile (fax) machines will not be considered.

(h) If the proposed contract is for a Mutual Help project (as described in 24 CFR Part 905, Subpart E) that involves Mutual Help contributions of work, material, or equipment, supplemental information regarding the bid advertisement is provided as an attachment to this solicitation.

2. Explanations and Interpretations to Prospective Bidders

(a) Any prospective bidder desiring an explanation or interpretation of the solicitation, specifications, drawings, etc., must request it at least 7 days before the scheduled time for bid opening. Requests may be oral or written. Oral requests must be confirmed in writing. The only oral clarifications that will be provided will be those clearly related to solicitation procedures, i.e., not substantive technical information. No other oral explanation or interpretation will be provided. Any information given a prospective bidder concerning this solicitation will be furnished promptly to all other prospective bidders as a written amendment to the solicitation, if that information is necessary in submitting bids, or if the lack of it would be prejudicial to other prospective bidders.

(b) Any information obtained by, or provided to, a bidder other than by formal amendment to the solicitation shall not constitute a change to the solicitation.

3. Amendments to Invitations for Bids

(a) If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.

(b) Bidders shall acknowledge receipt of any amendment to this solicitation (1) by signing and returning the amendment, (2) by identifying the amendment number and date on the bid form, or (3) by letter, telegram, or facsimile, if those methods are authorized in the solicitation. The PHA/IHA must receive acknowledgement by the time and at the place specified for receipt of bids. Bids which fail to acknowledge the bidder's receipt of any amendment will result in the rejection of the bid if the amendment(s) contained information which substantively changed the PHA's/IHA's requirements.

(c) Amendments will be on file in the offices of the PHA/IHA and the Architect at least 7 days before bid opening.

4. Responsibility of Prospective Contractor

(a) The PHA/IHA will award contracts only to responsible prospective contractors who have the ability to perform successfully under the terms and conditions of the proposed contract. In determining the responsibility of a bidder, the PHA/IHA will consider such matters as the bidder's:

- (1) Integrity;
- (2) Compliance with public policy;
- (3) Record of past performance; and
- (4) Financial and technical resources (including construction and technical equipment).

(b) Before a bid is considered for award, the bidder may be requested by the PHA/IHA to submit a statement or other documentation regarding any of the items in paragraph (a) above. Failure by the bidder to provide such additional information shall render the bidder nonresponsible and ineligible for award.

5. Late Submissions, Modifications, and Withdrawal of Bids

(a) Any bid received at the place designated in the solicitation after the exact time specified for receipt will not be considered unless it is received before award is made and it:

(1) Was sent by registered or certified mail not later than the fifth calendar day before the date specified for receipt of offers (e.g., an offer submitted in response to a solicitation requiring receipt of offers by the 20th of the month must have been mailed by the 15th);

(2) Was sent by mail, or if authorized by the solicitation, was sent by telegram or via facsimile, and it is determined by the PHA/IHA that the late receipt was due solely to mishandling by the PHA/IHA after receipt at the PHA/IHA; or

(3) Was sent by U.S. Postal Service Express Mail Next Day Service - Post Office to Addressee, not later than 5:00 p.m. at the place of mailing two working days prior to the date specified for receipt of proposals. The term "working days" excludes weekends and observed holidays.

(b) Any modification or withdrawal of a bid is subject to the same conditions as in paragraph (a) of this provision.

(c) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent either by registered or certified mail is the U.S. or Canadian Postal Service postmark both on the envelope or wrapper and on the original receipt from the U.S. or Canadian Postal Service. Both postmarks must show a legible date or the bid, modification, or withdrawal shall be processed as if mailed late. "Postmark" means a printed, stamped, or otherwise placed impression (exclusive of a postage meter machine impression) that is readily identifiable without further action as having been supplied and affixed by employees of the U.S. or Canadian Postal Service on the date of mailing. Therefore, bidders should request the postal clerk to place a hand cancellation bull's-eye postmark on both the receipt and the envelope or wrapper.

(d) The only acceptable evidence to establish the time of receipt at the PHA/IHA is the time/date stamp of PHA/IHA on the proposal wrapper or other documentary evidence of receipt maintained by the PHA/IHA.

(e) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent by Express Mail Next Day Service-Post Office to Addressee is the date entered by the post office receiving clerk on the "Express Mail Next Day Service-Post Office to Addressee" label and the postmark on both the envelope or wrapper and on the original receipt from the U.S. Postal Service. "Postmark" has the same meaning as defined in paragraph (c) of this provision, excluding postmarks of the Canadian Postal Service. Therefore, bidders should request the postal clerk to place a legible hand cancellation bull's eye postmark on both the receipt and Failure by a bidder to acknowledge receipt of the envelope or wrapper.

(f) Notwithstanding paragraph (a) of this provision, a late modification of an otherwise successful bid that makes its terms more favorable to the PHA/IHA will be considered at any time it is received and may be accepted.

(g) Bids may be withdrawn by written notice, or if authorized by this solicitation, by telegram (including mailgram) or facsimile machine transmission received at any time before the exact time set for opening of bids; provided that written confirmation of telegraphic or facsimile withdrawals over the signature of the bidder is mailed and postmarked prior to the specified bid opening time. A bid may be withdrawn in person by a bidder or its authorized representative if, before the exact time set for opening of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

6. Bid Opening

All bids received by the date and time of receipt specified in the solicitation will be publicly opened and read. The time and place of opening will be as specified in the solicitation. Bidders and other interested persons may be present.

7. Service of Protest

(a) Definitions. As used in this provision:

"Interested party" means an actual or prospective bidder whose direct economic interest would be affected by the award of the contract.

"Protest" means a written objection by an interested party to this solicitation or to a proposed or actual award of a contract pursuant to this solicitation.

(b) Protests shall be served on the Contracting Officer by obtaining written and dated acknowledgement from —

[Contracting Officer designate the official or location where a protest may be served on the Contracting Officer]

(c) All protests shall be resolved in accordance with the PHA's/IHA's protest policy and procedures, copies of which are maintained at the PHA/IHA.

8. Contract Award

(a) The PHA/IHA will evaluate bids in response to this solicitation without discussions and will award a contract to the responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the PHA/IHA considering only price and any price-related factors specified in the solicitation.

(b) If the apparent low bid received in response to this solicitation exceeds the PHA's/IHA's available funding for the proposed contract work, the PHA/IHA may either accept separately priced items (see 8(e) below) or use the following procedure to determine contract award. The PHA/IHA shall apply in turn to each bid (proceeding in order from the apparent low bid to the high bid) each of the separately priced bid deductible items, if any, in their priority order set forth in this solicitation. If upon the application of the first deductible item to all initial bids, a new low bid is within the PHA's/IHA's available funding, then award shall be made to that bidder. If no bid is within the available funding amount, then the PHA/IHA shall apply the second deductible item. The PHA/IHA shall continue this process until an evaluated low bid, if any, is within the PHA's/IHA's available funding. If upon the application of all deductibles, no bid is within the PHA's/IHA's available funding, or if the solicitation does not request separately priced deductibles, the PHA/IHA shall follow its written policy and procedures in making any award under this solicitation.

(c) In the case of tie low bids, award shall be made in accordance with the PHA's/IHA's written policy and procedures.

(d) The PHA/IHA may reject any and all bids, accept other than the lowest bid (e.g., the apparent low bid is unreasonably low), and waive informalities or minor irregularities in bids received, in accordance with the PHA's/IHA's written policy and procedures.

(e) Unless precluded elsewhere in the solicitation, the PHA/IHA may accept any item or combination of items bid.

(f) The PHA/IHA may reject any bid as nonresponsive if it is materially unbalanced as to the prices for the various items of work to be performed. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(g) A written award shall be furnished to the successful bidder within the period for acceptance specified in the bid and shall result in a binding contract without further action by either party.

9. Bid Guarantee (applicable to construction and equipment contracts exceeding \$25,000)

All bids must be accompanied by a negotiable bid guarantee which shall not be less than five percent (5%) of the amount of the bid. The bid guarantee may be a certified check, bank draft, U.S. Government Bonds at par value, or a bid bond secured by a surety company acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. In the case where the work under the contract will be performed on an Indian reservation area, the bid guarantee may also be an irrevocable Letter of Credit (see provision 10, Assurance of Completion, below). Certified checks and bank drafts must be made payable to the order of the PHA/IHA. The bid guarantee shall insure the execution of the contract and the furnishing of a method of assurance of completion by the successful bidder as required by the solicitation. Failure to submit a bid guarantee with the bid shall result in the rejection of the bid. Bid guarantees submitted by unsuccessful bidders will be returned as soon as practicable after bid opening.

10. Assurance of Completion

(a) Unless otherwise provided in State law, the successful bidder shall furnish an assurance of completion prior to the execution of any contract under this solicitation. This assurance may be [Contracting Officer check applicable items] —

[] (1) a performance and payment bond in a penal sum of 100 percent of the contract price; or, as may be required or permitted by State law;

[] (2) separate performance and payment bonds, each for 50 percent or more of the contract price;

[] (3) a 20 percent cash escrow;

[] (4) a 25 percent irrevocable letter of credit; or,

[] (5) an irrevocable letter of credit for 10 percent of the total contract price with a monitoring and disbursements agreement with the IHA (applicable only to contracts awarded by an IHA under the Indian Housing Program).

(b) Bonds must be obtained from guarantee or surety companies acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. Individual sureties will not be considered. U.S. Treasury Circular Number 570, published annually in the Federal Register, lists companies approved to act as sureties on bonds securing Government contracts, the maximum underwriting limits on each contract bonded, and the States in which the company is licensed to do business. Use of companies listed in this circular is mandatory. Copies of the circular may be downloaded on the U.S. Department of Treasury website <http://www.fms.treas.gov/c570/index.html>, or ordered for a minimum fee by contacting the Government Printing Office at (202) 512-2168.

(c) Each bond shall clearly state the rate of premium and the total amount of premium charged. The current power of attorney for the person who signs for the surety company must be attached to the bond. The effective date of the power of attorney shall not precede the date of the bond. The effective date of the bond shall be on or after the execution date of the contract.

(d) Failure by the successful bidder to obtain the required assurance of completion within the time specified, or within such extended period as the PHA/IHA may grant based upon reasons determined adequate by the PHA/IHA, shall render the bidder ineligible for award. The PHA/IHA may then either award the contract to the next lowest responsible bidder or solicit new bids. The PHA/IHA may retain the ineligible bidder's bid guarantee.

11. Preconstruction Conference (applicable to construction contracts)

After award of a contract under this solicitation and prior to the start of work, the successful bidder will be required to attend a preconstruction conference with representatives of the PHA/IHA and its architect/engineer, and other interested parties convened by the PHA/IHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract (e.g., Equal Employment Opportunity, Labor Standards). The PHA/IHA will provide the successful bidder with the date, time, and place of the conference.

12. Indian Preference Requirements (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

(a) HUD has determined that the contract awarded under this solicitation is subject to the requirements of section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e(b)). Section 7(b) requires that any contract or subcontract entered into for the benefit of Indians shall require that, to the greatest extent feasible

(1) Preferences and opportunities for training and employment (other than core crew positions; see paragraph (h) below) in connection with the administration of such contracts or subcontracts be given to qualified "Indians." The Act defines "Indians" to mean persons who are members of an Indian tribe and defines "Indian tribe" to mean any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians; and,

(2) Preference in the award of contracts or subcontracts in connection with the administration of contracts be given to Indian organizations and to Indian-owned economic enterprises, as defined in section 3 of the Indian Financing Act of 1974 (25 U.S.C. 1452). That Act defines "economic enterprise" to mean any Indian-owned commercial, industrial, or business activity established or organized for the purpose of profit, except that the Indian ownership must constitute not less than 51 percent of the enterprise; "Indian organization" to mean the governing body of any Indian tribe or entity established or recognized by such governing body; "Indian" to mean any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act; and Indian "tribe" to mean any Indian tribe, band, group, pueblo, or community including Native villages and Native groups (including

corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

(b) (1) The successful Contractor under this solicitation shall comply with the requirements of this provision in awarding all subcontracts under the contract and in providing training and employment opportunities.

(2) A finding by the IHA that the contractor, either (i) awarded a subcontract without using the procedure required by the IHA, (ii) falsely represented that subcontracts would be awarded to Indian enterprises or organizations; or, (iii) failed to comply with the contractor's employment and training preference bid statement shall be grounds for termination of the contract or for the assessment of penalties or other remedies.

(c) If specified elsewhere in this solicitation, the IHA may restrict the solicitation to qualified Indian-owned enterprises and Indian organizations. If two or more (or a greater number as specified elsewhere in the solicitation) qualified Indian-owned enterprises or organizations submit responsive bids, award shall be made to the qualified enterprise or organization with the lowest responsive bid. If fewer than the minimum required number of qualified Indian-owned enterprises or organizations submit responsive bids, the IHA shall reject all bids and readvertise the solicitation in accordance with paragraph (d) below.

(d) If the IHA prefers not to restrict the solicitation as described in paragraph (c) above, or if after having restricted a solicitation an insufficient number of qualified Indian enterprises or organizations submit bids, the IHA may advertise for bids from non-Indian as well as Indian-owned enterprises and Indian organizations. Award shall be made to the qualified Indian enterprise or organization with the lowest responsive bid if that bid is -

(1) Within the maximum HUD-approved budget amount established for the specific project or activity for which bids are being solicited; and

(2) No more than the percentage specified in 24 CFR 905.175(c) higher than the total bid price of the lowest responsive bid from any qualified bidder. If no responsive bid by a qualified Indian-owned economic enterprise or organization is within the stated range of the total bid price of the lowest responsive bid from any qualified enterprise, award shall be made to the bidder with the lowest bid.

(e) Bidders seeking to qualify for preference in contracting or subcontracting shall submit proof of Indian ownership with their bids. Proof of Indian ownership shall include but not be limited to:

(1) Certification by a tribe or other evidence that the bidder is an Indian. The IHA shall accept the certification of a tribe that an individual is a member.

(2) Evidence such as stock ownership, structure, management, control, financing and salary or profit sharing arrangements of the enterprise.

(f) (1) All bidders must submit with their bids a statement describing how they will provide Indian preference in the award of subcontracts. The specific requirements of that statement and the factors to be used by the IHA in determining the statement's adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement shall be rejected as nonresponsive. The IHA may require that comparable statements be provided by subcontractors to the successful Contractor, and may require the Contractor to reject any bid or proposal by a subcontractor that fails to include the statement.

(2) Bidders and prospective subcontractors shall submit a certification (supported by credible evidence) to the IHA in any instance where the bidder or subcontractor believes it is infeasible to provide Indian preference in subcontracting. The acceptance or rejection by the IHA of the certification shall be final. Rejection shall disqualify the bid from further consideration.

(g) All bidders must submit with their bids a statement detailing their employment and training opportunities and their plans to provide preference to Indians in implementing the contract; and the number or percentage of Indians anticipated to be employed and trained. Comparable statements from all proposed subcontractors must be submitted. The criteria to be used by the IHA in determining the statement(s)'s adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement(s), or that includes a statement that does not meet minimum standards required by the IHA shall be rejected as nonresponsive.

(h) Core crew employees. A core crew employee is an individual who is a bona fide employee of the contractor at the time the bid is submitted; or an individual who was not employed by the bidder at the time the bid was submitted, but who is regularly employed by the bidder in a supervisory or other key skilled position when work is available. Bidders shall submit with their bids a list of all core crew employees.

(i) Preference in contracting, subcontracting, employment, and training shall apply not only on-site, on the reservation, or within the IHA's jurisdiction, but also to contracts with firms that operate outside these areas (e.g., employment in modular or manufactured housing construction facilities).

(j) Bidders should contact the IHA to determine if any additional local preference requirements are applicable to this solicitation.

(k) The IHA [] does [] does not [Contracting Officer check applicable box] maintain lists of Indian-owned economic enterprises and Indian organizations by specialty (e.g., plumbing, electrical, foundations), which are available to bidders to assist them in meeting their responsibility to provide preference in connection with the administration of contracts and subcontracts.

**U.S. Department of Housing
and Urban Development**
Office of Public and Indian Housing

**Representations, Certifications,
and Other Statements of Bidders**
Public and Indian Housing Programs

Representations, Certifications, and Other Statements of Bidders

Public and Indian Housing Programs

Table of Contents

Clause	Page
1. Certificate of Independent Price Determination	1
2. Contingent Fee Representation and Agreement	1
3. Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions	1
4. Organizational Conflicts of Interest Certification	2
5. Bidder's Certification of Eligibility	2
6. Minimum Bid Acceptance Period	2
7. Small, Minority, Women-Owned Business Concern Representation	2
8. Indian-Owned Economic Enterprise and Indian Organization Representation	2
9. Certification of Eligibility Under the Davis-Bacon Act	3
10. Certification of Nonsegregated Facilities	3
11. Clean Air and Water Certification	3
12. Previous Participation Certificate	3
13. Bidder's Signature	3

1. Certificate of Independent Price Determination

(a) The bidder certifies that--

(1) The prices in this bid have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to (i) those prices, (ii) the intention to submit a bid, or (iii) the methods or factors used to calculate the prices offered;

(2) The prices in this bid have not been and will not be knowingly disclosed by the bidder, directly or indirectly, to any other bidder or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a competitive proposal solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the bidder to induce any other concern to submit or not to submit a bid for the purpose of restricting competition.

(b) Each signature on the bid is considered to be a certification by the signatory that the signatory--

(1) Is the person in the bidder's organization responsible for determining the prices being offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

[insert full name of person(s) in the bidder's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the bidder's organization];

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(c) If the bidder deletes or modifies subparagraph (a)2 above, the bidder must furnish with its bid a signed statement setting forth in detail the circumstances of the disclosure.

[] [Contracting Officer check if following paragraph is applicable]

(d) Non-collusive affidavit. (applicable to contracts for construction and equipment exceeding \$50,000)

(1) Each bidder shall execute, in the form provided by the PHA/IHA, an affidavit to the effect that he/she has not colluded with any other person, firm or corporation in regard to any bid submitted in response to this solicitation. If the successful bidder did not submit the affidavit with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the affidavit by that date may render the bid nonresponsive. No contract award will be made without a properly executed affidavit.

(2) A fully executed "Non-collusive Affidavit" [] is, [] is not included with the bid.

2. Contingent Fee Representation and Agreement

(a) Definitions. As used in this provision:

"Bona fide employee" means a person, employed by a bidder and subject to the bidder's supervision and control as to time, place, and manner of performance, who neither exerts, nor proposes to exert improper influence to solicit or obtain contracts nor holds out as being able to obtain any contract(s) through improper influence.

"Improper influence" means any influence that induces or tends to induce a PHA/IHA employee or officer to give consideration or to act regarding a PHA/IHA contract on any basis other than the merits of the matter.

(b) The bidder represents and certifies as part of its bid that, except for full-time bona fide employees working solely for the bidder, the bidder:

(1) [] has, [] has not employed or retained any person or company to solicit or obtain this contract; and

(2) [] has, [] has not paid or agreed to pay to any person or company employed or retained to solicit or obtain this contract any commission, percentage, brokerage, or other fee contingent upon or resulting from the award of this contract.

(c) If the answer to either (a)(1) or (a)(2) above is affirmative, the bidder shall make an immediate and full written disclosure to the PHA/IHA Contracting Officer.

(d) Any misrepresentation by the bidder shall give the PHA/IHA the right to (1) terminate the contract; (2) at its discretion, deduct from contract payments the amount of any commission, percentage, brokerage, or other contingent fee; or (3) take other remedy pursuant to the contract.

3. Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions (applicable to contracts exceeding \$100,000)

(a) The definitions and prohibitions contained in Section 1352 of title 31, United States Code, are hereby incorporated by reference in paragraph (b) of this certification.

(b) The bidder, by signing its bid, hereby certifies to the best of his or her knowledge and belief as of December 23, 1989 that:

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of a contract resulting from this solicitation;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the bidder shall complete and submit, with its bid, OMB standard form LLL, "Disclosure of Lobbying Activities;" and

(3) He or she will include the language of this certification in all subcontracts at any tier and require that all recipients of subcontract awards in excess of \$100,000 shall certify and disclose accordingly.

(c) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision, shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000, for each such failure.

(d) Indian tribes (except those chartered by States) and Indian organizations as defined in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) are exempt from the requirements of this provision.

4. Organizational Conflicts of Interest Certification

The bidder certifies that to the best of its knowledge and belief and except as otherwise disclosed, he or she does not have any organizational conflict of interest which is defined as a situation in which the nature of work to be performed under this proposed contract and the bidder's organizational, financial, contractual, or other interests may, without some restriction on future activities:

(a) Result in an unfair competitive advantage to the bidder; or,
(b) Impair the bidder's objectivity in performing the contract work.
[] In the absence of any actual or apparent conflict, I hereby certify that to the best of my knowledge and belief, no actual or apparent conflict of interest exists with regard to my possible performance of this procurement.

5. Bidder's Certification of Eligibility

(a) By the submission of this bid, the bidder certifies that to the best of its knowledge and belief, neither it, nor any person or firm which has an interest in the bidder's firm, nor any of the bidder's subcontractors, is ineligible to:

(1) Be awarded contracts by any agency of the United States Government, HUD, or the State in which this contract is to be performed; or,

(2) Participate in HUD programs pursuant to 24 CFR Part 24.

(b) The certification in paragraph (a) above is a material representation of fact upon which reliance was placed when making award. If it is later determined that the bidder knowingly rendered an erroneous certification, the contract may be terminated for default, and the bidder may be debarred or suspended from participation in HUD programs and other Federal contract programs.

6. Minimum Bid Acceptance Period

(a) "Acceptance period," as used in this provision, means the number of calendar days available to the PHA/IHA for awarding a contract from the date specified in this solicitation for receipt of bids.

(b) This provision supersedes any language pertaining to the acceptance period that may appear elsewhere in this solicitation.

(c) The PHA/IHA requires a minimum acceptance period of [Contracting Officer insert time period] calendar days.

(d) In the space provided immediately below, bidders may specify a longer acceptance period than the PHA's/IHA's minimum requirement. The bidder allows the following acceptance period: calendar days.

(e) A bid allowing less than the PHA's/IHA's minimum acceptance period will be rejected.

(f) The bidder agrees to execute all that it has undertaken to do, in compliance with its bid, if that bid is accepted in writing within (1) the acceptance period stated in paragraph (c) above or (2) any longer acceptance period stated in paragraph (d) above.

7. Small, Minority, Women-Owned Business Concern Representation

The bidder represents and certifies as part of its bid/ offer that it --

(a) [] is, [] is not a small business concern. "Small business concern," as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding, and qualified as a small business under the criteria and size standards in 13 CFR 121.

(b) [] is, [] is not a women-owned business enterprise. "Women-owned business enterprise," as used in this provision, means a business that is at least 51 percent owned by a woman or women who are U.S. citizens and who also control and operate the business.

(c) [] is, [] is not a minority business enterprise. "Minority business enterprise," as used in this provision, means a business which is at least 51 percent owned or controlled by one or more minority group members or, in the case of a publicly owned business, at least 51 percent of its voting stock is owned by one or more minority group members, and whose management and daily operations are controlled by one or more such individuals. For the purpose of this definition, minority group members are:

(Check the block applicable to you)

[] Black Americans	[] Asian Pacific Americans
[] Hispanic Americans	[] Asian Indian Americans
[] Native Americans	[] Hasidic Jewish Americans

8. Indian-Owned Economic Enterprise and Indian Organization Representation (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

The bidder represents and certifies that it:

(a) [] is, [] is not an Indian-owned economic enterprise. "Economic enterprise," as used in this provision, means any commercial, industrial, or business activity established or organized for the purpose of profit, which is at least 51 percent Indian owned. "Indian," as used in this provision, means any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act.

(b) [] is, [] is not an Indian organization. "Indian organization," as used in this provision, means the governing body of any Indian tribe or entity established or recognized by such governing body. Indian "tribe" means any Indian tribe, band, group, pueblo, or

community including Native villages and Native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

9. Certification of Eligibility Under the Davis-Bacon Act (applicable to construction contracts exceeding \$2,000)

(a) By the submission of this bid, the bidder certifies that neither it nor any person or firm who has an interest in the bidder's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(b) No part of the contract resulting from this solicitation shall be subcontracted to any person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(c) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

10. Certification of Nonsegregated Facilities (applicable to contracts exceeding \$10,000)

(a) The bidder's attention is called to the clause entitled **Equal Employment Opportunity** of the General Conditions of the Contract for Construction.

(b) "Segregated facilities," as used in this provision, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin because of habit, local custom, or otherwise.

(c) By the submission of this bid, the bidder certifies that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The bidder agrees that a breach of this certification is a violation of the Equal Employment Opportunity clause in the contract.

(d) The bidder further agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) prior to entering into subcontracts which exceed \$10,000 and are not exempt from the requirements of the Equal Employment Opportunity clause, it will:

(1) Obtain identical certifications from the proposed subcontractors;

(2) Retain the certifications in its files; and

(3) Forward the following notice to the proposed subcontractors (except if the proposed subcontractors have submitted identical certifications for specific time periods):

Notice to Prospective Subcontractors of Requirement for Certifications of Nonsegregated Facilities

A Certification of Nonsegregated Facilities must be submitted before the award of a subcontract exceeding \$10,000 which is not exempt from the provisions of the Equal Employment Opportunity clause of the prime contract. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

Note: The penalty for making false statements in bids is prescribed in 18 U.S.C. 1001.

11. Clean Air and Water Certification (applicable to contracts exceeding \$100,000)

The bidder certifies that:

(a) Any facility to be used in the performance of this contract [] is, [] is not listed on the Environmental Protection Agency List of Violating Facilities:

(b) The bidder will immediately notify the PHA/IHA Contracting Officer, before award, of the receipt of any communication from the Administrator, or a designee, of the Environmental Protection Agency, indicating that any facility that the bidder proposes to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities; and,

(c) The bidder will include a certification substantially the same as this certification, including this paragraph (c), in every nonexempt subcontract.

12. Previous Participation Certificate (applicable to construction and equipment contracts exceeding \$50,000)

(a) The bidder shall complete and submit with his/her bid the Form HUD-2530, "Previous Participation Certificate." If the successful bidder does not submit the certificate with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the certificate by that date may render the bid nonresponsive. No contract award will be made without a properly executed certificate.

(b) A fully executed "Previous Participation Certificate" [] is, [] is not included with the bid.

13. Bidder's Signature

The bidder hereby certifies that the information contained in these certifications and representations is accurate, complete, and current.

(Signature and Date)

(Typed or Printed Name)

(Title)

(Company Name)

(Company Address)

**U.S. Department of Housing and
Urban Development**
Office of Public and Indian Housing

**Instructions to Bidders for Contracts
Public and Indian Housing Programs**

Instructions to Bidders for Contracts

Public and Indian Housing Programs

Table of Contents

Clause	Page
1. Bid Preparation and Submission	1
2. Explanations and Interpretations to Prospective Bidders	1
3. Amendments to Invitations for Bids	1
4. Responsibility of Prospective Contractor	1
5. Late Submissions, Modifications, and Withdrawal of Bids	1
6. Bid Opening	2
7. Service of Protest	2
8. Contract Award	2
9. Bid Guarantee	3
10. Assurance of Completion	3
11. Preconstruction Conference	3
12. Indian Preference Requirements	3

1. Bid Preparation and Submission

(a) Bidders are expected to examine the specifications, drawings, all instructions, and, if applicable, the construction site (see also the contract clause entitled **Site Investigation and Conditions Affecting the Work** of the *General Conditions of the Contract for Construction*). Failure to do so will be at the bidders' risk.

(b) All bids must be submitted on the forms provided by the Public Housing Agency/Indian Housing Authority (PHA/IHA). Bidders shall furnish all the information required by the solicitation. Bids must be signed and the bidder's name typed or printed on the bid sheet and each continuation sheet which requires the entry of information by the bidder. Erasures or other changes must be initialed by the person signing the bid. Bids signed by an agent shall be accompanied by evidence of that agent's authority. (Bidders should retain a copy of their bid for their records.)

(c) Bidders must submit as part of their bid a completed form HUD-5369-A, "Representations, Certifications, and Other Statements of Bidders."

(d) All bid documents shall be sealed in an envelope which shall be clearly marked with the words "Bid Documents," the Invitation for Bids (IFB) number, any project or other identifying number, the bidder's name, and the date and time for receipt of bids.

(e) If this solicitation requires bidding on all items, failure to do so will disqualify the bid. If bidding on all items is not required, bidders should insert the words "No Bid" in the space provided for any item on which no price is submitted.

(f) Unless expressly authorized elsewhere in this solicitation, alternate bids will not be considered.

(g) Unless expressly authorized elsewhere in this solicitation, bids submitted by telegraph or facsimile (fax) machines will not be considered.

(h) If the proposed contract is for a Mutual Help project (as described in 24 CFR Part 905, Subpart E) that involves Mutual Help contributions of work, material, or equipment, supplemental information regarding the bid advertisement is provided as an attachment to this solicitation.

2. Explanations and Interpretations to Prospective Bidders

(a) Any prospective bidder desiring an explanation or interpretation of the solicitation, specifications, drawings, etc., must request it at least 7 days before the scheduled time for bid opening. Requests may be oral or written. Oral requests must be confirmed in writing. The only oral clarifications that will be provided will be those clearly related to solicitation procedures, i.e., not substantive technical information. No other oral explanation or interpretation will be provided. Any information given a prospective bidder concerning this solicitation will be furnished promptly to all other prospective bidders as a written amendment to the solicitation, if that information is necessary in submitting bids, or if the lack of it would be prejudicial to other prospective bidders.

(b) Any information obtained by, or provided to, a bidder other than by formal amendment to the solicitation shall not constitute a change to the solicitation.

3. Amendments to Invitations for Bids

(a) If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.

(b) Bidders shall acknowledge receipt of any amendment to this solicitation (1) by signing and returning the amendment, (2) by identifying the amendment number and date on the bid form, or (3) by letter, telegram, or facsimile, if those methods are authorized in the solicitation. The PHA/IHA must receive acknowledgement by the time and at the place specified for receipt of bids. Bids which fail to acknowledge the bidder's receipt of any amendment will result in the rejection of the bid if the amendment(s) contained information which substantively changed the PHA's/IHA's requirements.

(c) Amendments will be on file in the offices of the PHA/IHA and the Architect at least 7 days before bid opening.

4. Responsibility of Prospective Contractor

(a) The PHA/IHA will award contracts only to responsible prospective contractors who have the ability to perform successfully under the terms and conditions of the proposed contract. In determining the responsibility of a bidder, the PHA/IHA will consider such matters as the bidder's:

- (1) Integrity;
- (2) Compliance with public policy;
- (3) Record of past performance; and
- (4) Financial and technical resources (including construction and technical equipment).

(b) Before a bid is considered for award, the bidder may be requested by the PHA/IHA to submit a statement or other documentation regarding any of the items in paragraph (a) above. Failure by the bidder to provide such additional information shall render the bidder nonresponsible and ineligible for award.

5. Late Submissions, Modifications, and Withdrawal of Bids

(a) Any bid received at the place designated in the solicitation after the exact time specified for receipt will not be considered unless it is received before award is made and it:

(1) Was sent by registered or certified mail not later than the fifth calendar day before the date specified for receipt of offers (e.g., an offer submitted in response to a solicitation requiring receipt of offers by the 20th of the month must have been mailed by the 15th);

(2) Was sent by mail, or if authorized by the solicitation, was sent by telegram or via facsimile, and it is determined by the PHA/IHA that the late receipt was due solely to mishandling by the PHA/IHA after receipt at the PHA/IHA; or

(3) Was sent by U.S. Postal Service Express Mail Next Day Service - Post Office to Addressee, not later than 5:00 p.m. at the place of mailing two working days prior to the date specified for receipt of proposals. The term "working days" excludes weekends and observed holidays.

(b) Any modification or withdrawal of a bid is subject to the same conditions as in paragraph (a) of this provision.

(c) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent either by registered or certified mail is the U.S. or Canadian Postal Service postmark both on the envelope or wrapper and on the original receipt from the U.S. or Canadian Postal Service. Both postmarks must show a legible date or the bid, modification, or withdrawal shall be processed as if mailed late. "Postmark" means a printed, stamped, or otherwise placed impression (exclusive of a postage meter machine impression) that is readily identifiable without further action as having been supplied and affixed by employees of the U.S. or Canadian Postal Service on the date of mailing. Therefore, bidders should request the postal clerk to place a hand cancellation bull's-eye postmark on both the receipt and the envelope or wrapper.

(d) The only acceptable evidence to establish the time of receipt at the PHA/IHA is the time/date stamp of PHA/IHA on the proposal wrapper or other documentary evidence of receipt maintained by the PHA/IHA.

(e) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent by Express Mail Next Day Service-Post Office to Addressee is the date entered by the post office receiving clerk on the "Express Mail Next Day Service-Post Office to Addressee" label and the postmark on both the envelope or wrapper and on the original receipt from the U.S. Postal Service. "Postmark" has the same meaning as defined in paragraph (c) of this provision, excluding postmarks of the Canadian Postal Service. Therefore, bidders should request the postal clerk to place a legible hand cancellation bull's eye postmark on both the receipt and Failure by a bidder to acknowledge receipt of the envelope or wrapper.

(f) Notwithstanding paragraph (a) of this provision, a late modification of an otherwise successful bid that makes its terms more favorable to the PHA/IHA will be considered at any time it is received and may be accepted.

(g) Bids may be withdrawn by written notice, or if authorized by this solicitation, by telegram (including mailgram) or facsimile machine transmission received at any time before the exact time set for opening of bids; provided that written confirmation of telegraphic or facsimile withdrawals over the signature of the bidder is mailed and postmarked prior to the specified bid opening time. A bid may be withdrawn in person by a bidder or its authorized representative if, before the exact time set for opening of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

6. Bid Opening

All bids received by the date and time of receipt specified in the solicitation will be publicly opened and read. The time and place of opening will be as specified in the solicitation. Bidders and other interested persons may be present.

7. Service of Protest

(a) Definitions. As used in this provision:

"Interested party" means an actual or prospective bidder whose direct economic interest would be affected by the award of the contract.

"Protest" means a written objection by an interested party to this solicitation or to a proposed or actual award of a contract pursuant to this solicitation.

(b) Protests shall be served on the Contracting Officer by obtaining written and dated acknowledgement from —

[Contracting Officer designate the official or location where a protest may be served on the Contracting Officer]

(c) All protests shall be resolved in accordance with the PHA's/IHA's protest policy and procedures, copies of which are maintained at the PHA/IHA.

8. Contract Award

(a) The PHA/IHA will evaluate bids in response to this solicitation without discussions and will award a contract to the responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the PHA/IHA considering only price and any price-related factors specified in the solicitation.

(b) If the apparent low bid received in response to this solicitation exceeds the PHA's/IHA's available funding for the proposed contract work, the PHA/IHA may either accept separately priced items (see 8(e) below) or use the following procedure to determine contract award. The PHA/IHA shall apply in turn to each bid (proceeding in order from the apparent low bid to the high bid) each of the separately priced bid deductible items, if any, in their priority order set forth in this solicitation. If upon the application of the first deductible item to all initial bids, a new low bid is within the PHA's/IHA's available funding, then award shall be made to that bidder. If no bid is within the available funding amount, then the PHA/IHA shall apply the second deductible item. The PHA/IHA shall continue this process until an evaluated low bid, if any, is within the PHA's/IHA's available funding. If upon the application of all deductibles, no bid is within the PHA's/IHA's available funding, or if the solicitation does not request separately priced deductibles, the PHA/IHA shall follow its written policy and procedures in making any award under this solicitation.

(c) In the case of tie low bids, award shall be made in accordance with the PHA's/IHA's written policy and procedures.

(d) The PHA/IHA may reject any and all bids, accept other than the lowest bid (e.g., the apparent low bid is unreasonably low), and waive informalities or minor irregularities in bids received, in accordance with the PHA's/IHA's written policy and procedures.

(e) Unless precluded elsewhere in the solicitation, the PHA/IHA may accept any item or combination of items bid.

(f) The PHA/IHA may reject any bid as nonresponsive if it is materially unbalanced as to the prices for the various items of work to be performed. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(g) A written award shall be furnished to the successful bidder within the period for acceptance specified in the bid and shall result in a binding contract without further action by either party.

9. Bid Guarantee (applicable to construction and equipment contracts exceeding \$25,000)

All bids must be accompanied by a negotiable bid guarantee which shall not be less than five percent (5%) of the amount of the bid. The bid guarantee may be a certified check, bank draft, U.S. Government Bonds at par value, or a bid bond secured by a surety company acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. In the case where the work under the contract will be performed on an Indian reservation area, the bid guarantee may also be an irrevocable Letter of Credit (see provision 10, Assurance of Completion, below). Certified checks and bank drafts must be made payable to the order of the PHA/IHA. The bid guarantee shall insure the execution of the contract and the furnishing of a method of assurance of completion by the successful bidder as required by the solicitation. Failure to submit a bid guarantee with the bid shall result in the rejection of the bid. Bid guarantees submitted by unsuccessful bidders will be returned as soon as practicable after bid opening.

10. Assurance of Completion

(a) Unless otherwise provided in State law, the successful bidder shall furnish an assurance of completion prior to the execution of any contract under this solicitation. This assurance may be [Contracting Officer check applicable items] —

[] (1) a performance and payment bond in a penal sum of 100 percent of the contract price; or, as may be required or permitted by State law;

[] (2) separate performance and payment bonds, each for 50 percent or more of the contract price;

[] (3) a 20 percent cash escrow;

[] (4) a 25 percent irrevocable letter of credit; or,

[] (5) an irrevocable letter of credit for 10 percent of the total contract price with a monitoring and disbursements agreement with the IHA (applicable only to contracts awarded by an IHA under the Indian Housing Program).

(b) Bonds must be obtained from guarantee or surety companies acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. Individual sureties will not be considered. U.S. Treasury Circular Number 570, published annually in the Federal Register, lists companies approved to act as sureties on bonds securing Government contracts, the maximum underwriting limits on each contract bonded, and the States in which the company is licensed to do business. Use of companies listed in this circular is mandatory. Copies of the circular may be downloaded on the U.S. Department of Treasury website <http://www.fms.treas.gov/c570/index.html>, or ordered for a minimum fee by contacting the Government Printing Office at (202) 512-2168.

(c) Each bond shall clearly state the rate of premium and the total amount of premium charged. The current power of attorney for the person who signs for the surety company must be attached to the bond. The effective date of the power of attorney shall not precede the date of the bond. The effective date of the bond shall be on or after the execution date of the contract.

(d) Failure by the successful bidder to obtain the required assurance of completion within the time specified, or within such extended period as the PHA/IHA may grant based upon reasons determined adequate by the PHA/IHA, shall render the bidder ineligible for award. The PHA/IHA may then either award the contract to the next lowest responsible bidder or solicit new bids. The PHA/IHA may retain the ineligible bidder's bid guarantee.

11. Preconstruction Conference (applicable to construction contracts)

After award of a contract under this solicitation and prior to the start of work, the successful bidder will be required to attend a preconstruction conference with representatives of the PHA/IHA and its architect/engineer, and other interested parties convened by the PHA/IHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract (e.g., Equal Employment Opportunity, Labor Standards). The PHA/IHA will provide the successful bidder with the date, time, and place of the conference.

12. Indian Preference Requirements (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

(a) HUD has determined that the contract awarded under this solicitation is subject to the requirements of section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e(b)). Section 7(b) requires that any contract or subcontract entered into for the benefit of Indians shall require that, to the greatest extent feasible

(1) Preferences and opportunities for training and employment (other than core crew positions; see paragraph (h) below) in connection with the administration of such contracts or subcontracts be given to qualified "Indians." The Act defines "Indians" to mean persons who are members of an Indian tribe and defines "Indian tribe" to mean any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians; and,

(2) Preference in the award of contracts or subcontracts in connection with the administration of contracts be given to Indian organizations and to Indian-owned economic enterprises, as defined in section 3 of the Indian Financing Act of 1974 (25 U.S.C. 1452). That Act defines "economic enterprise" to mean any Indian-owned commercial, industrial, or business activity established or organized for the purpose of profit, except that the Indian ownership must constitute not less than 51 percent of the enterprise; "Indian organization" to mean the governing body of any Indian tribe or entity established or recognized by such governing body; "Indian" to mean any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act; and Indian "tribe" to mean any Indian tribe, band, group, pueblo, or community including Native villages and Native groups (including

corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

(b) (1) The successful Contractor under this solicitation shall comply with the requirements of this provision in awarding all subcontracts under the contract and in providing training and employment opportunities.

(2) A finding by the IHA that the contractor, either (i) awarded a subcontract without using the procedure required by the IHA, (ii) falsely represented that subcontracts would be awarded to Indian enterprises or organizations; or, (iii) failed to comply with the contractor's employment and training preference bid statement shall be grounds for termination of the contract or for the assessment of penalties or other remedies.

(c) If specified elsewhere in this solicitation, the IHA may restrict the solicitation to qualified Indian-owned enterprises and Indian organizations. If two or more (or a greater number as specified elsewhere in the solicitation) qualified Indian-owned enterprises or organizations submit responsive bids, award shall be made to the qualified enterprise or organization with the lowest responsive bid. If fewer than the minimum required number of qualified Indian-owned enterprises or organizations submit responsive bids, the IHA shall reject all bids and readvertise the solicitation in accordance with paragraph (d) below.

(d) If the IHA prefers not to restrict the solicitation as described in paragraph (c) above, or if after having restricted a solicitation an insufficient number of qualified Indian enterprises or organizations submit bids, the IHA may advertise for bids from non-Indian as well as Indian-owned enterprises and Indian organizations. Award shall be made to the qualified Indian enterprise or organization with the lowest responsive bid if that bid is -

(1) Within the maximum HUD-approved budget amount established for the specific project or activity for which bids are being solicited; and

(2) No more than the percentage specified in 24 CFR 905.175(c) higher than the total bid price of the lowest responsive bid from any qualified bidder. If no responsive bid by a qualified Indian-owned economic enterprise or organization is within the stated range of the total bid price of the lowest responsive bid from any qualified enterprise, award shall be made to the bidder with the lowest bid.

(e) Bidders seeking to qualify for preference in contracting or subcontracting shall submit proof of Indian ownership with their bids. Proof of Indian ownership shall include but not be limited to:

(1) Certification by a tribe or other evidence that the bidder is an Indian. The IHA shall accept the certification of a tribe that an individual is a member.

(2) Evidence such as stock ownership, structure, management, control, financing and salary or profit sharing arrangements of the enterprise.

(f) (1) All bidders must submit with their bids a statement describing how they will provide Indian preference in the award of subcontracts. The specific requirements of that statement and the factors to be used by the IHA in determining the statement's adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement shall be rejected as nonresponsive. The IHA may require that comparable statements be provided by subcontractors to the successful Contractor, and may require the Contractor to reject any bid or proposal by a subcontractor that fails to include the statement.

(2) Bidders and prospective subcontractors shall submit a certification (supported by credible evidence) to the IHA in any instance where the bidder or subcontractor believes it is infeasible to provide Indian preference in subcontracting. The acceptance or rejection by the IHA of the certification shall be final. Rejection shall disqualify the bid from further consideration.

(g) All bidders must submit with their bids a statement detailing their employment and training opportunities and their plans to provide preference to Indians in implementing the contract; and the number or percentage of Indians anticipated to be employed and trained. Comparable statements from all proposed subcontractors must be submitted. The criteria to be used by the IHA in determining the statement(s)'s adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement(s), or that includes a statement that does not meet minimum standards required by the IHA shall be rejected as nonresponsive.

(h) Core crew employees. A core crew employee is an individual who is a bona fide employee of the contractor at the time the bid is submitted; or an individual who was not employed by the bidder at the time the bid was submitted, but who is regularly employed by the bidder in a supervisory or other key skilled position when work is available. Bidders shall submit with their bids a list of all core crew employees.

(i) Preference in contracting, subcontracting, employment, and training shall apply not only on-site, on the reservation, or within the IHA's jurisdiction, but also to contracts with firms that operate outside these areas (e.g., employment in modular or manufactured housing construction facilities).

(j) Bidders should contact the IHA to determine if any additional local preference requirements are applicable to this solicitation.

(k) The IHA ☐ does ☐ does not [Contracting Officer check applicable box] maintain lists of Indian-owned economic enterprises and Indian organizations by specialty (e.g., plumbing, electrical, foundations), which are available to bidders to assist them in meeting their responsibility to provide preference in connection with the administration of contracts and subcontracts.

AFFIDAVIT re NON-COLLUSION

CITY OF _____)
ISLAND OF GUAM) ss.

_____[*state name of affiant signing below*], being first duly sworn, deposes and says that:

1. The name of the offering company or individual is [*state name of company*]

2. The proposal for the solicitation identified above is genuine and not collusive or a sham. The offeror has not colluded, conspired, connived or agreed, directly or indirectly, with any other offeror or person, to put in a sham proposal or to refrain from making an offer. The offeror has not in any manner, directly or indirectly, sought by an agreement or collusion, or communication or conference, with any person to fix the proposal price of offeror or of any other offeror, or to fix any overhead, profit or cost element of said proposal price, or of that of any other offeror, or to secure any advantage against the government of Guam or any other offeror, or to secure any advantage against the government of Guam or any person interested in the proposed contract. All statements in this affidavit and in the proposal are true to the best of the knowledge of the undersigned. This statement is made pursuant to 2 GAR Division 4 § 3126(b).

3. I make this statement on behalf of myself as a representative of the offeror, and on behalf of the offeror's officers, representatives, agents, subcontractors, and employees.

Signature of one of the following:

Offeror, if the offeror is an individual;
Partner, if the offeror is a partnership;
Officer, if the offeror is a corporation.

Subscribed and sworn to before me

this _____ day of _____, 201__.

NOTARY PUBLIC
My commission expires _____, ____.

AFFIDAVIT re NO GRATUITIES or KICKBACKS

CITY OF _____)
) ss.
ISLAND OF GUAM)

_____[*state name of affiant signing below*], being
first duly sworn, deposes and says that:

1. The name of the offering firm or individual is [*state name of offeror company*]
_____. Affiant is _____ [*state one
of the following: the offeror, a partner of the offeror, an officer of the offeror*] making the foregoing
identified bid or proposal.

2. To the best of affiant's knowledge, neither affiant, nor any of the offeror's officers,
representatives, agents, subcontractors, or employees have violated, are violating the prohibition against
gratuities and kickbacks set forth in 2 GAR Division 4 § 11107(e). Further, affiant promises, on behalf
of offeror, not to violate the prohibition against gratuities and kickbacks as set forth in 2 GAR Division 4
§ 11107(e).

3. To the best of affiant's knowledge, neither affiant, nor any of the offeror's officers,
representatives, agents, subcontractors, or employees have offered, given or agreed to give, any
government of Guam employee or former government employee, any payment, gift, kickback, gratuity or
offer of employment in connection with the offeror's proposal.

4. I make these statements on behalf of myself as a representative of the offeror, and on behalf of
the offeror's officers, representatives, agents, subcontractors, and employees.

Signature of one of the following:

Offeror, if the offeror is an individual;
Partner, if the offeror is a partnership;
Officer, if the offeror is a corporation.

Subscribed and sworn to before me

this ____ day of _____, 200__.

NOTARY PUBLIC

My commission expires _____, _____.

**U.S. Department of Housing
and Urban Development**
Office of Public and Indian Housing

**Representations, Certifications,
and Other Statements of Bidders**
Public and Indian Housing Programs

Representations, Certifications, and Other Statements of Bidders

Public and Indian Housing Programs

Table of Contents

Clause	Page
1. Certificate of Independent Price Determination	1
2. Contingent Fee Representation and Agreement	1
3. Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions	1
4. Organizational Conflicts of Interest Certification	2
5. Bidder's Certification of Eligibility	2
6. Minimum Bid Acceptance Period	2
7. Small, Minority, Women-Owned Business Concern Representation	2
8. Indian-Owned Economic Enterprise and Indian Organization Representation	2
9. Certification of Eligibility Under the Davis-Bacon Act	3
10. Certification of Nonsegregated Facilities	3
11. Clean Air and Water Certification	3
12. Previous Participation Certificate	3
13. Bidder's Signature	3

1. Certificate of Independent Price Determination

(a) The bidder certifies that--

(1) The prices in this bid have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to (i) those prices, (ii) the intention to submit a bid, or (iii) the methods or factors used to calculate the prices offered;

(2) The prices in this bid have not been and will not be knowingly disclosed by the bidder, directly or indirectly, to any other bidder or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a competitive proposal solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the bidder to induce any other concern to submit or not to submit a bid for the purpose of restricting competition.

(b) Each signature on the bid is considered to be a certification by the signatory that the signatory--

(1) Is the person in the bidder's organization responsible for determining the prices being offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

[insert full name of person(s) in the bidder's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the bidder's organization];

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(c) If the bidder deletes or modifies subparagraph (a)2 above, the bidder must furnish with its bid a signed statement setting forth in detail the circumstances of the disclosure.

[] [Contracting Officer check if following paragraph is applicable]

(d) Non-collusive affidavit. (applicable to contracts for construction and equipment exceeding \$50,000)

(1) Each bidder shall execute, in the form provided by the PHA/IHA, an affidavit to the effect that he/she has not colluded with any other person, firm or corporation in regard to any bid submitted in response to this solicitation. If the successful bidder did not submit the affidavit with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the affidavit by that date may render the bid nonresponsive. No contract award will be made without a properly executed affidavit.

(2) A fully executed "Non-collusive Affidavit" [] is, [] is not included with the bid.

2. Contingent Fee Representation and Agreement

(a) Definitions. As used in this provision:

"Bona fide employee" means a person, employed by a bidder and subject to the bidder's supervision and control as to time, place, and manner of performance, who neither exerts, nor proposes to exert improper influence to solicit or obtain contracts nor holds out as being able to obtain any contract(s) through improper influence.

"Improper influence" means any influence that induces or tends to induce a PHA/IHA employee or officer to give consideration or to act regarding a PHA/IHA contract on any basis other than the merits of the matter.

(b) The bidder represents and certifies as part of its bid that, except for full-time bona fide employees working solely for the bidder, the bidder:

(1) [] has, [] has not employed or retained any person or company to solicit or obtain this contract; and

(2) [] has, [] has not paid or agreed to pay to any person or company employed or retained to solicit or obtain this contract any commission, percentage, brokerage, or other fee contingent upon or resulting from the award of this contract.

(c) If the answer to either (a)(1) or (a)(2) above is affirmative, the bidder shall make an immediate and full written disclosure to the PHA/IHA Contracting Officer.

(d) Any misrepresentation by the bidder shall give the PHA/IHA the right to (1) terminate the contract; (2) at its discretion, deduct from contract payments the amount of any commission, percentage, brokerage, or other contingent fee; or (3) take other remedy pursuant to the contract.

3. Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions (applicable to contracts exceeding \$100,000)

(a) The definitions and prohibitions contained in Section 1352 of title 31, United States Code, are hereby incorporated by reference in paragraph (b) of this certification.

(b) The bidder, by signing its bid, hereby certifies to the best of his or her knowledge and belief as of December 23, 1989 that:

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of a contract resulting from this solicitation;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the bidder shall complete and submit, with its bid, OMB standard form LLL, "Disclosure of Lobbying Activities;" and

(3) He or she will include the language of this certification in all subcontracts at any tier and require that all recipients of subcontract awards in excess of \$100,000 shall certify and disclose accordingly.

(c) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision, shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000, for each such failure.

(d) Indian tribes (except those chartered by States) and Indian organizations as defined in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) are exempt from the requirements of this provision.

4. Organizational Conflicts of Interest Certification

The bidder certifies that to the best of its knowledge and belief and except as otherwise disclosed, he or she does not have any organizational conflict of interest which is defined as a situation in which the nature of work to be performed under this proposed contract and the bidder's organizational, financial, contractual, or other interests may, without some restriction on future activities:

- (a) Result in an unfair competitive advantage to the bidder; or,
- (b) Impair the bidder's objectivity in performing the contract work.

[] In the absence of any actual or apparent conflict, I hereby certify that to the best of my knowledge and belief, no actual or apparent conflict of interest exists with regard to my possible performance of this procurement.

5. Bidder's Certification of Eligibility

(a) By the submission of this bid, the bidder certifies that to the best of its knowledge and belief, neither it, nor any person or firm which has an interest in the bidder's firm, nor any of the bidder's subcontractors, is ineligible to:

(1) Be awarded contracts by any agency of the United States Government, HUD, or the State in which this contract is to be performed; or,

(2) Participate in HUD programs pursuant to 24 CFR Part 24.

(b) The certification in paragraph (a) above is a material representation of fact upon which reliance was placed when making award. If it is later determined that the bidder knowingly rendered an erroneous certification, the contract may be terminated for default, and the bidder may be debarred or suspended from participation in HUD programs and other Federal contract programs.

6. Minimum Bid Acceptance Period

(a) "Acceptance period," as used in this provision, means the number of calendar days available to the PHA/IHA for awarding a contract from the date specified in this solicitation for receipt of bids.

(b) This provision supersedes any language pertaining to the acceptance period that may appear elsewhere in this solicitation.

(c) The PHA/IHA requires a minimum acceptance period of [Contracting Officer insert time period] calendar days.

(d) In the space provided immediately below, bidders may specify a longer acceptance period than the PHA's/IHA's minimum requirement. The bidder allows the following acceptance period: calendar days.

(e) A bid allowing less than the PHA's/IHA's minimum acceptance period will be rejected.

(f) The bidder agrees to execute all that it has undertaken to do, in compliance with its bid, if that bid is accepted in writing within (1) the acceptance period stated in paragraph (c) above or (2) any longer acceptance period stated in paragraph (d) above.

7. Small, Minority, Women-Owned Business Concern Representation

The bidder represents and certifies as part of its bid/ offer that it --

(a) [] is, [] is not a small business concern. "Small business concern," as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding, and qualified as a small business under the criteria and size standards in 13 CFR 121.

(b) [] is, [] is not a women-owned business enterprise. "Women-owned business enterprise," as used in this provision, means a business that is at least 51 percent owned by a woman or women who are U.S. citizens and who also control and operate the business.

(c) [] is, [] is not a minority business enterprise. "Minority business enterprise," as used in this provision, means a business which is at least 51 percent owned or controlled by one or more minority group members or, in the case of a publicly owned business, at least 51 percent of its voting stock is owned by one or more minority group members, and whose management and daily operations are controlled by one or more such individuals. For the purpose of this definition, minority group members are:

(Check the block applicable to you)

- | | |
|------------------------|------------------------------|
| [] Black Americans | [] Asian Pacific Americans |
| [] Hispanic Americans | [] Asian Indian Americans |
| [] Native Americans | [] Hasidic Jewish Americans |

8. Indian-Owned Economic Enterprise and Indian Organization Representation (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

The bidder represents and certifies that it:

(a) [] is, [] is not an Indian-owned economic enterprise. "Economic enterprise," as used in this provision, means any commercial, industrial, or business activity established or organized for the purpose of profit, which is at least 51 percent Indian owned. "Indian," as used in this provision, means any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act.

(b) [] is, [] is not an Indian organization. "Indian organization," as used in this provision, means the governing body of any Indian tribe or entity established or recognized by such governing body. Indian "tribe" means any Indian tribe, band, group, pueblo, or

community including Native villages and Native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

9. Certification of Eligibility Under the Davis-Bacon Act (applicable to construction contracts exceeding \$2,000)

(a) By the submission of this bid, the bidder certifies that neither it nor any person or firm who has an interest in the bidder's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(b) No part of the contract resulting from this solicitation shall be subcontracted to any person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(c) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

10. Certification of Nonsegregated Facilities (applicable to contracts exceeding \$10,000)

(a) The bidder's attention is called to the clause entitled **Equal Employment Opportunity** of the General Conditions of the Contract for Construction.

(b) "Segregated facilities," as used in this provision, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin because of habit, local custom, or otherwise.

(c) By the submission of this bid, the bidder certifies that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The bidder agrees that a breach of this certification is a violation of the Equal Employment Opportunity clause in the contract.

(d) The bidder further agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) prior to entering into subcontracts which exceed \$10,000 and are not exempt from the requirements of the Equal Employment Opportunity clause, it will:

(1) Obtain identical certifications from the proposed subcontractors;

(2) Retain the certifications in its files; and

(3) Forward the following notice to the proposed subcontractors (except if the proposed subcontractors have submitted identical certifications for specific time periods):

Notice to Prospective Subcontractors of Requirement for Certifications of Nonsegregated Facilities

A Certification of Nonsegregated Facilities must be submitted before the award of a subcontract exceeding \$10,000 which is not exempt from the provisions of the Equal Employment Opportunity clause of the prime contract. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

Note: The penalty for making false statements in bids is prescribed in 18 U.S.C. 1001.

11. Clean Air and Water Certification (applicable to contracts exceeding \$100,000)

The bidder certifies that:

(a) Any facility to be used in the performance of this contract [] is, [] is not listed on the Environmental Protection Agency List of Violating Facilities:

(b) The bidder will immediately notify the PHA/IHA Contracting Officer, before award, of the receipt of any communication from the Administrator, or a designee, of the Environmental Protection Agency, indicating that any facility that the bidder proposes to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities; and,

(c) The bidder will include a certification substantially the same as this certification, including this paragraph (c), in every nonexempt subcontract.

12. Previous Participation Certificate (applicable to construction and equipment contracts exceeding \$50,000)

(a) The bidder shall complete and submit with his/her bid the Form HUD-2530, "Previous Participation Certificate." If the successful bidder does not submit the certificate with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the certificate by that date may render the bid nonresponsive. No contract award will be made without a properly executed certificate.

(b) A fully executed "Previous Participation Certificate" [] is, [] is not included with the bid.

13. Bidder's Signature

The bidder hereby certifies that the information contained in these certifications and representations is accurate, complete, and current.

(Signature and Date)

(Typed or Printed Name)

(Title)

(Company Name)

(Company Address)

AFFIDAVIT re CONTINGENT FEES

CITY OF _____)
ISLAND OF GUAM) ss.

_____ [state name of affiant signing below], being first duly sworn, deposes and says that:

1. The name of the offering company or individual is *[state name of company]*

2. As a part of the offering company's bid or proposal, to the best of my knowledge, the offering company has not retained any person or agency on a percentage, commission, or other contingent arrangement to secure this contract. This statement is made pursuant to 2 GAR Division 4 11108(f).

3. As a part of the offering company's bid or proposal, to the best of my knowledge, the offering company has not retained a person to solicit or secure a contract with the government of Guam upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, except for retention of bona fide employees or bona fide established commercial selling agencies for the purpose of securing business. This statement is made pursuant to 2 GAR Division 4 11108(h).

4. I make these statements on behalf of myself as a representative of the offeror, and on behalf of the offeror's officers, representatives, agents, subcontractors, and employees.

Signature of one of the following:

Offeror, if the offeror is an individual;
Partner, if the offeror is a partnership;
Officer, if the offeror is a corporation.

Subscribed and sworn to before me

this _____ day of _____, 201__.

NOTARY PUBLIC

My commission expires _____, _____.

Requirements for Compliance with Requirements of Section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. 1701u) (Section 3) Provisions of 24CFR 75

Overview of Section 3 Requirements

Section 3 is a provision of the Housing and Urban Development Act of 1968 (12 U.S.C. 1701u) that is regulated by the provisions of 24 CFR 75. Section 3 regulations ensure that employment and other economic opportunities generated by certain HUD financial assistance shall, to the greatest extent feasible, and consistent with existing Federal, State and local laws and regulations, be directed to low- and very low-income persons, particularly those who are recipients of government assistance for housing, and to business concerns which provide economic opportunities to low- and very low-income persons.

General Policy Statement:

It is the declared policy of GHURA that Equal Employment Opportunities shall be provided for every employee and applicant for employment regardless of race, color, religion, sex, national origin, handicap, or economic status; and, that through the award of contracts to contractors, vendors, and suppliers, that employment and business opportunities be created for residents of GHURA properties and other qualified low- and very low-income persons residing on the island of Guam. This policy does not end with the mere prohibition of discriminatory practices by programs receiving HUD financial assistance or contractors, subcontractors, and vendors contracting with GHURA. GHURA recognizes its obligation as well as the obligation of potential contractors, subcontractors, and vendors, to develop practical steps to achieve the goal of providing meaningful, full-time permanent employment opportunities, as well as business opportunities to GHURA Residents and other Section 3 eligible persons.

Such obligation shall be demonstrated not merely through inclusion of positive or “best effort” steps, but shall result in a reasonable level of success in the recruitment, employment, and utilization of GHURA Residents and other Section 3 eligible persons and businesses in the workforce and subcontracting of work resulting out of the expenditure of HUD funding. GHURA’s Board of Commission, through official resolution, shall examine and consider a contractor/vendor’s success in providing employment and business opportunities to Authority Residents prior to acting on any proposed contract award.

Eligibility:

Individuals and businesses that meet Section 3 criteria may seek Section 3 preference from GHURA or its contractors/subcontractors for training, employment, or contracting opportunities generated by [public housing financial assistance or housing and community development financial assistance]. To qualify as a Section 3 worker, Targeted Section 3 worker or a Section 3 business concern, each must self-certify that they meet the applicable criteria.

Businesses who *misrepresent* themselves as Section 3 business concerns and *report false* information to GHURA may have their contracts terminated as default and be barred from ongoing and future considerations for contracting opportunities.

Applicability:

For public housing financial assistance, all funding is covered, regardless of the amount of expenditure or size of a contract. This plan applies to development assistance, operating funds, capital funds, and all mixed-finance development. For housing and community development financial assistance, this plan applies to housing rehabilitation, housing construction, and other public construction projects that exceed \$200,000 or more of housing and community development financial assistance from one or more HUD programs. Applicability is determined at the project level.

For projects funded with Lead and Hazard Control and Healthy Homes Programs, this plan applies to projects that exceed \$100,000.

This plan also applies to projects that include multiple funding sources. Multiple funding source projects include projects that include public housing financial assistance, housing and community development financial assistance for single or multiple recipients, and the Lead Hazard Control and Healthy Homes Program.

Section 3 requirements do not apply to: 1) Material Supply Contracts - § 75.3(b), 2) Indian and Tribal Preferences - § 75.3(c), and 3) Other HUD assistance and other Federal assistance not subject to Section 3 §75.3 (d). However, for financial assistance that is not subject to Section 3, recipients are encouraged to consider ways to support the purpose of Section 3.

Purpose of this Policy and Compliance Plan:

The purposes of this Policy are to create sustained employment and other opportunities for Section 3 Beneficiaries and to assist Contractors in understanding their Section 3 obligations so that they can be successful in meeting the responsibilities of the Section 3 requirements. These purposes are accomplished through the guidance provided by GHURA and assistance provided by GHURA's Section 3 coordinator. This policy shall remain in effect for so long as it remains consistent with federal regulations or amended by GHURA's Board of Commissioners.

Numerical Goals for Section 3 Compliance:

Recipients and Contractors may demonstrate compliance with the "greatest extent feasible" requirement of Section 3 by meeting the numerical goals set forth in this Section 3 Program for providing training, employment, and contracting opportunities to Section 3 Residents and Section Business Concerns. Efforts to employ Section 3 Residents to the greatest extent feasible should be made at all job levels.

GHURA, in its own operations, shall endeavor to achieve the goals of Section 3 and shall provide equal responsibility to its contractors, vendors, and suppliers to implement progressive efforts to also attain compliance. In doing so, GHURA shall evaluate contractors' compliance towards achieving the goals of Section 3 and ensure a system of leveling sanctions against contractor, vendor, or supplier for non-compliance and endeavor to take appropriate steps to ensure any such concern is not permitted to participate in future GHURA procurement activities.

Section 3 Final Rule Benchmark Notice:

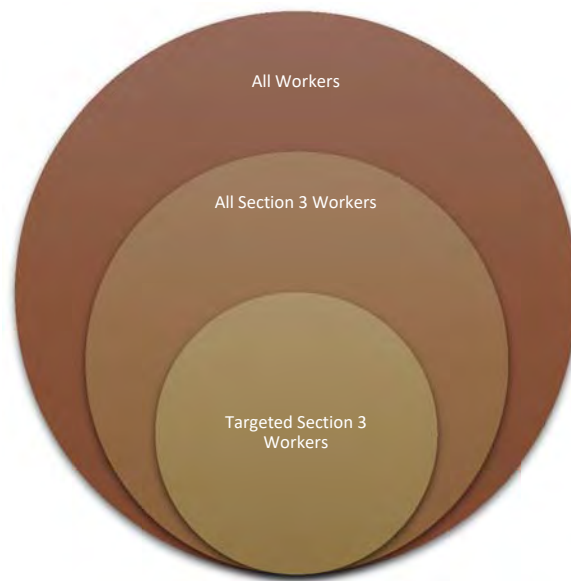
- 25% of all labor hours must be performed by a Section 3 worker.
- 5% of all labor hours must be performed by Targeted Section 3 workers

The numerical goals established above represent minimum numerical targets and all prospective contractors shall be advised and encouraged to seek Section 3 participation to the greatest extent feasible. Any contractor that meets the minimum numerical goals set forth above will be considered to have complied with the Section 3 requirements. Any contractor that does not meet the numerical goals set forth above has the burden of demonstrating why it was not feasible to meet the numerical goals. In the event no competing contractors were successful in meeting the minimum goals set forth above, GHURA shall consider documentation provided by the contractor evidencing impediments encountered despite actions taken to comply with the Section 3 Requirements. Such evidence shall be subject to the satisfaction of GHURA. Any contractor found to be in non-compliance with Section 3 shall be considered ineligible for award.

All contractors submitting bids/proposals to the GHURA shall be required to complete certifications, as appropriate, as acknowledgment of the Section 3 contracting and employment provisions as required by this section. Such certifications shall be supported with adequate evidence to support representations made. The certifications required to be submitted with the bid/proposal consist of the following:

- Certification for business concerns seeking Section 3 preference.
- Contractor certification of efforts to fully comply with employment and training provisions of Section 3.

Prior to the award of any contract the contractor shall enter into negotiations with GHURA for the purpose of incorporating into the contract a provision for a specific number of Public Housing residents or other Section 3 residents to be trained or employed on the contract. Such resulting provision shall obligate the contractor toward achieving not less than the numerical goals listed above and shall be based on a detailed workforce analysis to be compiled by the contractor and submitted to GHURA prior to award of contract.



Section 3 Worker and Targeted Section 3 Worker:

A Section 3 worker seeking certification shall submit self-certification documentation to the recipient contractor or subcontractor, that the person is a Section 3 worker or Targeted Section 3 worker as defined in 24 CFR Part 75. For the purposes of Section 3 worker eligibility, GHURA will use individual income rather than family/household income to determine eligibility.

Individual Income Limits		
FY2021 Income Limit Area	Income Limit Category	FY 2021 Income Limits
GUAM	Extremely Low Income Limits 30%	\$14,350
	Very Low Income Limits 50%	\$23,900
	Low Income Limits 80%	\$38,200

Persons seeking the Section 3 worker preference shall demonstrate that it meets one or more of the following criteria currently or when hired within the past five years, as documented:

- 1) A low or very low-income resident (the worker's income for the previous or annualized calendar year is below the income limit established by HUD); or
- 2) Employed by a Section 3 business concern; or
- 3) A YouthBuild participant.

Persons seeking the Targeted Section 3 worker preference shall demonstrate that it meets one or more of the following criteria:

(For public housing financial assistance)

- 1) Employed by a Section 3 business concern or
- 2) Currently meets or when hired met at least one of the following categories as documented within the past five years:
 - a) A resident of public housing; or
 - b) A resident of other public housing projects or Section 8-assisted housing; or

c) A YouthBuild participant.

(For housing and community development assistance)

1) Employed by a Section 3 business concern or

2) Currently meets or when hired met at least one of the following categories as documented within the past five years: a) Living within the service area or the neighborhood of the project, as defined in 24 CFR Part 75.5; or b) A YouthBuild participant.

Section 3 workers and Targeted Section 3 workers who are seeking preference in training and employment must submit the Section 3 Worker and Targeted Section 3 Worker Certification Form from the GHURA office.

Example of the Section 3 Worker and Targeted Section Worker form is as follows:

Exhibit 1

Section 3 Worker and Targeted Section 3 Worker Self-Certification Form

The purpose of HUD's Section 3 program is to provide employment, training and contracting opportunities to low-income individuals, particularly those who are recipients of government assistance for housing or other public assistance programs. Your response is voluntary, confidential, and has no effect on your employment.

Eligibility for Section 3 Worker or Targeted Section 3 Worker Status:
A Section 3 worker seeking certification shall self-certify and submit this form to the recipient contractor or subcontractor, that the person is a Section 3 worker or Targeted Section 3 Worker as defined in 24 CFR Part 75.

Instructions: Enter/select the appropriate information to confirm your Section 3 worker or Targeted Section 3 Worker status.

Employee Name: _____

1. Are you a resident of public housing or a Housing Choice Voucher Holder (Section 8)? ☐ Yes ☐ No

2. Are you a resident of GUAM? ☐ Yes ☐ No

In the field below, select the amount of individual income you believe you earn on an annual basis.

☐ Less than \$10,000 ☐ \$10,001 - \$20,000 ☐ \$20,001 - \$30,000 ☐ \$30,001 - \$40,001 ☐ \$40,001 - \$50,000 ☐ \$50,001 - \$60,000 ☐ More than \$60,000

Select from ONE of the following two options below:

I qualify as a:

☐ Section 3 Worker (as defined on page 3 of Section 3 Worker Certification Form)

☐ Targeted Section 3 Worker (as defined on page 3 of Section 3 Worker Certification Form)

Employee Affirmation

I affirm that the above statements on this form are true, complete, and correct to the best of my knowledge and belief. I hereby certify, under penalty of law, that the following information is correct to the best of my knowledge.

Employee Address: _____ Date Hired: _____

Print Name: _____ Signature: _____ Date: _____

FOR ADMINISTRATIVE USE ONLY

Is the employee a Section 3 worker based upon their self-certification? ☐ Yes ☐ No

Is the employee a Targeted Section 3 worker based upon their self-certification? ☐ Yes ☐ No

Was this an applicant who was hired as a result of the Section 3 project? ☐ Yes ☐ No

If Yes, what is the name of the company? _____

What was the date of hire? _____

EMPLOYERS MUST RETAIN THIS FORM IN THEIR SECTION 3 COMPLIANCE FILE FOR FIVE YEARS.

Section 3 Program Participant Certification Procedure:

GHURA will certify Section 3 program participants who reside in GUAM or near the project site and who are seeking preference in training and employment by completing and attaching adequate proof of Section 3 eligibility as required (see Exhibit 1- Section 3 Participant Eligibility for Preference Form).

1. All persons living in GUAM or within the required radius of the project site who meet the Section 3 eligibility guidelines.
2. Once this assessment is complete, the Section 3 Coordinator will determine if the individual needs the eligibility requirements and is job ready.
3. If the individual is deemed eligible for Section 3 participation and deemed not ready for employment, a referral will be made to other agencies that are better equipped to address the individual's needs, ie., substance abuse providers, etc.
4. The Section 3 readiness component is a part of GHURA's commitment to provide economic opportunities and training to residents/eligible participants to become gainfully employed.

Section 3 Business Concern Certification:

Businesses that believe they meet the Section 3 Business requirements can may self-register in the HUD Business registry, here: <http://www.hud.gov/Sec3Biz>. Businesses may seek Section 3 Business Concern preference by

demonstrating that it meets one or more of the following criteria:

- 1) At least 51 percent of the business is owned and controlled by low- or very low-income persons; or
- 2) At least 51 percent of the business is owned and controlled by current public housing residents or residents who currently live in Section 8-assisted housing; or
- 3) Over 75 percent of the labor hours performed for the business over the prior three-month period are performed by Section 3 workers.

Businesses that seek Section 3 preference shall certify, or demonstrate to GHURA contractors or subcontractors, that they meet the definitions provided in the above. Businesses may demonstrate eligibility by submitting the Section 3 Business Concern Certification Form, located at the GHURA office.

Section 3 Business Concern Certification Forms must be submitted at the time of bid/proposal. If GHURA previously approved the business concern to be Section 3 certified, then the certification can be submitted along with the bid, as long as the form is submitted within the prescribed expiration date. The Section 3 Business Concern Certification Form will expire after **12 months**. Establishing a **12 month certification** of eligibility period allows GHURA the ability to assess contractor performance to ensure the business is striving to meet the required goals.

Note: While registering as a Section 3 Business Concern may give a business certain preferences, such registration is not a guarantee of such preferences that the business will be awarded any contractors or subcontracts by GHURA or its contractors/vendors.

Example of a Certification for Business Concerns Seeking Section 3 Preference form is located below:

Exhibit 2

Certification for Business Concerns Seeking Section 3 Preference in Contracting and Demonstration of Capability	
Business Information	
Name of Business:	
Address of Business:	
Name of Business Owner:	
Phone Number of Business Owner:	
Email Address of Business Owner:	
Preferred Contact Information	
Same as above:	<input type="checkbox"/>
Name of Preferred Contact:	
Phone Number of Preferred Contact:	
Type of Business (select from the following options):	
<input type="checkbox"/> Corporation	<input type="checkbox"/> Partnership
<input type="checkbox"/> Sole Proprietorship	<input type="checkbox"/> Joint Venture
Select from ONE of the following three options below that applies:	
<input type="checkbox"/> At least 51 percent of the business is owned and controlled by low- or very low-income persons (Refer to income guidelines on page 3)	
<input type="checkbox"/> At least 51 percent of the business is owned and controlled by current public housing residents or residents who currently live in Section 8-assisted housing	
<input type="checkbox"/> Over 75 percent of the labor hours performed for the business over the prior three-month period are performed by Section 3 workers (Refer to definition on page 3)	
Business Concern Affirmation	
I affirm that the above statements on this form are true, complete, and correct to the best of my knowledge and belief. I understand that businesses who misrepresent themselves as Section 3 business concerns and report false information to (insert name of recipient/grantee) may have their contracts terminated as default and be barred from ongoing and future considerations for contracting opportunities. I hereby certify, under penalty of law, that the following information is correct to the best of my knowledge.	
Print Name:	
Signature:	Date:
<small>*Certification expires within six months of the date of signature information regarding Section 3 Business Concerns can be found at 24 CFR 73.3</small>	
FOR ADMINISTRATIVE USE ONLY	
Is the business a Section 3 business concern based upon their certification?	
<input type="checkbox"/> Yes <input type="checkbox"/> No	
EMPLOYERS MUST RETAIN THIS FORM IN THEIR SECTION 3 COMPLIANCE FILE FOR FIVE YEARS.	

GHURA SECTION 3 FORM-018
100.1

GHURA SECTION 3 FORM-018
100

Section 3 Recruitment and New hires:

Contractors are expected to make best efforts to achieve the benchmarks and Section 3 Worker priorities outlined in this Policy and at 24 CFR Part 75. This section provides guidance for the recruitment of New Hires who are Section 3 Workers and Targeted Section 3 Workers to assist Contractors in meeting their benchmarks and obligations.

A. Recruitment Efforts:

1. GHURA maintains a database of employment-ready Section 3 Workers/Targeted Section 3 Workers who meet certain minimum qualifications for various categories of employment. Upon receipt of a completed Section 3 Job Order Form from Contractor/Subcontractor, GHURA will provide referrals of qualified candidates from the database. Contractors are expected to provide GHURA with the Section 3 Job Order Form in sufficient time to identify prospective candidates, prepare and refer them for interviews and secure employment in advance project commencement.
2. Contractors/Subcontractors are also to advertise Job Announcements within the project site area. Please see Exhibit 3.
3. Upon receipt of a Section 3 Job Order Form, GHURA will refer qualified candidates for interview for each available position. Contractors are expected to give each referred candidate full consideration for available positions.
4. Independent of GHURA's efforts and referrals, Contractors shall engage in independent employment recruitment efforts and follow the Section 3 Worker and Targeted Section 3 Worker order in of hiring priority as identified in this policy.
5. Contractors shall submit to GHURA their interview notes, including reasons for denial of employment or training opportunity in the future, as applicable.

B. Section 3 Worker and Targeted Section 3 Worker New Hires:

1. All Section 3 Worker and Targeted Section 3 Worker New Hires shall be employees of the Contractor and shall have all the protections afforded to employees under state, federal and local laws. Contractors are expected to impose the same hiring requirements and personnel rules and policies upon Section 3 Worker New Hires as are imposed upon their other employment candidates and employees. GHURA expects and requires Contractors to abide by equal pay for equal work principles.
2. Contractors are required to report to GHURA within five (5) business days of hiring Section 3 Workers and Targeted Section 3 Workers and shall provide to GHURA a completed Section 3 Worker and Targeted Section 3 Worker form.

C. Apprenticeship Programs:

1. Contractors who employ apprentices are required to utilize apprenticeship programs approved by the Federal Department of Labor (DOL)
2. Contractors who employ apprentices on construction projects that are subject to the Davis-Bacon Wage Act are required to adhere to all legal requirements for wage rates and ratios of apprentices to journeymen set forth.

D. Limitations:

Contractors retain the sole discretion and control over any hiring and personnel decisions. GHURA cannot and will not exercise any control over any of the Contractor's employees, including New Hires, regardless of whether they were referred by GHURA or are Section 3 Workers/Targeted Section 3 Workers recruited through other means.

Safe Harbor Compliance: 25% of total hours or 5% of hours contracted to targeted workers:

It is the responsibility of contractors to implement efforts to achieve Section 3 compliance. Any contractor that does not meet the Section 3 benchmarks must demonstrate why meeting the benchmarks were not feasible. All contractors submitting bids or proposals to GHURA are required to certify that they will comply with the requirements of Section 3.

Good Faith and Qualitative Efforts:

Qualitative efforts to satisfy its benchmark goals, which may include, but are not limited to the following:

1. Engaging in outreach efforts to generate job applicants who are Targeted Section 3 Workers, including notifying GHURA's Section 3 Coordinator, posting job openings at the job site, HUD Opportunity Portal, social media pages, contacting Resident Advisory Councils, and other platforms;
2. Contacting agencies administering Department of Labor YouthBuild Programs, and requesting their assistance in recruiting Department of Labor YouthBuild Program participants for training opportunities and employment positions;
3. Consulting with state and local agencies administering training programs, such as those funded through Workforce Investment Act, unemployment compensation programs, community organizations and other officials or organizations to assist with training and recruiting Section 3 Workers and Targeted Section 3 Workers;
4. Holding job fairs;
5. Providing or connecting Section 3 Workers and Targeted Section 3 Workers with assistance in seeking employment, including: drafting resumes, preparing for interviews, and finding job opportunities connecting residents to job placement services;
6. Providing or referring Section 3 Workers to services supporting work readiness and retention (e.g., work readiness activities, interview clothing, test fees, transportation, child care);
7. Assisting Section 3 Workers to obtain financial literacy training and/or coaching;
8. Engaging in outreach efforts to identify and secure bids from Section 3 Business Concerns.
9. Providing technical assistance to help Section 3 Business Concerns understand and bid on contracts;
10. Dividing contracts into smaller jobs to facilitate participation by Section 3 Business Concerns;
11. Providing bonding assistance, guaranties, or other efforts to support viable bids from Section 3 Business Concerns;
12. Promoting use of Section 3 Business Registries designed to create opportunities for Section 3, disadvantaged and small businesses

Documented Efforts:

Contractors shall document efforts taken to recruit and interview Section 3 Workers/Targeted Section 3 Workers for hire and shall, upon reasonable request, provide GHURA with documentation that demonstrates such efforts, including interview notes, which shall include reasons for denial of employment or other actions as applicable.

Lack of Compliance:

A Contractor's failure to satisfy the requirements of this section may result in GHURA's determination that the Contractor has failed to demonstrate good faith and qualitative efforts to comply with the requirements of Section 3 and this Policy, and may subject Contractor to the penalties for default.

Reporting Requirements:

For Section 3 covered contracts, contractors must submit the Section 3 Performance and Summary Report to GHURA's Section 3 Coordinator on a monthly basis, and the annual reporting requirement set forth in that form's instructions.

1) Monthly Reporting -

- i) Contractors are required to submit monthly activity reports to GHURA's Section 3 Coordinator alicej@ghura.org by the 30th day of each month

2) Annual Reporting -

- i) Once a project is completed, contractors must submit a final Section 3 cumulative report for the program year.
- ii) Upon the completion of a project, GHURA's Section 3 Coordinator will conduct a final review of the project's overall performance and compliance.
- iii) GHURA's Section 3 Coordinator will submit the Section 3 data into required reporting system to HUD at the respective reporting period.

Internal Section 3 Complaint Procedure:

In an effort to resolve complaints generated due to non-compliance through an internal process, GHURA encourages submittal of such complaints to its Section 3 Coordinator as follows:

- 1) Complaints of non-compliance should be filed in writing and must contain the name of the complainant and brief description of the alleged violation of 24 CFR Part 75.
- 2) Complaints must be filed within 14 calendar days after the complainant becomes aware of the alleged violation.
- 3) An investigation will be conducted if complaint is found to be valid. GHURA will conduct an informal, but thorough investigation affording all interested parties, if any, an opportunity to submit testimony and/or evidence pertinent to the complaint.
- 4) GHURA will provide written documentation detailing the findings of the investigation. GHURA will review the findings for accuracy and completeness before it is released to complainants. The findings will be made available no later than 30 days after the filing of complaint. If complainants wish to have their concerns considered outside of GHURA a complaint may be filed with:

The HUD program office responsible for the public housing financial assistance or the Section 3 project, or to the local HUD field office. These offices can be found through the HUD website, www.hud.gov/.

Appendices A: Definitions

The terms **HUD, Public housing, and Public Housing Agency (PHA)** are defined in 24 CFR part 5.

The following definitions also apply to 24 CFR Part 75 HUD's Economic Opportunities for Low-and Very Low-Income Persons:

1937 Act means the United States Housing Act of 1937, 42 U.S.C. 1437 et seq. activities related to Public Housing

Contractor means any entity entering into a contract with:

- (1) A recipient to perform work in connection with the expenditure of public housing financial assistance or for work in connection with a Section 3 project; or
- (2) A sub recipient for work in connection with a Section 3 project.

Labor hours means the number of paid hours worked by persons on a Section 3 project or by persons employed with funds that include public housing financial assistance.

Low-income person means a person as defined in Section 3(b)(2) of the 1937 Act, at or below 80% AMI. Note that Section 3 worker eligibility uses individual income rather than family/household income.

Material supply contracts means contracts for the purchase of products and materials, including, but not limited to, lumber, drywall, wiring, concrete, pipes, toilets, sinks, carpets, and office supplies.

Professional services means non-construction services that require an advanced degree or professional licensing, including, but not limited to, contracts for legal services, financial consulting, accounting services, environmental assessment, architectural services, and civil engineering services.

Public housing financial assistance means assistance as defined in 24 CFR Part 75.3(a)(1).

Public housing project is defined in 24 CFR 905.108.

Recipient means any entity that receives directly from HUD public housing financial assistance or housing and community development assistance that funds Section 3 projects, including, but not limited to, any State, local government, instrumentality, PHA, or other public agency, public or private nonprofit organization.

Section 3 means Section 3 of the Housing and Urban Development Act of 1968, as amended (12 U.S.C. 1701u).
Section 3 business concern means:

- (1) A business concern meeting at least one of the following criteria, documented within the last six-month period:
 - (i) It is at least 51 percent owned and controlled by low- or very low-income persons;
 - (ii) Over 75 percent of the labor hours performed for the business over the prior three-month period are performed by Section 3 workers; or
 - (iii) It is a business at least 51 percent owned and controlled by current public housing residents or residents who currently live in Section 8-assisted housing.
- (2) The status of a Section 3 business concern shall not be negatively affected by a prior arrest or conviction of its owner(s) or employees.
- (3) Nothing in this part shall be construed to require the contracting or subcontracting of a Section 3 business concern. Section 3 business concerns are not exempt from meeting the specifications of the contract.

Section 8-assisted housing refers to housing receiving project-based rental assistance or tenant-based assistance under Section 8 of the 1937 Act.

Service area or the neighborhood of the project means an area within one mile of the Section 3 project or, if fewer than 5,000 people live within one mile of a Section 3 project, within a circle centered on the Section 3 project that is sufficient to encompass a population of 5,000 people according to the most recent U.S. Census.

Subcontractor means any entity that has a contract with a contractor to undertake a portion of the contractor's obligation to perform work in connection with the expenditure of public housing financial assistance or for a Section 3 project.

Subrecipient has the meaning provided in the applicable program regulations or in 2 CFR 200.93.

Targeted Section 3 worker has the meanings provided in 24 CFR Part 75.11, 75.21, or 75.29, and does not exclude an individual that has a prior arrest or conviction.

Very low-income person means the definition for this term set forth in section 3(b) (2) of the 1937 Act (at or below 50% AMI)

YouthBuild programs refers to YouthBuild programs receiving assistance under the Workforce Innovation and Opportunity Act (29 U.S.C. 3226).

Section 3 Worker and Targeted Section 3 Worker Self-Certification Form

The purpose of HUD's Section 3 program is to provide employment, training and contracting opportunities to low-income individuals, particularly those who are recipients of government assistance for housing or other public assistance programs. **Your response is voluntary, confidential, and has no effect on your employment.**

Eligibility for Section 3 Worker or Targeted Section 3 Worker Status

A Section 3 worker seeking certification shall self-certify and submit this form to the recipient contractor or subcontractor, that the person is a Section 3 worker or Targeted Section 3 Worker as defined in 24 CFR Part 75.

Instructions: Enter/select the appropriate information to confirm your Section 3 worker or Targeted Section 3 Worker status.

Employee Name: _____

1. Are you a resident of public housing or a Housing Choice Voucher Holder (Section 8) ☐ Yes ☐ No
2. Are you a resident of GUAM)? ☐ Yes ☐ No

In the field below, select the amount of individual income you believe you earn on an annual basis.

- | | | |
|--|---|---|
| <input type="checkbox"/> Less than \$10,000 | <input type="checkbox"/> \$30,001- \$40,001 | <input type="checkbox"/> More than \$60,000 |
| <input type="checkbox"/> \$10,001 - \$20,000 | <input type="checkbox"/> \$40,001- \$50,000 | |
| <input type="checkbox"/> \$20,001 - \$30,000 | <input type="checkbox"/> \$50,001- \$60,000 | |

Select from ONE of the following two options below:

I qualify as a:

- ☐ Section 3 Worker (as defined on page 3 of Section 3 Worker Certification Form)
- ☐ Targeted Section 3 Worker (as defined on page 3 of Section 3 Worker Certification Form)

Employee Affirmation	
<p>I affirm that the above statements on this form are true, complete, and correct to the best of my knowledge and belief. I hereby certify, under penalty of law, that the following information is correct to the best of my knowledge.</p>	
<p>Employee Address: _____</p>	
<p>Print Name: _____</p>	<p>Date Hired: _____</p>
<p>Signature: _____</p>	<p>Date: _____</p>

FOR ADMINISTRATIVE USE ONLY	
<p>Is the employee a Section 3 worker based upon their self-certification?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>Is the employee a Targeted Section 3 worker based upon their self-certification?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>Was this an applicant who was hired as a result of the Section 3 project?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>If Yes, what is the name of the company? _____</p>	
<p>What was the date of hire? _____</p>	
<p>EMPLOYERS MUST RETAIN THIS FORM IN THEIR SECTION 3 COMPLIANCE FILE FOR FIVE YEARS.</p>	

Certification for Business Concerns Seeking Section 3 Preference in Contracting and Demonstration of Capability

Business Information	
Name of Business:	
Address of Business:	
Name of Business Owner :	
Phone Number of Business Owner:	
Email Address of Business Owner :	

Preferred Contact Information	
Same as above: <input type="checkbox"/>	
Name of Preferred Contact:	
Phone Number of Preferred Contact:	

Type of Business (select from the following options):

- ☐ Corporation

 ☐ Partnership

 ☐ Sole Proprietorship

 ☐ Joint Venture

Select from ONE of the following three options below that applies:

- ☐ At least 51 percent of the business is owned and controlled by low- or very low-income persons (Refer to income guidelines on page 3)
- ☐ At least 51 percent of the business is owned and controlled by current public housing residents or residents who currently live in Section 8-assisted housing.
- ☐ Over 75 percent of the labor hours performed for the business over the prior three-month period are performed by Section 3 workers (Refer to definition on page 3).

Business Concern Affirmation

I affirm that the above statements on this form are true, complete, and correct to the best of my knowledge and belief. I understand that businesses who misrepresent themselves as Section 3 business concerns and report false information to GHURA may have their contracts terminated as default and be barred from ongoing and future considerations for contracting opportunities. I hereby certify, under penalty of law, that the following information is correct to the best of my knowledge.

Print Name:

Signature:

Date:

**Certification expires within six months of the date of signature Information regarding Section 3 Business Concerns can be found at [24 CFR 75.5](#)*

FOR ADMINISTRATIVE USE ONLY

Is the business a Section 3 business concern based upon their certification?

☐ Yes

☐ No

EMPLOYERS MUST RETAIN THIS FORM IN THEIR SECTION 3 COMPLIANCE FILE FOR FIVE YEARS.

JOB POSTING

We're looking for:

Laborer

Carpenter

Mason

Certified Mechanics

Email your resume and apply at example@mail.com

Inquire at:

(Phone number)

(Address here)

Contractor Certification to Efforts to Fully Comply with Employment and Training Provisions of Section 3 Provisions of 24CFR 75

The bidder represents and certifies as part of its bid/offer the following:

☐ Section 3 Business concern and has submitted the required certification with the bid. A Section 3 Business concern means a business concern:

- 1) At least 51 percent of the business is owned and controlled by low- or very low-income persons; or
- 2) At least 51 percent of the business is owned and controlled by current public housing residents or residents who currently live in Section 8-assisted housing; or
- 3) Over 75 percent of the labor hours performed for the business over the prior three-month period are performed by Section 3 workers.

☐ I am not a Section 3 Business concern but who has and will continue to seek compliance with Section 3 by certifying to the following efforts to be undertaken.

Efforts to award subcontractor to Section 3 concerns (*Check all that apply*)

☐ Contacting business assistance agencies, minority contractors associations and community organizations to inform them of the contracting opportunities and requesting their assistance in identifying Section 3 businesses which may solicit bids for a portion of the work.

☐ Advertising contracting opportunities by posting notices, which provide general information about the work to be contracted and where to obtain additional information, in the common areas of the applicable development(s) owned and managed by the Housing Authority.

☐ Providing written notice to all known Section 3 business concerns of contracting opportunities. This notice should be in sufficient time to allow the Section 3 business concerns to respond to bid invitations

☐ Following up with Section 3 business concerns that have expressed interest in the contracting opportunities

☐ Coordinating meetings at which Section 3 business concerns could be informed of specific elements of the work for which subcontract bids are being sought

☐ Conducting workshops on contracting procedures and specific contracting opportunities in a timely manner so that Section 3 business concerns can take advantage of contracting opportunities

☐ Advising Section 3 business concerns as to where they may seek assistance to overcome barriers such as inability to obtain bonding, lines of credit, financing, or insurance, and aiding Section 3 businesses in qualifying for such bonding, financing, insurance, etc.

☐ Where appropriate, by breaking out contract work into economically feasible units to facilitate participation by Section 3 businesses

☐ Entering into a "first source" hiring agreements with organizations representing Section 3 residents

Exhibit 4

- ☐ Establishing training programs, which are consistent with the requirements of the Department of Labor, specifically for Section 3 residents in the building trades
- ☐ Advertising employment and training positions to dwelling units
- ☐ Contacting resident councils and other resident organizations in the affected housing development to request assistance in notifying residents of the training and employment positions to be filled
- ☐ Undertaking such continued job training efforts as may be necessary to ensure the continued employment of Section 3 residents previously hired for employment opportunities.

Section 3 Efforts to comply affirmation

I affirm that the above statements on this form are true, complete, and correct to the best of my knowledge and belief. I understand that businesses who misrepresent themselves as Section 3 business concerns and report false information to GHURA may have their contracts terminated as default and be barred from ongoing and future considerations for contracting opportunities. I hereby certify, under penalty of law, that the following information is correct to the best of my knowledge.

Print Name & Title:

Signature:

Date:

Bidder/offeror, if the Bidder/offeror is an Individual Partner, if the Bidder/offeror is a Partnership Officer, if the Bidder/offeror is a Corporation

Print Name & Title:

Signature:

Date:

Bidder/offeror, if the Bidder/offeror is an Individual Partner, if the Bidder/offeror is a Partnership Officer, if the Bidder/offeror is a Corporation

**Certification expires within six months of the date of signature Information regarding Section 3 can be found at [24 CFR 75.5](#)*

FOR ADMINISTRATIVE USE ONLY

Is the business a Section 3 compliance based upon their certification?

☐ Yes

☐ No

EMPLOYERS MUST RETAIN THIS FORM IN THEIR SECTION 3 COMPLIANCE FILE FOR FIVE YEARS.

GHURA Section 3 Job Order Form

The following job order shall be completed by vendors to request assistance in recruiting Section 3 Workers when they have new hire needs. The form should be submitted to the Section 3 Compliance Coordinator (ccabral@ghura.org) as soon as the contractor is aware of the hiring need. GHURA will use the form to identify and recruit candidates to fill the position. A separate job order must be completed for each position title.

This job order is not a substitute for recruitment efforts by the contractor/subcontractor. You are encouraged to engage in independent outreach efforts, including posting this job opening at the job site and posting at HUD Opportunity Portal. For hiring priorities, refer to your contract, or inquire with the Section 3 Compliance Administrator.

PART I: CONTRACTOR INFORMATION:

Contractor Name:	Project Description:	GHURA Contract Number
Point of Contact Title :	Telephone:	Email:
Work/Project Start Date	Work/Project End Date:	Notes:

PART II: JOB DETAILS:

Job Title:	Job Start Date:	Job End Date:
Job Location:	Pay Rate:	Required Skills/Experience:
Required Licenses/Certifications:	Work Hours/Days:	

PART III: CONTRACTOR EFFORTS:

Would your business be able to provide training or refer the Section 3 Worker to a local agency administering training programs?	<input type="checkbox"/> Yes <input type="checkbox"/> No
--	--

This form was completed by:

Name :

Date :

Signature:

Contractor Certification to Efforts to Fully Comply with Employment and Training Provisions of Section 3 Provisions of 24CFR 75

The bidder represents and certifies as part of its bid/offer the following:

☐ Section 3 Business concern and has submitted the required certification with the bid. A Section 3 Business concern means a business concern:

- 1) At least 51 percent of the business is owned and controlled by low- or very low-income persons; or
- 2) At least 51 percent of the business is owned and controlled by current public housing residents or residents who currently live in Section 8-assisted housing; or
- 3) Over 75 percent of the labor hours performed for the business over the prior three-month period are performed by Section 3 workers.

☐ I am not a Section 3 Business concern but who has and will continue to seek compliance with Section 3 by certifying to the following efforts to be undertaken.

Efforts to award subcontractor to Section 3 concerns (*Check a minimum of two items*)

☐ Contacting business assistance agencies, minority contractors associations and community organizations to inform them of the contracting opportunities and requesting their assistance in identifying Section 3 businesses which may solicit bids for a portion of the work.

☐ Advertising contracting opportunities by posting notices, which provide general information about the work to be contracted and where to obtain additional information, in the common areas of the applicable development(s) owned and managed by the Housing Authority.

☐ Providing written notice to all known Section 3 business concerns of contracting opportunities. This notice should be in sufficient time to allow the Section 3 business concerns to respond to bid invitations

☐ Following up with Section 3 business concerns that have expressed interest in the contracting opportunities

☐ Coordinating meetings at which Section 3 business concerns could be informed of specific elements of the work for which subcontract bids are being sought

☐ Conducting workshops on contracting procedures and specific contracting opportunities in a timely manner so that Section 3 business concerns can take advantage of contracting opportunities

☐ Advising Section 3 business concerns as to where they may seek assistance to overcome barriers such as inability to obtain bonding, lines of credit, financing, or insurance, and aiding Section 3 businesses in qualifying for such bonding, financing, insurance, etc.

☐ Where appropriate, by breaking out contract work into economically feasible units to facilitate participation by Section 3 businesses

☐ Entering into a "first source" hiring agreements with organizations representing Section 3 residents

- ☐ Establishing training programs, which are consistent with the requirements of the Department of Labor, specifically for Section 3 residents in the building trades
- ☐ Advertising employment and training positions to dwelling units
- ☐ Contacting resident councils and other resident organizations in the affected housing development to request assistance in notifying residents of the training and employment positions to be filled
- ☐ Undertaking such continued job training efforts as may be necessary to ensure the continued employment of Section 3 residents previously hired for employment opportunities.

Section 3 Efforts to comply affirmation

I affirm that the above statements on this form are true, complete, and correct to the best of my knowledge and belief. I understand that businesses who misrepresent themselves as Section 3 business concerns and report false information to GHURA may have their contracts terminated as default and be barred from ongoing and future considerations for contracting opportunities. I hereby certify, under penalty of law, that the following information is correct to the best of my knowledge.

Print Name & Title:

Signature:

Date:

Bidder/offeror, if the Bidder/offeror is an Individual Partner, if the Bidder/offeror is a Partnership Officer, if the Bidder/offeror is a Corporation

Print Name & Title:

Signature:

Date:

Bidder/offeror, if the Bidder/offeror is an Individual Partner, if the Bidder/offeror is a Partnership Officer, if the Bidder/offeror is a Corporation

**Certification expires within six months of the date of signature Information regarding Section 3 can be found at [24 CFR 75.5](#)*

FOR ADMINISTRATIVE USE ONLY

Is the business a Section 3 compliance based upon their certification?

☐ Yes ☐ No

EMPLOYERS MUST RETAIN THIS FORM IN THEIR SECTION 3 COMPLIANCE FILE FOR FIVE YEARS.

Certification for Business Concerns Seeking Section 3 Preference in Contracting and Demonstration of Capability

Business Information	
Name of Business:	
Address of Business:	
Name of Business Owner :	
Phone Number of Business Owner:	
Email Address of Business Owner :	

Preferred Contact Information	
Same as above: <input type="checkbox"/>	
Name of Preferred Contact:	
Phone Number of Preferred Contact:	

Type of Business (select from the following options):

☐ Corporation ☐ Partnership ☐ Sole Proprietorship ☐ Joint Venture

Select from ONE of the following three options below that applies:

- ☐ At least 51 percent of the business is owned and controlled by low- or very low-income persons (Refer to income guidelines on page 3)
- ☐ At least 51 percent of the business is owned and controlled by current public housing residents or residents who currently live in Section 8-assisted housing.
- ☐ Over 75 percent of the labor hours performed for the business over the prior three-month period are performed by Section 3 workers (Refer to definition on page 3).
- ☐ N/A if the bidder is not claiming Section 3 preference.

Business Concern Affirmation

I affirm that the above statements on this form are true, complete, and correct to the best of my knowledge and belief. I understand that businesses who misrepresent themselves as Section 3 business concerns and report false information to GHURA may have their contracts terminated as default and be barred from ongoing and future considerations for contracting opportunities. I hereby certify, under penalty of law, that the following information is correct to the best of my knowledge.

Print Name:

Signature:

Date:

**Certification expires within six months of the date of signature Information regarding Section 3 Business Concerns can be found at [24 CFR 75.5](#)*

FOR ADMINISTRATIVE USE ONLY

Is the business a Section 3 business concern based upon their certification?

☐ Yes

☐ No

EMPLOYERS MUST RETAIN THIS FORM IN THEIR SECTION 3 COMPLIANCE FILE FOR FIVE YEARS.

The Guam Housing and Urban Renewal Authority Section 3 Income Limits

Eligibility Guidelines

The workers income must be at or below the amount provided below for an individual (household of 1) regardless of actual household size.

Individual Income Limits		
FY20__ Income Limit Area	Income Limits Category	FY20__ Income Limits
GUAM	Extremely Low Income Limits 30%	\$14,350
	Very Low Income Limits 50%	\$23,900
	Low Income Limits 80%	\$38,200

Section 3 Worker Definition:

- A low or very low-income resident (the worker's income for the previous or annualized calendar year is below the income limit established by HUD); or
- Employed by a Section 3 business concern; or
- A Youth Build participant

Targeted Section 3 Worker Definition:

- Employed by a Section 3 business concern or
- Currently meets or when hired met at least one of the following categories as documented within the past five years:
 - A resident of public housing; or
 - A resident of other public housing projects or Section 8-assisted housing; or
 - A YouthBuild participant.

Law to be Observed

1. The Proposer is to be familiar with federal and local laws, codes, ordinances, and regulations which, in any manner, affect those engaged or employed in the work or the material or equipment used in or upon the site, or in any way affect the conduct of the work. No place of misunderstanding or ignorance on the part of the Arbitrator will in any way serve to modify the provision of the contract.

2. Restriction Against Contractors Employing Convicted Sex Offenders from Working at Government of Guam Venues. (§5253 of Title 5 Guam Code Annotated).

(a) No person convicted of a sex offense under the provisions of Chapter 25 of Title 9 Guam Code Annotated, or an offense as defined in Article 2 of Chapter 28, Title 9 GCA in Guam, or an offense in any jurisdiction which includes, at a minimum all of the elements of said offenses, or who is listed on the Sex Offender Registry, and who is employed by a business contracted to perform services for an agency or instrumentality of the Government of Guam other than a public highway;

By submission of this bid or offer, each Vendor and each person signing on behalf of any Vendor certifies, and in the case of a joint bids or offers each party thereto certifies as to its own organization, under penalty of perjury, that to the best of his knowledge and belief will be in compliance:

Print Name:

Print Name:

Signature:

Signature:

Title:

Bidder/offeror, if the Bidder/offeror is an Individual
Partner, if the Bidder/offeror is a Partnership
Officer, if the Bidder/offeror is a Corporation

Title:

Bidder/offeror, if the Bidder/offeror is an Individual
Partner, if the Bidder/offeror is a Partnership
Officer, if the Bidder/offeror is a Corporation

Company Name: _____

Company Name: _____

Date: _____

Date: _____

Bidder's Qualifications

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, add separate sheets for items requiring additional explanation. This information may be submitted in a separate sealed envelope marked **CONFIDENTIAL** "Bidder's Qualifications and Financial Statement". In the event your bid is not selected for award, this envelope will be returned to the Contractor unopened.

1. Name of Bidder	2. Date organized
3. Permanent main office address	4. State incorporated
	5. How many years have you been engaged in the contracting business under your present firm name?

6. Listing of current contracts: (Schedule these, showing nature of the work, gross amount of each contract, anticipated dates for completion, name and telephone number of owner's representative).

7. General character of work usually performed by your company.

8. Have you ever failed to complete any work awarded to you? If so, where and why?

9. Have you ever defaulted on a contract?

10. List the three (3) most important structures recently completed by your company, stating approximate cost of each, month and year completed, name and telephone number of owner's representative.

11. List your major equipment available for use on this contract.

12. Experience in construction work similar in importance to this project.

13. Background and experience of the principal members of your firm, including the officers and proposed construction superintendent.

--

14. Credit available for administration of this contract, furnish written evidence.

--

15. Financial report not more than three (3) months old and containing a balance sheet providing at least the following information.

Balance Sheet

ASSETS

CURRENT ASSETS:

Cash
 Joint Venture Accounts
 Accounts Receivable
 Notes Receivable
 Accrued Interest on Notes
 Deposits
 Material and Prepaid Expense
 Total Current Assets

FIXED ASSETS - NET

OTHER ASSETS

TOTAL ASSETS:

LIABILITIES AND CAPITAL

CURRENT LIABILITIES

Accounts Payable
 Notes Payable
 Accrued Interest on Notes
 Provision for Income Taxes
 Advances Received from Owners
 Accrued Salaries
 Accrued Payroll Taxes
 Other
 Total Current Liabilities

OTHER LIABILITIES

CAPITAL

Capital Stock
 Authorized and Outstanding Shares,
 Par Value
 Earned Surplus

TOTAL LIABILITIES AND CAPITAL

The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the Guam Housing and Urban Renewal Authority in verification of the recitals comprising this Statement of Bidder's Qualifications.

Signature of Bidder

Name of Bidder

Date

Title of Bidder

Sworn to before me this ____ day of _____, 20 ____

Notary Public
 My Commission Expires _____

General Conditions for Construction Contracts - Public Housing Programs

U.S. Department of Housing and Urban Development
Office of Public and Indian Housing
OMB Approval No. 2577-0157 (exp. 3/31/2020)

Applicability. This form is applicable to any construction/development contract greater than \$150,000.

This form includes those clauses required by OMB's common rule on grantee procurement, implemented at HUD in 2 CFR 200, and those requirements set forth in Section 3 of the Housing and Urban Development Act of 1968 and its amendment by the Housing and Community Development Act of 1992, implemented by HUD at 24 CFR Part 135. The form is required for construction contracts awarded by Public Housing Agencies (PHAs).

The form is used by Housing Authorities in solicitations to provide necessary contract clauses. If the form were not used, HAs would be unable to enforce their contracts.

Public reporting burden for this collection of information is estimated to average 1.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Responses to the collection of information are required to obtain a benefit or to retain a benefit.

The information requested does not lend itself to confidentiality.

HUD may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB number.

Table of Contents

Clause		Page	Clause		Page
1.	Definitions	2	Administrative Requirements		
2.	Contractor's Responsibility for Work	2	25.	Contract Period	9
3.	Architect's Duties, Responsibilities and Authority	2	26.	Order of Precedence	9
4.	Other Contracts	3	27.	Payments	9
Construction Requirements			28.	Contract Modifications	10
5.	Preconstruction Conference and Notice to Proceed	3	29.	Changes	10
6.	Construction Progress Schedule	3	30.	Suspension of Work	11
7.	Site Investigation and Conditions Affecting the Work	3	31.	Disputes	11
8.	Differing Site Conditions	4	32.	Default	11
9.	Specifications and Drawings for Construction	4	33.	Liquidated	12
10.	As-Built Drawings	5	34.	Termination of Convenience	12
11.	Material and Workmanship	5	35.	Assignment of Contract	12
12.	Permits and Codes	5	36.	Insurance	12
13.	Health, Safety, and Accident Prevention	6	37.	Subcontracts	13
14.	Temporary Buildings and Transportation Materials	6	38.	Subcontracting with Small and Minority Firms, Women's Business Enterprise, and Labor Surplus Area Firms	13
15.	Availability and Use of Utility Services	6	39.	Equal Employment Opportunity	13
16.	Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements	6	40.	Employment, Training, and Contracting Opportunities for Low-Income Persons, Section 3 of the Housing and Urban Development Act of 1968	14
17.	Temporary Buildings and Transportation Materials	7	41.	Interest of Members of Congress	15
18.	Clean Air and Water	7	42.	Interest of Members, Officers, or Employees and Former Members, Officers, or Employees	15
19.	Energy Efficiency	7	43.	Limitations on Payments Made to Influence	15
20.	Inspection and Acceptance of Construction	7	44.	Royalties and Patents	15
21.	Use and Possession Prior to	8	45.	Examination and Retention of Contractor's Records	15
22.	Warranty of Title	8	46.	Labor Standards-Davis-Bacon and Related Acts	15
23.	Warranty of	8	47.	Non-Federal Prevailing Wage Rates	19
24.	Prohibition Against Liens	9	48.	Procurement of Recovered	19

1. Definitions

- (a) "Architect" means the person or other entity engaged by the PHA to perform architectural, engineering, design, and other services related to the work as provided for in the contract. When a PHA uses an engineer to act in this capacity, the terms "architect" and "engineer" shall be synonymous. The Architect shall serve as a technical representative of the Contracting Officer. The Architect's authority is as set forth elsewhere in this contract.
- (b) "Contract" means the contract entered into between the PHA and the Contractor. It includes the forms of Bid, the Bid Bond, the Performance and Payment Bond or Bonds or other assurance of completion, the Certifications, Representations, and Other Statements of Bidders (form HUD-5370), these General Conditions of the Contract for Construction (form HUD-5370), the applicable wage rate determinations from the U.S. Department of Labor, any special conditions included elsewhere in the contract, the specifications, and drawings. It includes all formal changes to any of those documents by addendum, change order, or other modification.
- (c) "Contracting Officer" means the person delegated the authority by the PHA to enter into, administer, and/or terminate this contract and designated as such in writing to the Contractor. The term includes any successor Contracting Officer and any duly authorized representative of the Contracting Officer also designated in writing. The Contracting Officer shall be deemed the authorized agent of the PHA in all dealings with the Contractor.
- (d) "Contractor" means the person or other entity entering into the contract with the PHA to perform all of the work required under the contract.
- (e) "Drawings" means the drawings enumerated in the schedule of drawings contained in the Specifications and as described in the contract clause entitled Specifications and Drawings for Construction herein.
- (f) "HUD" means the United States of America acting through the Department of Housing and Urban Development including the Secretary, or any other person designated to act on its behalf. HUD has agreed, subject to the provisions of an Annual Contributions Contract (ACC), to provide financial assistance to the PHA, which includes assistance in financing the work to be performed under this contract. As defined elsewhere in these General Conditions or the contract documents, the determination of HUD may be required to authorize changes in the work or for release of funds to the PHA for payment to the Contractor. Notwithstanding HUD's role, nothing in this contract shall be construed to create any contractual relationship between the Contractor and HUD.
- (g) "Project" means the entire project, whether construction or rehabilitation, the work for which is provided for in whole or in part under this contract.
- (h) "PHA" means the Public Housing Agency organized under applicable state laws which is a party to this contract.
- (j) "Specifications" means the written description of the technical requirements for construction and includes the criteria and tests for determining whether the requirements are met.
- (l) "Work" means materials, workmanship, and manufacture and fabrication of components.
- (a) The Contractor shall furnish all necessary labor, materials, tools, equipment, and transportation necessary for performance of the work. The Contractor shall also furnish all necessary water, heat, light, and power not made available to the Contractor by the PHA pursuant to the clause entitled Availability and Use of Utility Services herein.
- (b) The Contractor shall perform on the site, and with its own organization, work equivalent to at least [] (12 percent unless otherwise indicated) of the total amount of work to be performed under the order. This percentage may be reduced by a supplemental agreement to this order if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the PHA.
- (c) At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the work site a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.
- (d) The Contractor shall be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence, and shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others. The Contractor shall hold and save the PHA, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.
- (e) The Contractor shall lay out the work from base lines and bench marks indicated on the drawings and be responsible for all lines, levels, and measurements of all work executed under the contract. The Contractor shall verify the figures before laying out the work and will be held responsible for any error resulting from its failure to do so.
- (f) The Contractor shall confine all operations (including storage of materials) on PHA premises to areas authorized or approved by the Contracting Officer.
- (g) The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. After completing the work and before final inspection, the Contractor shall (1) remove from the premises all scaffolding, equipment, tools, and materials (including rejected materials) that are not the property of the PHA and all rubbish caused by its work; (2) leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer; (3) perform all specified tests; and, (4) deliver the installation in complete and operating condition.
- (h) The Contractor's responsibility will terminate when all work has been completed, the final inspection made, and the work accepted by the Contracting Officer. The Contractor will then be released from further obligation except as required by the warranties specified elsewhere in the contract.

3. Architect's Duties, Responsibilities, and Authority

- (a) The Architect for this contract, and any successor, shall be designated in writing by the Contracting Officer.

2. Contractor's Responsibility for Work

-
- (b) The Architect shall serve as the Contracting Officer's technical representative with respect to architectural, engineering, and design matters related to the work performed under the contract. The Architect may provide direction on contract performance. Such direction shall be within the scope of the contract and may not be of a nature which: (1) institutes additional work outside the scope of the contract; (2) constitutes a change as defined in the Changes clause herein; (3) causes an increase or decrease in the cost of the contract; (4) alters the Construction Progress Schedule; or (5) changes any of the other express terms or conditions of the contract.
- (c) The Architect's duties and responsibilities may include but shall not be limited to:
- (1) Making periodic visits to the work site, and on the basis of his/her on-site inspections, issuing written reports to the PHA which shall include all observed deficiencies. The Architect shall file a copy of the report with the Contractor's designated representative at the site;
 - (2) Making modifications in drawings and technical specifications and assisting the Contracting Officer in the preparation of change orders and other contract modifications for issuance by the Contracting Officer;
 - (3) Reviewing and making recommendations with respect to - (i) the Contractor's construction progress schedules; (ii) the Contractor's shop and detailed drawings; (iii) the machinery, mechanical and other equipment and materials or other articles proposed for use by the Contractor; and, (iv) the Contractor's price breakdown and progress payment estimates; and,
 - (4) Assisting in inspections, signing Certificates of Completion, and making recommendations with respect to acceptance of work completed under the contract.

4. Other Contracts

The PHA may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with PHA employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by PHA employees

Construction Requirements

5. Pre-construction Conference and Notice to Proceed

- (a) Within ten calendar days of contract execution, and prior to the commencement of work, the Contractor shall attend a preconstruction conference with representatives of the PHA, its Architect, and other interested parties convened by the PHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract. The PHA will provide the Contractor with the date, time, and place of the conference.
- (b) The contractor shall begin work upon receipt of a written Notice to Proceed from the Contracting Officer or designee. The Contractor shall not begin work prior to receiving such notice.

6. Construction Progress Schedule

- (a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring labor, materials, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments or take other remedies under the contract until the Contractor submits the required schedule.
- (b) The Contractor shall enter the actual progress on the chart as required by the Contracting Officer, and immediately deliver three copies of the annotated schedule to the Contracting Officer. If the Contracting Officer determines, upon the basis of inspection conducted pursuant to the clause entitled Inspection and Acceptance of Construction, herein that the Contractor is not meeting the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the PHA. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.
- (c) Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the Contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the Default clause of this contract.

7. Site Investigation and Conditions Affecting the Work

- (a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to, (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is

reasonably ascertainable from an inspection of the site, including all exploratory work done by the PHA, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the PHA.

- (b) The PHA assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the PHA. Nor does the PHA assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

8. Differing Site Conditions

- (a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or (2) unknown physical conditions at the site(s), of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.
- (b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. Work shall not proceed at the affected site, except at the Contractor's risk, until the Contracting Officer has provided written instructions to the Contractor. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, the Contractor shall file a claim in writing to the PHA within ten days after receipt of such instructions and, in any event, before proceeding with the work. An equitable adjustment in the contract price, the delivery schedule, or both shall be made under this clause and the contract modified in writing accordingly.
- (c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.
- (d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

9. Specifications and Drawings for Construction

- (a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be

promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

- (b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by", or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.
- (c) Where "as shown" "as indicated", "as detailed", or of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place" that is "furnished and installed".
- (d) "Shop drawings" means drawings, submitted to the PHA by the Contractor, subcontractor, or any lower tier subcontractor, showing in detail (1) the proposed fabrication and assembly of structural elements and (2) the installation (i.e., form, fit, and attachment details) of materials of equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract. The PHA may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.
- (e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with other contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the PHA's reasons therefore. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.
- (f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Architect approves any such variation and the Contracting Officer concurs, the Contracting Officer shall issue an appropriate modification to the contract, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.
- (g) It shall be the responsibility of the Contractor to make timely requests of the PHA for such large scale and full size drawings, color schemes, and other additional information, not already in his possession, which shall be

required in the planning and production of the work. Such requests may be submitted as the need arises, but each such request shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay.

- (h) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the PHA and one set will be returned to the Contractor. As required by the Contracting Officer, the Contractor, upon completing the work under this contract, shall furnish a complete set of all shop drawings as finally approved. These drawings shall show all changes and revisions made up to the time the work is completed and accepted.
- (i) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all shop drawings prepared by subcontractors are submitted to the Contracting Officer.

10. As-Built Drawings

- (a) "As-built drawings," as used in this clause, means drawings submitted by the Contractor or subcontractor at any tier to show the construction of a particular structure or work as actually completed under the contract. "As-built drawings" shall be synonymous with "Record drawings."
- (b) As required by the Contracting Officer, the Contractor shall provide the Contracting Officer accurate information to be used in the preparation of permanent as-built drawings. For this purpose, the Contractor shall record on one set of contract drawings all changes from the installations originally indicated, and record final locations of underground lines by depth from finish grade and by accurate horizontal offset distances to permanent surface improvements such as buildings, curbs, or edges of walks.
- (c) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all as-built drawings prepared by subcontractors are submitted to the Contracting Officer.

11. Material and Workmanship

- (a) All equipment, material, and articles furnished under this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the contract to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of, and as approved by the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.
- (b) Approval of equipment and materials.
 - (1) The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the

machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

- (2) When required by the specifications or the Contracting Officer, the Contractor shall submit appropriately marked samples (and certificates related to them) for approval at the Contractor's expense, with all shipping charges prepaid. The Contractor shall label, or otherwise properly mark on the container, the material or product represented, its place of origin, the name of the producer, the Contractor's name, and the identification of the construction project for which the material or product is intended to be used.
- (3) Certificates shall be submitted in triplicate, describing each sample submitted for approval and certifying that the material, equipment or accessory complies with contract requirements. The certificates shall include the name and brand of the product, name of manufacturer, and the location where produced.
- (4) Approval of a sample shall not constitute a waiver of the PHA right to demand full compliance with contract requirements. Materials, equipment and accessories may be rejected for cause even though samples have been approved.
- (5) Wherever materials are required to comply with recognized standards or specifications, such specifications shall be accepted as establishing the technical qualities and testing methods, but shall not govern the number of tests required to be made nor modify other contract requirements. The Contracting Officer may require laboratory test reports on items submitted for approval or may approve materials on the basis of data submitted in certificates with samples. Check tests will be made on materials delivered for use only as frequently as the Contracting Officer determines necessary to insure compliance of materials with the specifications. The Contractor will assume all costs of retesting materials which fail to meet contract requirements and/or testing materials offered in substitution for those found deficient.
- (6) After approval, samples will be kept in the Project office until completion of work. They may be built into the work after a substantial quantity of the materials they represent has been built in and accepted.
- (c) Requirements concerning lead-based paint. The Contractor shall comply with the requirements concerning lead-based paint contained in the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4821-4846) as implemented by 24 CFR Part 35.

12. Permits and Codes

- (a) The Contractor shall give all notices and comply with all applicable laws, ordinances, codes, rules and regulations. Notwithstanding the requirement of the Contractor to comply with the drawings and specifications in the contract, all work installed shall comply with all applicable codes and regulations as amended by any

waivers. Before installing the work, the Contractor shall examine the drawings and the specifications for compliance with applicable codes and regulations bearing on the work and shall immediately report any discrepancy it may discover to the Contracting Officer. Where the requirements of the drawings and specifications fail to comply with the applicable code or regulation, the Contracting Officer shall modify the contract by change order pursuant to the clause entitled Changes herein to conform to the code or regulation.

- (b) The Contractor shall secure and pay for all permits, fees, and licenses necessary for the proper execution and completion of the work. Where the PHA can arrange for the issuance of all or part of these permits, fees and licenses, without cost to the Contractor, the contract amount shall be reduced accordingly.

13. Health, Safety, and Accident Prevention

- (a) In performing this contract, the Contractor shall:
 - (1) Ensure that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his/her health and/or safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation;
 - (2) Protect the lives, health, and safety of other persons;
 - (3) Prevent damage to property, materials, supplies, and equipment; and,
 - (4) Avoid work interruptions.
- (b) For these purposes, the Contractor shall:
 - (1) Comply with regulations and standards issued by the Secretary of Labor at 29 CFR Part 1926. Failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96), 40 U.S.C. 3701 et seq.; and
 - (2) Include the terms of this clause in every subcontract so that such terms will be binding on each subcontractor.
- (c) The Contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this contract resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment, and shall report this data in the manner prescribed by 29 CFR Part 1904.
- (d) The Contracting Officer shall notify the Contractor of any noncompliance with these requirements and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the site of the work, shall be deemed sufficient notice of the noncompliance and corrective action required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to take corrective action promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not base any claim or request for equitable adjustment for additional time or money on any stop order issued under these circumstances.
- (e) The Contractor shall be responsible for its subcontractors' compliance with the provisions of this clause. The Contractor shall take such action with respect to any subcontract as the PHA, the Secretary of Housing and Urban Development, or the Secretary of Labor shall direct as a means of enforcing such provisions.

14. Temporary Heating

The Contractor shall provide and pay for temporary heating, covering, and enclosures necessary to properly protect all work and materials against damage by dampness and cold, to dry out the work, and to facilitate the completion of the work. Any permanent heating equipment used shall be turned over to the PHA in the condition and at the time required by the specifications.

15. Availability and Use of Utility Services

- (a) The PHA shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the PHA or, where the utility is produced by the PHA, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.
- (b) The Contractor, at its expense and in a manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the PHA, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

16. Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements

- (a) The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed under this contract, and which do not unreasonably interfere with the work required under this contract.
- (b) The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during performance of this contract, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.
- (c) The Contractor shall protect from damage all existing improvements and utilities (1) at or near the work site and (2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. Prior to disturbing the ground at the construction site, the Contractor shall ensure that all underground utility lines are clearly marked.
- (d) The Contractor shall shore up, brace, underpin, secure, and protect as necessary all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be affected by the excavations or other operations connected with the construction of the project.
- (e) Any equipment temporarily removed as a result of work under this contract shall be protected, cleaned, and replaced in the same condition as at the time of award of this contract.

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- (f) New work which connects to existing work shall correspond in all respects with that to which it connects and/or be similar to existing work unless otherwise required by the specifications.
 - (g) No structural members shall be altered or in any way weakened without the written authorization of the Contracting Officer, unless such work is clearly specified in the plans or specifications.
 - (h) If the removal of the existing work exposes discolored or unfinished surfaces, or work out of alignment, such surfaces shall be refinished, or the material replaced as necessary to make the continuous work uniform and harmonious. This, however, shall not be construed to require the refinishing or reconstruction of dissimilar finishes previously exposed, or finished surfaces in good condition, but in different planes or on different levels when brought together by the removal of intervening work, unless such refinishing or reconstruction is specified in the plans or specifications.
 - (i) The Contractor shall give all required notices to any adjoining or adjacent property owner or other party before the commencement of any work.
 - (j) The Contractor shall indemnify and save harmless the PHA from any damages on account of settlement or the loss of lateral support of adjoining property, any damages from changes in topography affecting drainage, and from all loss or expense and all damages for which the PHA may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.
 - (k) The Contractor shall repair any damage to vegetation, structures, equipment, utilities, or improvements, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

17. Temporary Buildings and Transportation of Materials

- (a) Temporary buildings (e.g., storage sheds, shops, offices, sanitary facilities) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the PHA. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.
- (b) The Contractor shall, as directed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any federal, state, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

18. Clean Air and Water

The contractor shall comply with the Clean Air Act, as amended, 42 USC 7401 et seq., the Federal Water Pollution Control Water Act, as amended, 33 U.S.C. 1251 et seq., and standards issued pursuant thereto in the facilities in which this contract is to be performed.

19. Energy Efficiency

The Contractor shall comply with mandatory standards and policies relating to energy efficiency which are contained in the energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub.L. 94-163) for the State in which the work under the contract is performed.

20. Inspection and Acceptance of Construction

- (a) Definitions. As used in this clause -
 - (1) "Acceptance" means the act of an authorized representative of the PHA by which the PHA approves and assumes ownership of the work performed under this contract. Acceptance may be partial or complete.
 - (2) "Inspection" means examining and testing the work performed under the contract (including, when appropriate, raw materials, equipment, components, and intermediate assemblies) to determine whether it conforms to contract requirements.
 - (3) "Testing" means that element of inspection that determines the properties or elements, including functional operation of materials, equipment, or their components, by the application of established scientific principles and procedures.
- (b) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. All work is subject to PHA inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.
- (c) PHA inspections and tests are for the sole benefit of the PHA and do not: (1) relieve the Contractor of responsibility for providing adequate quality control measures; (2) relieve the Contractor of responsibility for loss or damage of the material before acceptance; (3) constitute or imply acceptance; or, (4) affect the continuing rights of the PHA after acceptance of the completed work under paragraph (j) below.
- (d) The presence or absence of the PHA inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specifications without the Contracting Officer's written authorization. All instructions and approvals with respect to the work shall be given to the Contractor by the Contracting Officer.
- (e) The Contractor shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The PHA may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The PHA shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

- (f) The PHA may conduct routine inspections of the construction site on a daily basis.
- (g) The Contractor shall, without charge, replace or correct work found by the PHA not to conform to contract requirements, unless the PHA decides that it is in its interest to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.
- (h) If the Contractor does not promptly replace or correct rejected work, the PHA may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor, or (2) terminate for default the Contractor's right to proceed.
- (i) If any work requiring inspection is covered up without approval of the PHA, it must, if requested by the Contracting Officer, be uncovered at the expense of the Contractor. If at any time before final acceptance of the entire work, the PHA considers it necessary or advisable, to examine work already completed by removing or tearing it out, the Contractor, shall on request, promptly furnish all necessary facilities, labor, and material. If such work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray all the expenses of the examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the Contracting Officer shall make an equitable adjustment to cover the cost of the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.
- (j) The Contractor shall notify the Contracting Officer, in writing, as to the date when in its opinion all or a designated portion of the work will be substantially completed and ready for inspection. If the Architect determines that the state of preparedness is as represented, the PHA will promptly arrange for the inspection. Unless otherwise specified in the contract, the PHA shall accept, as soon as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines and designates can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the PHA's right under any warranty or guarantee.

21. Use and Possession Prior to Completion

- (a) The PHA shall have the right to take possession of or use any completed or partially completed part of the work.
Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the PHA intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The PHA's possession or use shall not be deemed an acceptance of any work under the contract.
- (b) While the PHA has such possession or use, the Contractor shall be relieved of the responsibility for (1) the loss of or damage to the work resulting from the PHA's possession or use, notwithstanding the terms of the clause entitled Permits and Codes herein; (2) all maintenance costs on the areas occupied; and, (3) furnishing heat, light, power, and water used in the areas

occupied without proper remuneration therefore. If prior possession or use by the PHA delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

22. Warranty of Title

The Contractor warrants good title to all materials, supplies, and equipment incorporated in the work and agrees to deliver the premises together with all improvements thereon free from any claims, liens or charges, and agrees further that neither it nor any other person, firm or corporation shall have any right to a lien upon the premises or anything appurtenant thereto.

23. Warranty of Construction

- (a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (j) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or workmanship performed by the Contractor or any subcontractor or supplier at any tier. This warranty shall continue for a period of **18 Months** (one year unless otherwise indicated) from the date of final acceptance of the work. If the PHA takes possession of any part of the work before final acceptance, this warranty shall continue for a period of (one year unless otherwise indicated) from the date that the PHA takes possession.
- (b) The Contractor shall remedy, at the Contractor's expense, any failure to conform, or any defect. In addition, the Contractor shall remedy, at the Contractor's expense, any damage to PHA-owned or controlled real or personal property when the damage is the result of—
 - (1) The Contractor's failure to conform to contract requirements; or
 - (2) Any defects of equipment, material, workmanship or design furnished by the Contractor.
- (c) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for (one year unless otherwise indicated) from the date of repair or replacement.
- (d) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect or damage.
- (e) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the PHA shall have the right to replace, repair or otherwise remedy the failure, defect, or damage at the Contractor's expense.
- (f) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall:
 - (1) Obtain all warranties that would be given in normal commercial practice;
 - (2) Require all warranties to be executed in writing, for the benefit of the PHA; and,
 - (3) Enforce all warranties for the benefit of the PHA.
- (g) In the event the Contractor's warranty under paragraph (a) of this clause has expired, the PHA may bring suit at its own expense to enforce a subcontractor's, manufacturer's or supplier's warranty.

- (h) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defect of material or design furnished by the PHA nor for the repair of any damage that results from any defect in PHA furnished material or design.
- (i) Notwithstanding any provisions herein to the contrary, the establishment of the time periods in paragraphs (a) and (c) above relate only to the specific obligation of the Contractor to correct the work, and have no relationship to the time within which its obligation to comply with the contract may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to its obligation other than specifically to correct the work.
- (j) This warranty shall not limit the PHA's rights under the Inspection and Acceptance of Construction clause of this contract with respect to latent defects, gross mistakes or fraud.

24. Prohibition Against Liens

The Contractor is prohibited from placing a lien on the PHA's property. This prohibition shall apply to all subcontractors at any tier and all materials suppliers.

Administrative Requirements

25. Contract Period

The Contractor shall complete all work required under this contract within **see special conditions** calendar days of the effective date of the contract, or within the time schedule established in the notice to proceed issued by the Contracting Officer.

26. Order of Provisions

In the event of a conflict between these General Conditions and the Specifications, the General Conditions shall prevail. In the event of a conflict between the contract and any applicable state or local law or regulation, the state or local law or regulation shall prevail; provided that such state or local law or regulation does not conflict with, or is less restrictive than applicable federal law, regulation, or Executive Order. In the event of such a conflict, applicable federal law, regulation, and Executive Order shall prevail.

27. Payments

- (a) The PHA shall pay the Contractor the price as provided in this contract.
- (b) The PHA shall make progress payments approximately every 30 days as the work proceeds, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer. The PHA may, subject to written determination and approval of the Contracting Officer, make more frequent payments to contractors which are qualified small businesses.
- (c) Before the first progress payment under this contract, the Contractor shall furnish, in such detail as requested by the Contracting Officer, a breakdown of the total contract price showing the amount included therein for each principal category of the work, which shall substantiate

basis for determining progress payments. The breakdown shall be approved by the Contracting Officer and must be acceptable to HUD. If the contract covers more than one project, the Contractor shall furnish a separate breakdown for each. The values and quantities employed in making up this breakdown are for determining the amount of progress payments and shall not be construed as a basis for additions to or deductions from the contract price. The Contractor shall prorate its overhead and profit over the construction period of the contract.

- (d) The Contractor shall submit, on forms provided by the PHA, periodic estimates showing the value of the work performed during each period based upon the approved

submitted not later than **10** days in advance of the date set for payment and are subject to correction and revision as required. The estimates must be approved by the Contracting Officer with the concurrence of the Architect prior to payment. If the contract covers more than one project, the Contractor shall furnish a separate progress payment estimate for each.

- (e) Along with each request for progress payments and the required estimates, the Contractor shall furnish the following certification, or payment shall not be made: I hereby certify, to the best of my knowledge and belief, that:

- (1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;
- (2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements; and,

- (3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract.

Name: _____

Title: _____

Date: _____

- (f) Except as otherwise provided in State law, the PHA shall retain ten (10) percent of the amount of progress payments until completion and acceptance of all work under the contract; except, that if upon completion of 50 percent of the work, the Contracting Officer, after consulting with the Architect, determines that the Contractor's performance and progress are satisfactory, the PHA may make the remaining payments in full for the work subsequently completed. If the Contracting Officer subsequently determines that the Contractor's performance and progress are unsatisfactory, the PHA shall reinstate the ten (10) percent (or other percentage as provided in State law) retainage until such time as the Contracting Officer determines that performance and progress are satisfactory.
- (g) The Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration when computing progress payments.

Material delivered to the Contractor at locations other than the site may also be taken into consideration if the Contractor furnishes satisfactory evidence that (1) it has acquired title to such material; (2) the material is properly stored in a bonded warehouse, storage yard, or similar suitable place as may be approved by the Contracting Officer; (3) the material is insured to cover its full value; and (4) the material will be used to perform this contract. Before any progress payment which includes delivered material is made, the Contractor shall furnish such documentation as the Contracting Officer may require to assure the protection of the PHA's interest in such materials. The Contractor shall remain responsible for such stored material notwithstanding the transfer of title to the PHA.

- (h) All material and work covered by progress payments made shall, at the time of payment become the sole property of the PHA, but this shall not be construed as (1) relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or, (2) waiving the right of the PHA to require the fulfillment of all of the terms of the contract. In the event the work of the Contractor has been damaged by other contractors or persons other than employees of the PHA in the course of their employment, the Contractor shall restore such damaged work without cost to the PHA and to seek redress for its damage only from those who directly caused it.
- (i) The PHA shall make the final payment due the Contractor under this contract after (1) completion and final acceptance of all work; and (2) presentation of release of all claims against the PHA arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. Each such exception shall embrace no more than one claim, the basis and scope of which shall be clearly defined. The amounts for such excepted claims shall not be included in the request for final payment. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned.
- (j) Prior to making any payment, the Contracting Officer may require the Contractor to furnish receipts or other evidence of payment from all persons performing work and supplying material to the Contractor, if the Contracting Officer determines such evidence is necessary to substantiate claimed costs.
- (k) The PHA shall not; (1) determine or adjust any claims for payment or disputes arising there under between the Contractor and its subcontractors or material suppliers; or, (2) withhold any moneys for the protection of the subcontractors or material suppliers. The failure or refusal of the PHA to withhold moneys from the Contractor shall in no wise impair the obligations of any surety or sureties under any bonds furnished under this contract.

28. Contract Modifications

- (a) Only the Contracting Officer has authority to modify any term or condition of this contract. Any contract modification shall be authorized in writing.
- (b) The Contracting Officer may modify the contract unilaterally (1) pursuant to a specific authorization stated in a contract clause (e.g., Changes); or (2) for administrative matters which do not change the rights or

responsibilities of the parties (e.g., change in the PHA address). All other contract modifications shall be in the form of supplemental agreements signed by the Contractor and the Contracting Officer.

- (c) When a proposed modification requires the approval of HUD prior to its issuance (e.g., a change order that exceeds the PHA's approved threshold), such modification shall not be effective until the required approval is received by the PHA.

29. Changes

- (a) The Contracting Officer may, at any time, without notice to the sureties, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract including changes:
 - (1) In the specifications (including drawings and designs);
 - (2) In the method or manner of performance of the work;
 - (3) PHA-furnished facilities, equipment, materials, services, or site; or,
 - (4) Directing the acceleration in the performance of the work.
- (b) Any other written order or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating (1) the date, circumstances and source of the order and (2) that the Contractor regards the order as a change order.
- (c) Except as provided in this clause, no order, statement or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.
- (d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for a adjustment based on defective specifications, no proposal for any change under paragraph (b) above shall be allowed for any costs incurred more than 20 days (5 days for oral orders) before the Contractor gives written notice as required. In the case of defective specifications for which the PHA is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.
- (e) The Contractor must assert its right to an adjustment under this clause within 30 days after (1) receipt of a written change order under paragraph (a) of this clause, or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting a written statement describing the general nature and the amount of the proposal. If the facts justify it, the Contracting Officer may extend the period for submission. The proposal may be included in the notice required under paragraph (b) above. No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.
- (f) The Contractor's written proposal for equitable adjustment shall be submitted in the form of a lump sum proposal supported with an itemized breakdown of all increases and decreases in the contract in at least the following details:

- (1) Direct Costs. Materials (list individual items, the quantity and unit cost of each, and the aggregate cost); Transportation and delivery costs associated with materials; Labor breakdowns by hours or unit costs (identified with specific work to be performed); Construction equipment exclusively necessary for the change; Costs of preparation and/ or revision to shop drawings resulting from the change; Worker's Compensation and Public Liability Insurance; Employment taxes under FICA and FUTA; and, Bond Costs when size of change warrants revision.
- (2) Indirect Costs. Indirect costs may include overhead, general and administrative expenses, and fringe benefits not normally treated as direct costs.
- (3) Profit. The amount of profit shall be negotiated and may vary according to the nature, extent, and complexity of the work required by the change. The allowability of the direct and indirect costs shall be determined in accordance with the Contract Cost Principles and Procedures for Commercial Firms in Part 31 of the Federal Acquisition Regulation (48 CFR 1-31), as implemented by HUD Handbook 2210.18, in effect on the date of this contract. The Contractor shall not be allowed a profit on the profit received by any subcontractor. Equitable adjustments for deleted work shall include a credit for profit and may include a credit for indirect costs. On proposals covering both increases and decreases in the amount of the contract, the application of indirect costs and profit shall be on the net-change in direct costs for the Contractor or subcontractor performing the work.
- (g) The Contractor shall include in the proposal its request for time extension (if any), and shall include sufficient information and dates to demonstrate whether and to what extent the change will delay the completion of the contract in its entirety.
- (h) The Contracting Officer shall act on proposals within 30 days after their receipt, or notify the Contractor of the date when such action will be taken.
- (i) Failure to reach an agreement on any proposal shall be a dispute under the clause entitled Disputes herein. Nothing in this clause, however, shall excuse the Contractor from proceeding with the contract as changed.
- (j) Except in an emergency endangering life or property, no change shall be made by the Contractor without a prior order from the Contracting Officer.

30. Suspension of Work

- (a) The Contracting Officer may order the Contractor in writing to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the PHA.
- (b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified (or within a reasonable time if not specified) in this contract an adjustment shall be made for any increase in the cost of performance of the contract (excluding profit) necessarily caused by such unreasonable suspension, delay, or interruption and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have

been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor or for which any equitable adjustment is provided for or excluded under any other provision of this contract.

- (c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order); and, (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

31. Disputes

- (a) "Claim," as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to the contract. A claim arising under the contract, unlike a claim relating to the contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim. The submission may be converted to a claim by complying with the requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.
- (b) Except for disputes arising under the clauses entitled Labor Standards - Davis Bacon and Related Acts, herein, all disputes arising under or relating to this contract, including any claims for damages for the alleged breach thereof which are not disposed of by agreement, shall be resolved under this clause.
- (c) All claims by the Contractor shall be made in writing and submitted to the Contracting Officer for a written decision. A claim by the PHA against the Contractor shall be subject to a written decision by the Contracting Officer.
- (d) The Contracting Officer shall, within 60 (unless otherwise indicated) days after receipt of the request, decide the claim or notify the Contractor of the date by which the decision will be made.
- (e) The Contracting Officer's decision shall be final unless the Contractor (1) appeals in writing to a higher level in the PHA in accordance with the PHA's policy and procedures, (2) refers the appeal to an independent mediator or arbitrator, or (3) files suit in a court of competent jurisdiction. Such appeal must be made within (30 unless otherwise indicated) days after receipt of the Contracting Officer's decision.
- (f) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under or relating to the contract, and comply with any decision of the Contracting Officer.

32. Default

- (a) If the Contractor refuses or fails to prosecute the work, or any separable part thereof, with the diligence that will insure its completion within the time specified in this contract, or any extension thereof, or fails to complete said work within this time, the Contracting Officer may, by written notice to the Contractor, terminate the right to

proceed with the work (or separable part of the work) that has been delayed. In this event, the PHA may take over the work and complete it, by contract or otherwise, and may take possession of and use any materials, equipment, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the PHA resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the PHA in completing the work.

- (b) The Contractor's right to proceed shall not be terminated or the Contractor charged with damages under this clause if—
- (1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include (i) acts of God, or of the public enemy, (ii) acts of the PHA or other governmental entity in either its sovereign or contractual capacity, (iii) acts of another contractor in the performance of a contract with the PHA, (iv) fires, (v) floods, (vi) epidemics, (vii) quarantine restrictions, (viii) strikes, (ix) freight embargoes, (x) unusually severe weather, or (xi) delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and
- (2) The Contractor, within days (10 days unless otherwise indicated) from the beginning of such delay (unless extended by the Contracting Officer) notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of the delay. If, in the judgment of the Contracting Officer, the findings of fact warrant such action, time for completing the work shall be extended by written modification to the contract. The findings of the Contracting Officer shall be reduced to a written decision which shall be subject to the provisions of the Disputes clause of this contract.
- (c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been for convenience of the PHA.

33. Liquidated Damages

- (a) If the Contractor fails to complete the work within the time specified in the contract, or any extension, as specified in the clause entitled Default of this contract, the Contractor shall pay to the PHA as liquidated damages, the sum of **\$ 150.00** [Contracting Officer insert amount] for each day of delay. If different completion dates are specified in the contract for separate parts or stages of the work, the amount of liquidated damages shall be assessed on those parts or stages which are delayed. To the extent that the Contractor's delay or nonperformance is excused under another clause in this contract, liquidated damages shall not be due the PHA. The Contractor remains liable for damages caused other than by delay.
- (b) If the PHA terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final

completion of the work together with any increased costs occasioned the PHA in completing the work.

- (c) If the PHA does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted.

34. Termination for Convenience

- (a) The Contracting Officer may terminate this contract in whole, or in part, whenever the Contracting Officer determines that such termination is in the best interest of the PHA. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which the performance of the work under the contract is terminated, and the date upon which such termination becomes effective.
- (b) If the performance of the work is terminated, either in whole or in part, the PHA shall be liable to the Contractor for reasonable and proper costs resulting from such termination upon the receipt by the PHA of a properly presented claim setting out in detail: (1) the total cost of the work performed to date of termination less the total amount of contract payments made to the Contractor; (2) the cost (including reasonable profit) of settling and paying claims under subcontracts and material orders for work performed and materials and supplies delivered to the site, payment for which has not been made by the PHA to the Contractor or by the Contractor to the subcontractor or supplier; (3) the cost of preserving and protecting the work already performed until the PHA or assignee takes possession thereof or assumes responsibility therefore; (4) the actual or estimated cost of legal and accounting services reasonably necessary to prepare and present the termination claim to the PHA; and (5) an amount constituting a reasonable profit on the value of the work performed by the Contractor.
- (c) The Contracting Officer will act on the Contractor's claim within days (60 days unless otherwise indicated) of receipt of the Contractor's claim.
- (d) Any disputes with regard to this clause are expressly made subject to the provisions of the Disputes clause of this contract.

35. Assignment of Contract

The Contractor shall not assign or transfer any interest in this contract; except that claims for monies due or to become due from the PHA under the contract may be assigned to a bank, trust company, or other financial institution. Such assignments of claims shall only be made with the written concurrence of the Contracting Officer. If the Contractor is a partnership, this contract shall inure to the benefit of the surviving or remaining member(s) of such partnership as approved by the Contracting Officer.

36. Insurance

- (a) Before commencing work, the Contractor and each subcontractor shall furnish the PHA with certificates of insurance showing the following insurance is in force and will insure all operations under the Contract:
- (1) Workers' Compensation, in accordance with state or Territorial Workers' Compensation laws.
- (2) Commercial General Liability with a combined single limit for bodily injury and property damage of not less than **\$ 1,000,000.00** [Contracting Officer insert amount]

per occurrence to protect the Contractor and each subcontractor against claims for bodily injury or death and damage to the property of others. This shall cover the use of all equipment, hoists, and vehicles on the site(s) not covered by Automobile Liability under (3) below. If the Contractor has a "claims made" policy, then the following additional requirements apply: the policy must provide a "retroactive date" which must be on or before the execution date of the Contract; and the extended reporting period may not be less than five years following the completion date of the Contract.

- (3) Automobile Liability on owned and non-owned motor vehicles used on the site(s) or in connection therewith for a combined single limit for bodily injury and property damage of not less than \$ 500,000.00 [Contracting Officer insert amount] per occurrence.

- (b) Before commencing work, the Contractor shall furnish the PHA with a certificate of insurance evidencing that Builder's Risk (fire and extended coverage) Insurance on all work in place and/or materials stored at the building site(s), including foundations and building equipment, is in force. The Builder's Risk Insurance shall be for the benefit of the Contractor and the PHA as their interests may appear and each shall be named in the policy or policies as an insured. The Contractor in installing equipment supplied by the PHA shall carry insurance on such equipment from the time the Contractor takes possession thereof until the Contract work is accepted by the PHA. The Builder's Risk Insurance need not be carried on excavations, piers, footings, or foundations until such time as work on the superstructure is started. It need not be carried on landscape work. Policies shall furnish coverage at all times for the full cash value of all completed construction, as well as materials in place and/or stored at the site(s), whether or not partial payment has been made by the PHA. The Contractor may terminate this insurance on buildings as of the date taken over for occupancy by the PHA. The Contractor is not required to carry Builder's Risk Insurance for modernization work which does not involve structural alterations or additions and where the PHA's existing fire and extended coverage policy can be endorsed to include such work.

- (c) All insurance shall be carried with companies which are financially responsible and admitted to do business in the State in which the project is located. If any such insurance is due to expire during the construction period, the Contractor (including subcontractors, as applicable) shall not permit the coverage to lapse and shall furnish evidence of coverage to the Contracting Officer. All certificates of insurance, as evidence of coverage, shall provide that no coverage may be canceled or non-renewed by the insurance company until at least 30 days prior written notice has been given to the Contracting Officer.

37. Subcontracts

- (a) Definitions. As used in this contract -

(1) "Subcontract" means any contract, purchase order, or other purchase agreement, including modifications and change orders to the foregoing, entered into by a subcontractor to furnish supplies, materials, equipment, and services for the performance of the prime contractor or a subcontract.

(2) "Subcontractor" means any supplier, vendor, or firm that furnishes supplies, materials, equipment, or services to or for the Contractor or another subcontractor.

- (b) The Contractor shall not enter into any subcontract with any subcontractor who has been temporarily denied participation in a HUD program or who has been suspended or debarred from participating in contracting programs by any agency of the United States Government or of the state in which the work under this contract is to be performed.
- (c) The Contractor shall be as fully responsible for the acts or omissions of its subcontractors, and of persons either directly or indirectly employed by them as for the acts or omissions of persons directly employed by the Contractor.
- (d) The Contractor shall insert appropriate clauses in all subcontracts to bind subcontractors to the terms and conditions of this contract insofar as they are applicable to the work of subcontractors.
- (e) Nothing contained in this contract shall create any contractual relationship between any subcontractor and the PHA or between the subcontractor and HUD.

38. Subcontracting with Small and Minority Firms, Women's Business Enterprise, and Labor Surplus Area Firms

The Contractor shall take the following steps to ensure that, whenever possible, subcontracts are awarded to small business firms, minority firms, women's business enterprises, and labor surplus area firms:

- (a) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
- (b) Ensuring that small and minority businesses and women's business enterprises are solicited whenever they are potential sources;
- (c) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses and women's business enterprises;
- (d) Establishing delivery schedules, where the requirements of the contract permit, which encourage participation by small and minority businesses and women's business enterprises; and
- (e) Using the services and assistance of the U.S. Small Business Administration, the Minority Business Development Agency of the U.S. Department of Commerce, and State and local governmental small business agencies.

39. Equal Employment Opportunity

During the performance of this contract, the Contractor agrees as follows:

- (a) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, or handicap.
- (b) The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, national origin, or handicap. Such action shall include, but not be limited to, (1) employment, (2) upgrading, (3) demotion, (4) transfer, (5) recruitment or recruitment advertising, (6) layoff or termination, (7) rates of pay or other forms of compensation, and (8) selection for training, including apprenticeship.

- (c) The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this clause.
- (d) The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, or handicap.
- (e) The Contractor shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.
- (f) The Contractor shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.
- (g) The Contractor shall furnish all information and reports required by Executive Order 11246, as amended, Section 503 of the Rehabilitation Act of 1973, as amended, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto. The Contractor shall permit access to its books, records, and accounts by the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (h) In the event of a determination that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, this contract may be canceled, terminated, or suspended in whole or in part, and the Contractor may be declared ineligible for further Government contracts, or Federally assisted construction contracts under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Contractor as provided in Executive Order 11246, as amended, the rules, regulations, and orders of the Secretary of Labor, or as otherwise provided by law.
- (i) The Contractor shall include the terms and conditions of this clause in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontractor or vendor. The Contractor shall take such action with respect to any subcontract or purchase order as the Secretary of Housing and Urban Development or the Secretary of Labor may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.
- (j) Compliance with the requirements of this clause shall be to the maximum extent consistent with, but not in derogation of, compliance with section 7(b) of the Indian Self-Determination and Education Assistance Act and the Indian Preference clause of this contract.

40. Employment, Training, and Contracting Opportunities for Low-Income Persons, Section 3 of the Housing and Urban Development Act of 1968.

- (a) The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.
- (b) The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the Part 135 regulations.
- (c) The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.
- (d) The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR Part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR Part 135.
- (e) The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR Part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR Part 135.
- (f) Noncompliance with HUD's regulations in 24 CFR Part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.
- (g) With respect to work performed in connection with section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b) agree to comply with section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

41. Interest of Members of Congress

No member of or delegate to the Congress of the United States of America shall be admitted to any share or part of this contract or to any benefit that may arise therefrom.

42. Interest of Members, Officers, or Employees and Former Members, Officers, or Employees

No member, officer, or employee of the PHA, no member of the governing body of the locality in which the project is situated, no member of the governing body of the locality in which the PHA was activated, and no other public official of such locality or localities who exercises any functions or responsibilities with respect to the project, shall, during his or her tenure, or for one year thereafter, have any interest, direct or indirect, in this contract or the proceeds thereof.

43. Limitations on Payments made to Influence Certain Federal Financial Transactions

- (a) The Contractor agrees to comply with Section 1352 of Title 31, United States Code which prohibits the use of Federal appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan, or cooperative agreement.
- (b) The Contractor further agrees to comply with the requirement of the Act to furnish a disclosure (OMB Standard Form LLL, Disclosure of Lobbying Activities) if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan, or cooperative agreement.

44. Royalties and Patents

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringement of any patent rights and shall save the PHA harmless from loss on account thereof; except that the PHA shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified and the Contractor has no reason to believe that the specified design, process, or product is an infringement. If, however, the Contractor has reason to believe that any design, process or product specified is an infringement of a patent, the Contractor shall promptly notify the Contracting Officer. Failure to give such notice shall make the Contractor responsible for resultant loss.

45. Examination and Retention of Contractor's Records

- (a) The PHA, HUD, or Comptroller General of the United States, or any of their duly authorized representatives shall, until 3 years after final payment under this contract, have access to and the right to examine any of the Contractor's directly pertinent books, documents, papers, or other records involving transactions related to this contract for the purpose of making audit, examination, excerpts, and transcriptions.
- (b) The Contractor agrees to include in first-tier subcontracts under this contract a clause substantially the same as paragraph (a) above. "Subcontract," as used in this clause, excludes purchase orders not exceeding \$10,000.
- (c) The periods of access and examination in paragraphs (a) and (b) above for records relating to (1) appeals under the Disputes clause of this contract, (2) litigation or settlement of claims arising from the performance of this contract, or (3) costs and expenses of this contract to which the PHA, HUD, or Comptroller General or any of their duly authorized representatives has taken exception shall continue until disposition of such appeals, litigation, claims, or exceptions.

46. Labor Standards - Davis-Bacon and Related Acts

If the total amount of this contract exceeds \$2,000, the Federal labor standards set forth in the clause below shall apply to the development or construction work to be performed under the contract.

- (a) Minimum Wages.
 - (1) All laborers and mechanics employed under this contract in the development or construction of the project(s) involved will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the regular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits in the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall

be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

- (2) (i) Any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met: (A) The work to be performed by the classification requested is not performed by a classification in the wage determination; and (B) The classification is utilized in the area by the construction industry; and (C) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- (ii) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employee Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.
- (iii) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.
- (iv) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (a)(2)(ii) or (iii) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in classification.
- (3) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
- (4) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the

amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program; provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

- (b) Withholding of funds. HUD or its designee shall, upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working in the construction or development of the project, all or part of the wages required by the contract, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the respective employees to whom they are due.
- (c) Payrolls and basic records.
 - (1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working in the construction or development of the project. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under 29 CFR 5.5(a)(1)(iv), that the wages of any laborer or mechanic include the amount of costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

- (2) (i) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under subparagraph (c)(1) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The Contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1214-0149.)
- (ii) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
- (A) That the payroll for the payroll period contains the information required to be maintained under paragraph (c) (1) of this clause and that such information is correct and complete;
- (B) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3; and
- (C) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
- (iii) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirements for submission of the "Statement of Compliance" required by subparagraph (c)(2)(ii) of this clause.
- (iv) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.
- (3) The Contractor or subcontractor shall make the records required under subparagraph (c)(1) available for inspection, copying, or transcription by authorized representatives of HUD or its designee, the Contracting Officer, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to

make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

- (d) (1) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship and Training, Employer and Labor Services (OATELS), or with a State Apprenticeship Agency recognized by OATELS, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by OATELS or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event OATELS, or a State Apprenticeship Agency recognized by OATELS, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
- (2) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under

the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- (3) Equal employment opportunity. The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.
- (e) Compliance with Copeland Act requirements. The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.
- (f) Contract termination; debarment. A breach of this contract clause may be grounds for termination of the contract and for debarment as a Contractor and a subcontractor as provided in 29 CFR 5.12.
- (g) Compliance with Davis-Bacon and related Act requirements. All rulings and interpretations of the Davis-Bacon and related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.
- (h) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this clause shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the PHA, HUD, the U.S. Department of Labor, or the employees or their representatives.
- (i) Certification of eligibility.
 - (1) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

- (2) No part of this contract shall be subcontracted to any person or firm ineligible for award of a United States Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
 - (3) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.
- (j) Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.
- (1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics, including watchmen and guards, shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.
 - (2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the provisions set forth in subparagraph (j)(1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic (including watchmen and guards) employed in violation of the provisions set forth in subparagraph (j)(1) of this clause, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by provisions set forth in subparagraph (j)(1) of this clause.
 - (3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the provisions set forth in subparagraph (j)(2) of this clause.
 - (k) Subcontracts. The Contractor or subcontractor shall insert in any subcontracts all the provisions contained in this clause, and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these provisions in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all these provisions.

"General Decision Number: GU20220001 02/25/2022

Superseded General Decision Number: GU20210001

State: Guam

Construction Types: Building, Heavy, Highway and Residential

Excludes any projects funded under the National Defense Authorization Act 2010 - Guam Realignment Fund - Defense Policy Review

County: Guam Statewide.

BUILDING, HEAVY, HIGHWAY AND RESIDENTIAL

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026. Please note that this Executive Order applies to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	<p>. Executive Order 14026 generally applies to the contract.</p> <p>. The contractor must pay all covered workers at least \$15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022.</p>
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The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Modification Number	Publication Date
0	01/07/2022
1	02/25/2022

* SUGU2020-001 03/05/2020

	Rates	Fringes
CARPENTER.....	\$ 15.48	
CEMENT MASON.....	\$ 14.92	**

ELECTRICIAN.....\$ 18.52

Heavy Equipment Mechanic.....\$ 18.32

Heavy Equipment Operator.....\$ 16.58

IRONWORKER, REINFORCING.....\$ 15.61

IRONWORKER, STRUCTURAL.....\$ 14.90 **

PAINTER.....\$ 12.86 **

PIPEFITTER.....\$ 16.52

PLASTERER.....\$ 22.89

PLUMBER.....\$ 16.52

REFRIGERATION MECHANIC
(including Heating, Air
Conditioning (HVAC) Mechanic
work).....\$ 18.43

SHEET METAL WORKER.....\$ 16.73

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher
minimum wage under Executive Order 14026 (\$15.00). Please see
the Note at the top of the wage determination for more
information.

Unlisted classifications needed for work not included within
the scope of the classifications listed may be added after
award only as provided in the labor standards contract clauses
(29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification
and wage rates that have been found to be prevailing for the
cited type(s) of construction in the area covered by the wage
determination. The classifications are listed in alphabetical
order of "identifiers" that indicate whether the particular
rate is a union rate (current union negotiated rate for local),
a survey rate (weighted average rate) or a union average rate
(weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed
in dotted lines beginning with characters other than "SU" or
"UAVG" denotes that the union classification and rate were
prevailing for that classification in the survey. Example:
PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of
the union which prevailed in the survey for this
classification, which in this example would be Plumbers. 0198
indicates the local union number or district council number

where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for

the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part

of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been

communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) **Apprentices.** Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who

is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) **Trainees.** Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by

the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 in this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be

awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration..... makes, utters or publishes any statement knowing the same to be false..... shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable where the amount of the prime contract exceeds \$100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C are applicable where the amount of the prime contract exceeds \$100,000.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96). 40 USC 3701 et seq.

(3) The contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

Bid Information

IFB Number GHURA-06-16-2022-CDBG		Submit bid to: GHURA 117 Bien Venida Ave. Sinajana, Guam 96926 Contract: Sonny Perez, 475-1404 or email sperez@ghura.org Michael Recuyal, 475-1318 or email msrecuyal@ghura.org
Bid Opening Date: July 07, 2022	Bid Opening Time: 2:00pm	
Project Title: Construction of MTM Recreational Facility		
Project Description: Design and Construction of Community Recreational Facility		
Contract Completion Time: See Special Conditions		
Amount of Liquidated Damages: \$150.00 per day		

Bidder's Information

Name of Company	FEIN
	Bidder's Telephone Number
Bidder's Address	Bidder's Fax Number
	Name of Person Submitting the Bid
	Title of Person Submitting the Bid

Bidder's Acknowledgments

This is to acknowledge that an authorized representative(s) of the above named company has familiarized himself/herself/themselves with the local conditions affecting the cost of the work, all instructions, General and Supplemental Conditions, Contractor's compliance and reporting requirements, the specifications, drawings, and addenda.

GHURA requires a minimum acceptance period of 60 calendar days "Acceptance period," as used in this provision, means the number of calendar days available to GHURA for awarding a contract from the date specified in this solicitation for receipt of bids. **GHURA reserves the option, depending on the availability of funds to award a contract to the lowest responsive bidders submitting the lowest bid on Base Bid Item No. 1. A bid make be submitted for either or both bid items**

By the submission of this bid, the bidder certifies that neither it nor any person or firm who has an interest in the bidder's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1). In submitting this bid, it is understood that the right is reserved by GHURA to reject any and all bids.

Acknowledgment of Addenda The bidder acknowledges the following addenda: (Failure to acknowledge may cause bid rejection.)

Addenda No.	Addenda Date	Addenda No.	Addenda Date
	Addenda Date	Addenda No.	Addenda Date

Required Submissions

To be responsive, the bidder must submit the following documents in a sealed envelope marked on its face with the correct bidding information with his/her bid:

Form HUD-5369-a , Representations, Certifications, and Other Statements of Bidders AG form 002 , Disclosing ownership & Commission AG form 003 , Affidavit re Non-Collusion AG form 004 , Affidavit re No Gratuities or Kickbacks AG form 005 , Affidavit re Ethical Standards AG form 007 -Affidavit re Contingent Fees Form GHURA 01B , Section 3 Preference Certification completed and certified OR marked NA if the bidder is not claiming Section 3 preference. GHURA shall reject a bid as non-responsive and bid that does not include	Form GHURA 09 , Law to be observed GHURA 010 , Bidder's Qualifications including a Financial Statement and a certificate of authority to do business in Guam Form GHURA 013 , Bidder's Section 3 Commitment Form GHURA 014 , Bid Form Form GHURA 016 , Bid Bond and Certificates Contractor's License Acknowledged copies of any and all Addenda each of the above documents, fully completed and properly executed.
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Base Bid Item No.1

The bidder hereby proposes to furnish all labor, materials, equipment and services required to complete the design and construction contract as per the requirements of the design and specification documents for the drainage correction located in Toto Gardens all in accordance therewith, for the sum of:

_____ DOLLARS

(\$_____)

The bidder hereby proposes to furnish all labor, materials, equipment and services required to complete the design and construction contract as per the requirements of the design and specification documents for the drainage correction located in Toto Gardens all in accordance therewith, for the sum of:

_____ DOLLARS

(\$_____)

A breakdown is required for each item description as noted below

Item #	Item Description	Estimated Quantity	Unit		Unit Bid Price
			Measure	Price	
	Base Bid No 1				
					\$
					\$
					\$
					\$
					\$
					\$
					\$
					\$
					\$
					\$
					\$
					\$
					\$
The bidder may continue by copying and attaching this section to the Bid Form.					
Sum of all cost extensions are included in the base bid					\$

Additive Bid Items

GHURA does not require an additive bid for this proposal. To offer a bid the bidder is requested to breakout the following items from the base bid. Each item shall include all labor, materials, equipment and services required to complete		
Item #	Item Description	Item Bid

Individual Bidder

Trading and doing business as If fictitious trade name is employed in the conduct of business, insert such name and complete, as appropriate. This foregoing fictitious or trade name <input type="checkbox"/> is <input type="checkbox"/> is not a been registered under Guam Law.	Bidder's Signature _____ Date _____
Name of person submitting the bid	Witness Witness Name _____ Witness Signature _____ Date _____
Business address	

Partnership Bidder

Name of Partnership If fictitious trade name is employed in the conduct of business, insert such name and complete, as appropriate. This foregoing fictitious or trade name <input type="checkbox"/> is <input type="checkbox"/> is not a been registered under Guam Law.	Bidder's Signature _____ Date _____
Name of person submitting the bid	Witness Witness Name _____ Witness Signature _____ Date _____
Business address	

Corporate Bidder

Name of Corporation	Corporate's Signature <hr/> Title <hr/> Date <hr/>
Name of person submitting the bid	Certificate as to Corporate Principle I, <hr/>
Business address	certify that I am the Secretary of the corporation named as Principal in the within bond: That <hr/> <hr/> , who signed the bond on behalf of the Principal, was then of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for and I behalf of said corporation by authority of its governing body. <hr/> (Corporate Seal)

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned_____

(Name of Principal)

as PRINCIPAL, and

SURETY

are held and firmly bound unto Guam Housing and Urban Renewal Authority,
hereinafter called "GHURA", in the penal sum of _____

Dollars, (_____), lawful money of the United States, for
the
payment of which sum will and truly be made, we bind ourselves, our heirs,
executors, administrators and successors, jointly and severally, firmly by these
presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas, the Principal
has submitted the accompanying bid, dated the_____, 20___, for the

NOW THEREFORE, if the principal shall not withdraw said bond within the
period specified therein after the opening of the same, or, if no period be
specified, within sixty (60) days after the said opening, and shall within ten (10)
days after the prescribed forms are presented to him for signature, enter into a
written contract with Guam Housing and Urban Renewal Authority in
accordance with the bid as accepted, and give bond with good and sufficient
surety or sureties, as may be required, for the faithful performance and proper
fulfillment of such contract; or in the event of the withdrawal of said bid within
the period specified, or time specified, if the principal shall pay Guam Housing
and Urban Renewal Authority, the difference between the amount specified in
said bid and the amount for which Guam Housing and Urban Renewal Authority
may procure the required work or supplies, or both, if the latter amount be in
excess of the former, then the above obligation shall be void and of no effect,
otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above bounden parties have executed this
instrument under their several seals this _____day of _____20___,
the name and corporate seal of each corporate party being hereto affixed and
these presents duly signed by its undersigned representatives, pursuant to
authority of its governing body.

ATTEST:

Sole Proprietorship

(Individual Principal Signature)

(Business Address)

(Name of Individual Principal Above)

(Seal)

ATTESTED:

Corporation

(Corporate Principal Signature)

(Business Address)

(Name of Corporate Principal Above)

(Title)

Affix Corporate Seal

ATTEST:

Surety Company

(Corporate Surety Signature)

Corporate Surety Signature)

(Business Address)

Name of Corporate Surety)

(Title)

Affix Corporate Seal

(Power of Attorney for person signing for Surety Company must be attached to the Bond)

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the _____

Secretary of the Corporation names as Principal in the within the bond; that
_____ " who signed the said bond on behalf of the

Principal was then _____ of said corporation; that I know his
signature, and his signature thereto is genuine; and that said bond was duly signed,
sealed, and attested to, for and *in* behalf of said corporation by authority of its governing
body.

(Corporate Seal)

THIS AGREEMENT MADE THIS _____ day of _____ in the year _____ by and between _____, A Corporation, Partnership or Sole Proprietorship existing under the laws of the State of _____ Guam hereinafter called the "Contractor," and the Guam Housing and Urban Renewal Authority, herein called the "GHURA."

WITNESSETH, that the Contractor and GHURA for the consideration stated herein, mutually agree as follows:

ARTICLE I

Statement of Work. The Contractor shall furnish all labor, material, equipment, and services and perform and complete all work required for the construction of Project No. GHURA-06-16-2022-CDBG, in strict accordance with "Specifications" for the, which includes all items listed in the Tale of Contents and Addenda thereto, Numbered and the drawings referred to herein, all as prepared by Architect, which said Specifications, Addenda and Drawings are incorporated herein by reference and made a part hereof.

ARTICLE II

Contract Price. GHURA shall pay the Contractor for the performance of the Contract, in current funds, subject to additions and deductions as provided in the specifications for completed work meeting the requirements of the Contract Documents, the sum of (\$ _____)

ARTICLE III

Contractor agrees that time is of the essence in the completion of the work in the time required by this contract and hereby waives any notice of putting in default for failure to complete on time.

ARTICLE IV

Contract Documents. The contract shall consist of the following component parts:

- (a) This Instrument
- (b) General Conditions
 - (HUD-5370EZ or HUD-5370) Forms
 - Wage Determination
- (c) Special/supplemental Conditions
- (d) Technical Specifications
- (e) Drawings
- (f) IFB #GHURA-06-16-2022-CDBG
- (g) Forms
 - (AG-002) Affidavit Disclosing Ownership and Commissions
 - (AG-003) - Affidavit re Non-Collusion
 - (AG-004) - Affidavit re No Gratuities or Kickbacks
 - (AG- 005) - Affidavit re Ethical Standards
 - (AG-007) - Affidavit re Contingent Fees
 - (GHURA-13) - Mandatory Compliance for Section 3
 - (GHURA-01B) - Section 3 Business Preference
 - (HUD-4010) - Federal Labor Standards
 - (HUD-5369) – Instructions to Bidders Offerors
 - (HUD-5369-a) - Representations, Certifications, and Other Statements of Bidders
- (h) Proposal
- (i) Addendum

This instrument, together with the other documents enumerated in this ARTICLE IV, which said other documents are as fully a part of the Contract as if hereto attached or herein repeated, form the Contract. In the event that any provision of any other component part of this Contract conflicts with any provision of any other component part, the provision of the component part first enumerated in the ARTICLE IV shall govern, except as otherwise specially stated. The various provisions in Addenda shall be construed in the order of the preference of the component part of the Contract which each modifies. IN WITNESS WHEREOF, the parties hereto have caused this Instrument to be executed in three (3) original counterparts as of the day and year first above written

Form of Contract

Name:

Executed by: **Elizabeth F. Napoli**
Acting Executive Director for the Guam Housing Urban
Renewal Authority

Signature: _____

Signature: _____

Title: _____

Date: _____

Company Name: _____

Date: _____

Contractor's Certification

I, _____, certify that I am the _____
_____, of the Corporation named as Contractor herein,
(Title)
and that _____, who signed the Contract on behalf of the Contractor, was
(Name of Signatory)
then the _____ of said Corporation; that said
Contract was duly signed for and in behalf of said Corporation by authority of its governing body,
and is within the scope of its corporate powers.
(Corporate Seal) _____
Signature of person affixing the Corporate Seal

Funds Certified By: _____ Date: _____
Controller

Grant No.	Project Number	Amount	



GHURA

Guahan Housing and Urban Renewal Authority
Aturidat Ginima' Yan Rinueban Siudad Guahan
117 Bien Venida Avenue, Sinajana, GU 96910

Phone: (671) 477-9851 Fax: (671) 300-7565 TTY: (671) 472-3701



MTM COMMUNITY RECREATIONAL FACILITY MONG-MONG TOTO MAITE, GUAM

**PREPARED BY:
A/E**

**APPROVED BY:
SONNY PEREZ**

SPECIAL CONDITIONS

1. PROJECT SITE and DESCRIPTION:

This a **DESIGN BUILD** project where the intent is to Design and Construct new covered metal structure and ADA restroom facility in addition to existing recreation facility. The project is located in Aragon Street Toto Mong-Mong, Maite (MTM).

2. TIME OF COMPLETION

The work shall commence at the time stipulated in the Notice to Proceed and shall be full completed within the time frame indicated below:

- a. Design Time: The contractor shall complete the Design with 60 calendar days upon receipt of notice to proceed. See Design and Contract requirements for details.
- b. Construction Contract Period: **360 consecutive calendar days** after building permit is issued and signed off by DPW and other government agencies.
- c. Liquidated Damages: In case of failure on part of the Contractor to complete the work within the time fixed in the Contract, or within any time extensions given thereof, the Contractor and his sureties shall be liable for and shall pay to GHURA the sum of **\$350.00** liquidated damages per calendar days of delay until the work is completed or accepted.
- d. Contractor MUST meet the Construction Classifications

CLASS A (General Engineering) and/or CLASS B (General Building)

A General Engineering contractor is a contractor whose principal contracting business is in connection with fixed works requiring specialized knowledge and skill including but not limited to the following: irrigation, drainage, water power, water supply, flood control, harbors, docks and wharves, airports, sewer and sewage disposal plants and systems, bridges highways. Pipelines and other system for the transmission of petroleum and other liquid or gaseous substances, parks, recreational works, refineries, chemical plants and similar industrial plants, paving and surfacing works, and other like construction.

A General Building contractor is a contractor whose principal contracting business is in connection with any structure built, being built or to be built for the support, shelter and enclosure of persons, animals, chattels or movable property of any kind requiring in its construction the use of unrelated trades or crafts or to do superintend the whole or any part thereof.

3. DESIGN AND CONSTRUCTION CRITERIA

3.1 SCOPE OF WORK:

- a. Existing basketball court light fixtures and post to be removed salvaged and returned to MTM Mayor's office.
- b. Existing basketball court perimeter fence to be removed salvaged returned to mayor's office.
- c. The contractor shall retain the services of a Professional Architect and Engineer who is currently registered and licensed in Guam to design and develop an approved construction set of drawings suitable for permit review and approval, and use for the construction of the project.
- d. Design and construct new Steel frame covered structure over existing basketball court. Design Criteria: International building code (IBC) 2009 edition, Wind Velocity 170mph, Exposure "C". Seismic forces-per IBC 2009 edition, see attached drawing for building layout and dimensions. Work shall include controlled interior/exterior type LED lightings with control switches, new electrical system, existing main panel enclosure to be replaced with new exterior type NEMA stainless steel enclosure, 2-12 feet wide sliding gate and 1-5 feet wide personal gate with pad lock prevision, retrofit existing basketball pipe stand (2-each.) and backboard frame. The minimum thickness of the butler roof (pre-painted) shall be gage 20 with insulation.
- e. Design and construct reinforced concrete structure for male and female restroom (full ADA compliance), work to include light fixtures, exhaust fan, aluminum doors with level type lockset, railings, male urinal, lavatory, towel holder, mirror and electrical room with aluminum steel doors. See attached floor plan for reference.
- f. Design and construct new drainage retention basin or infiltration trench along each side of new metal covered structure for new roof drainage system. Two new ADA parking stalls with all regulatory signage and pavement marking.
- g. Design and construct new ADA accessible routing path (reinforced concrete slab-on-grade) to connect basketball court, ADA restroom and ADA parking stall.

**MTM COMMUNITY RECREATIONAL FACILITY,
MONG-MONG TOTO MAITE, GUAM**

- h. Resurface ½ thick minimum to entire basketball surfaces and provide new paint coating at all areas, new markers all areas. Prior to applying new paint pressure wash all existing surface with sufficient, pressure remove all dirt, dust, oil, grease, rust and loose or peeled paint. The product should be applied by a manufacture authorized contractor and have 5 years warranty. The CONTRACTOR shall prepare the existing surfaces to be coated as specified. All surfaces shall be prepared in accordance with the manufacturer's instructions for the material to be applied to minimize contamination of the washed surfaces, work shall be performed within 14 calendar days of the completion pressure wash work. If more than 14 days pass by or if the surfaces become dirty, they shall be rewashed in accordance with this specification. Debris control: Prevent the spread of existing paint dust and debris and avoid the creation of a nuisance or hazard in the surrounding area. Pressure wash and/or clean all walls or areas affected during removal of existing paint.
- 3.2 SOIL INVESTIGATION REPORT: The contractor shall consult with Soil Engineer to secure the required soil report and percolation test. Soil investigation and report will be at contractor's cost.
- 3.3 PERMITS AND CLEARANCES: The following permits and clearances for the projects execution shall be the responsibility of the contractor.

GENERAL NOTES:

1. Drawing provided are preliminary drawings for Bid purpose only and shall not be use or construction document. Contractor shall obtain Registered Architect & Engineer to provide construction documents to comply with Guam Design Codes and Guides References for building permit.
2. Contractor shall field verify existing site condition, dimension and scope of work prior to bidding. Contractor to notify contacting officer for any discrepancies between scope of work, actual field conditions and project intent which may interfere with this project.
3. Miscellaneous items of work not indicated but which are necessary to implement the project intent of which are customarily performed shall be provided by the Contract Bidder as if fully and correctly described in the scope of work and/or drawings.
4. The contractor shall coordinate and obtain all necessary clearance from all Government agencies prior to any work activity within government utility side. Damaged done by the contractor to any existing GOVGUAM utility lines shall be repaired by the contractor at no cost to the government. Repair work shall be per GOVGUAM standards and approval.
5. The Contractor shall obtain and pay for the Building Permit and other permit and Governmental fees, License and Inspections necessary for property execution and completion of the work.
6. Protection: Provide temporary fences, barricades, coverings, or other protection to preserve existing items indicated to remain and to prevent injury or damage to persons or property. Provide protection for adjacent properties: restore damaged work to condition existing prior to start of work.
7. Cleaning up: The Contractor shall, at all times, keep the premises free from accumulations of waste materials or rubbish caused by his operations. At the completion of the work, he shall remove from site all construction materials, waste materials and rubbish from and about the sites as well.

3.4 DESIGN CODES/GUIDES AND REFERENCES:

All services shall be performed in accordance with general criteria contained in following references.

- a.) Building Law, Title XXXII, Government Code of Guam
- b.) International Building Code (2009 Edition)
- c.) International Mechanical Code (Latest Edition)
- d.) International Plumbing Code (Latest Edition)
- e.) National Electrical Code (NCE-Latest Edition)
- f.) National Electrical Safety (NESC-Latest Edition)
- g.) Life Safety (Latest Edition)
- h.) International Fire Code (IFC Latest Edition)
- i.) National Fire Protection Association Handbook (NFPA 70)
- j.) Illuminating Engineering Society (IES)
- k.) American Disability Act (ADA)
- l.) GEPA, USEPA, CFR29
- m.) Guam Energy Code
- n.) Army Corp of Engineers
- o.) 2006 CNMI/Guam Stormwater Management Manual
- p.) All other codes, regulations, technical publications and design manuals applicable in the performance of this RFP.

4. GOVERNMENT REVIEWING AND APPROVING AGENCIES:

1. Department of Public Works
2. Guam Environment Protection Agency
3. Department of Land Management
4. Guam Power Authority
5. Guam Waterworks Authority
6. Guam Historic Preservation
7. Guam Department of Agriculture

5. DISPOSAL:

1. Removal and Disposal fee shall be paid by the contractor.

6. DESIGN AND CONTRACT REQUIREMENTS:

The project shall conform to latest International Building Code (IBC), other related applicable codes and regulations for building construction and safety to be used where applicable. Modern construction techniques maybe incorporated in the project design to obtain both quality and economy and to provide a functional, complete and usable facility.

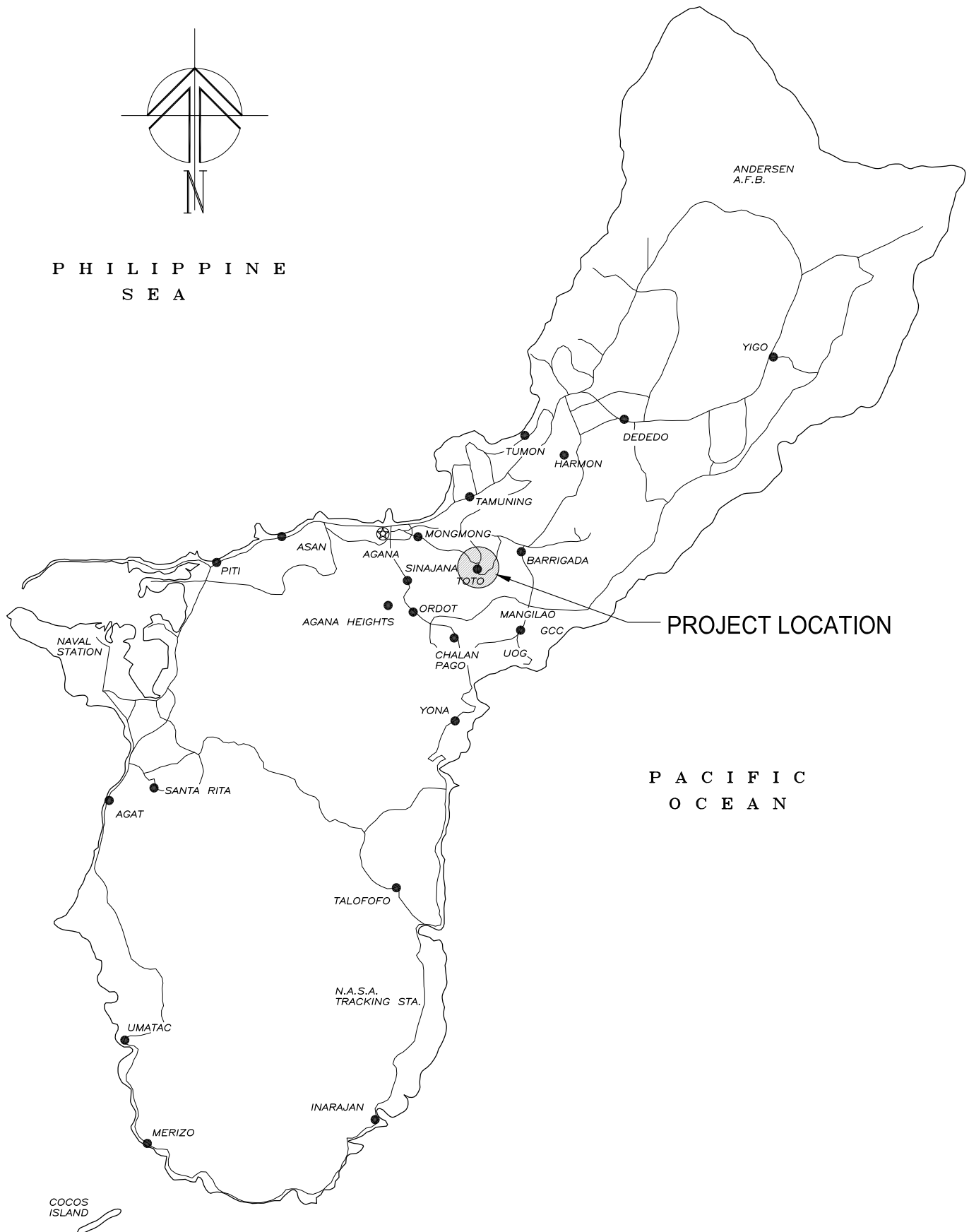
The contractor shall obtain a Work Clearance Request Form prior to the start of work as well as other applicable permits required being accomplished.

The contractor operation shall be limited to providing minimum disruption to facility operation and mission requirements. Applicable work contingencies plans shall be available in the event of natural disaster and other related emergencies.

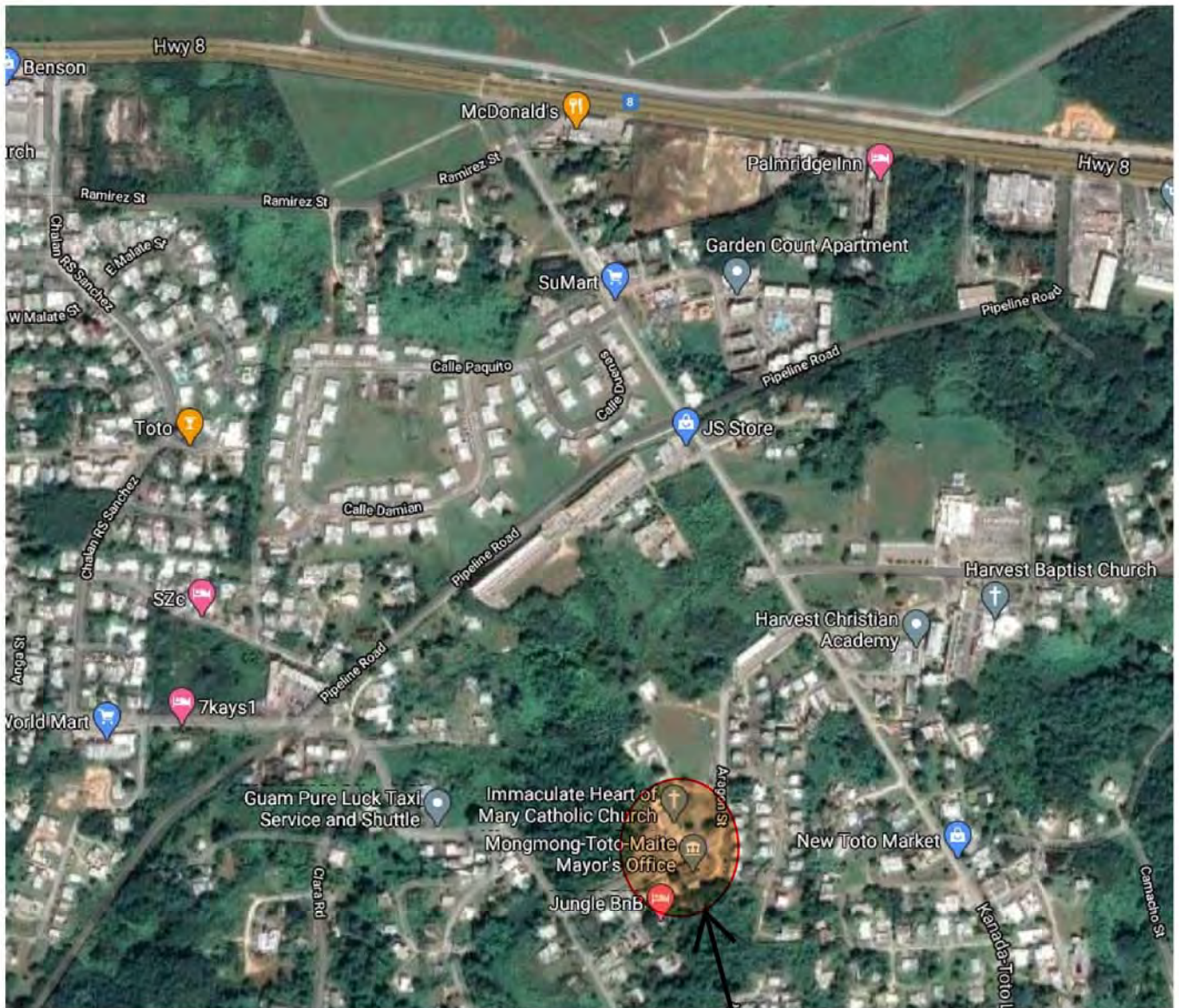
The contractor operation shall be confined to the immediate vicinity of the work and shall not in any way to interfere or obstruct the ingress or egress to and from adjacent property. All existing improvements shall be protected from damage.

Design Submittal Schedule:

- 60% Design Submittal: No later than 35 calendar days following construction award date. Submit five (5) hard copies of (11" x 17") size format, specifications, preliminary construction schedule and basis of design, and electronic pdf copies on two (2) CD-ROMs. Allow 7 calendar days for Government review.
- 100% Design Submittal: 15 calendar days following receipt of Government review comments on the 60% design submittal. Submit five (3) hard copies (22" x 34") ANSI D size format drawing sets, calculations, specifications , preliminary construction schedule, basis of design also submit electronic pdf copies on two (2) CD-ROMs. Allow 7 calendar days for Government review.
- Construction Drawings: 10 calendar days following receipt of Government review comments on the 100% Design and notice to proceed (NTP) with Construction drawings documents. Submit three (5) hard copies (22" x 34") ANSI D size format drawing sets, specifications (included in the drawings), preliminary construction schedule, basis of design; also provide electronic pdf copies on two (2) CDROMs.



KEY MAP



LOCATION MAP

11/05/20

162,250'

LOT NO. 1139

162,000'

161,750'

161,500'

E 174,500'

N 161,250'

E 175,000'

E 175,500'

E 176,000'

E 176,500'

E 177,000'

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E 178,000'

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E 180,000'

E 180,500'

LOT NO. 141

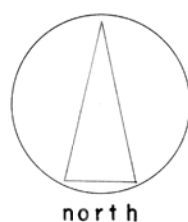
LOT NO. 144-A

TOTO RECREATION AREA
(NOT DEFINITELY DESCRIBED NOR DESIGNATED)

LOT NO. 145

LOT NO. 144-B

AREA = 56,841.62 SQ. FT.
5,280.78 SQ. M.



LOT NO. 141 R/W
LOT NO. 143 R/W
LOT NO. 144 R/W
LOT NO. 145 R/W
LOT NO. 146 R/W
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LOT NO. 181 R/W
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LOT NO. 186 R/W
LOT NO. 187 R/W
LOT NO. 188 R/W
LOT NO. 189 R/W
LOT NO. 190 R/W
LOT NO. 191 R/W
LOT NO. 192 R/W
LOT NO. 193 R/W
LOT NO. 194 R/W
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LOT NO. 197 R/W
LOT NO. 198 R/W
LOT NO. 199 R/W
LOT NO. 200 R/W

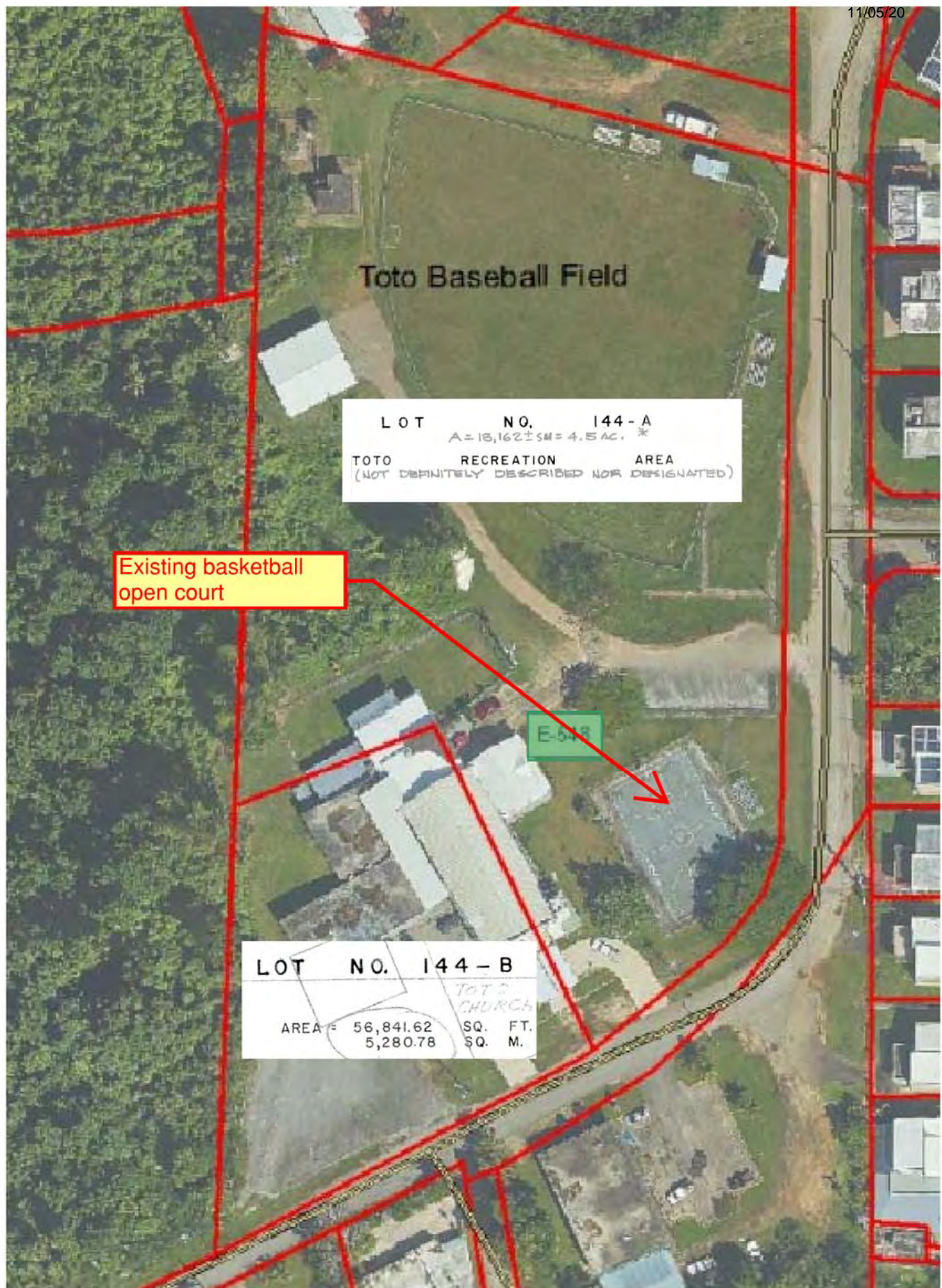


KEY MAP
(SCALE: 1 in. = 25,000 ft.)

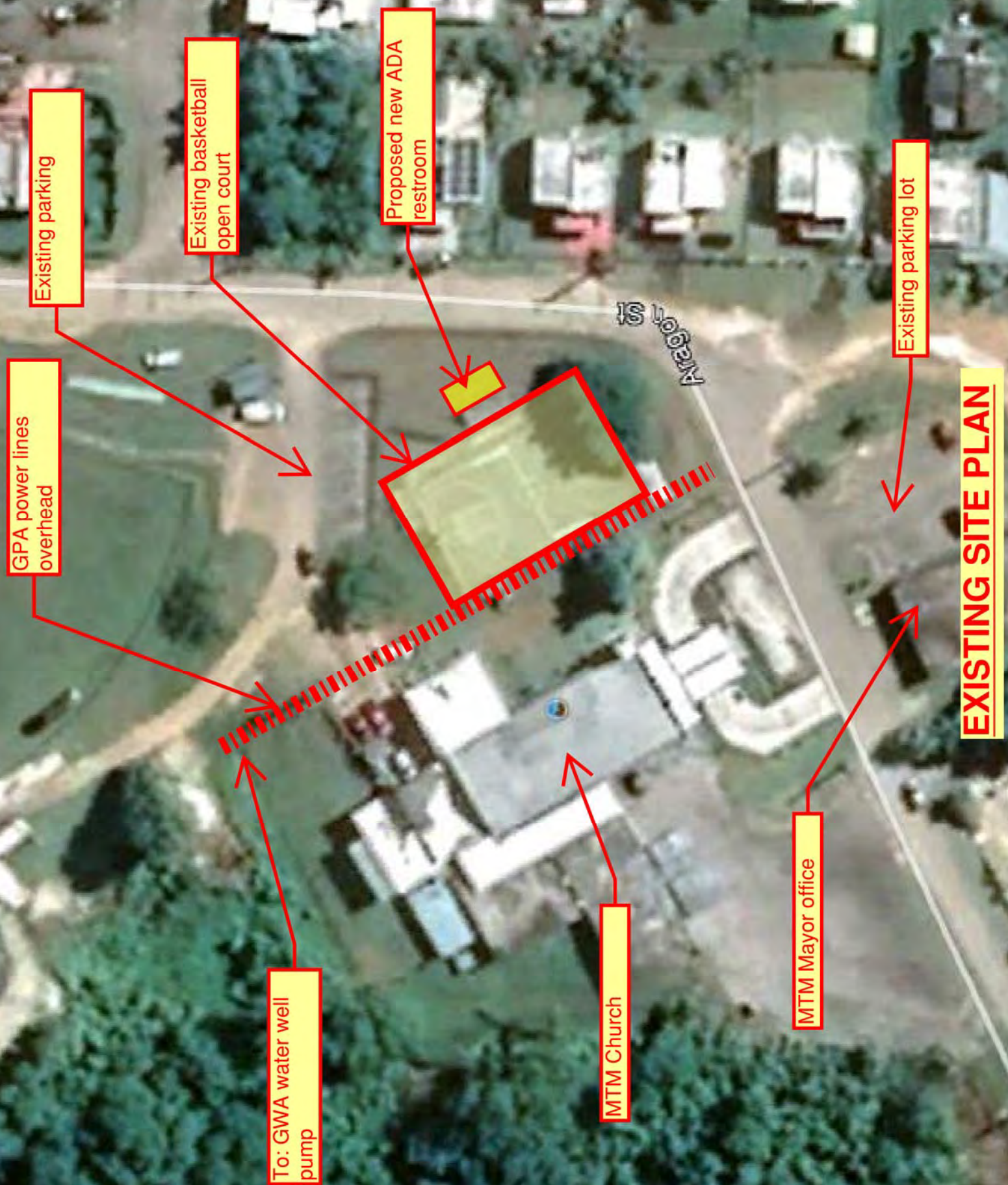
NOTE:

COORDINATE VALUES BASED ON 1945 L.S. CO.

REVISION	DATE	DESCRIPTION	BY	APPROVED
DESIGN		GOVERNMENT OF GUAM, M. I.		
FIELD		DEPARTMENT OF LAND MANAGEMENT		
COMPUTED	A.T.D.	LAND PLANNING DIVISION		
DRAWN	E.D.G.	PROPERTY MAP LOT NOS. 144-A, 144-B, 141 R/W & 143 R/W LAND SQ. 19 SECTION 2 MUN. OF SINAJANA		
TRACED	E.D.G.			
CHECKED	P.C.B.			
SUPERVISOR	P.C.B.			
FIELD SUPERV.				
DATE		APPROVED	1061	
SCALE	1 in. = 50 ft.	DIRECTOR OF LAND MANAGEMENT		
TO NO. DATE		SHEET NO. L.M. DRAWING NO.		
ISSUED		Page 6 of 13 E4-6IT548		
CHIEF OF LAND PLANNING				

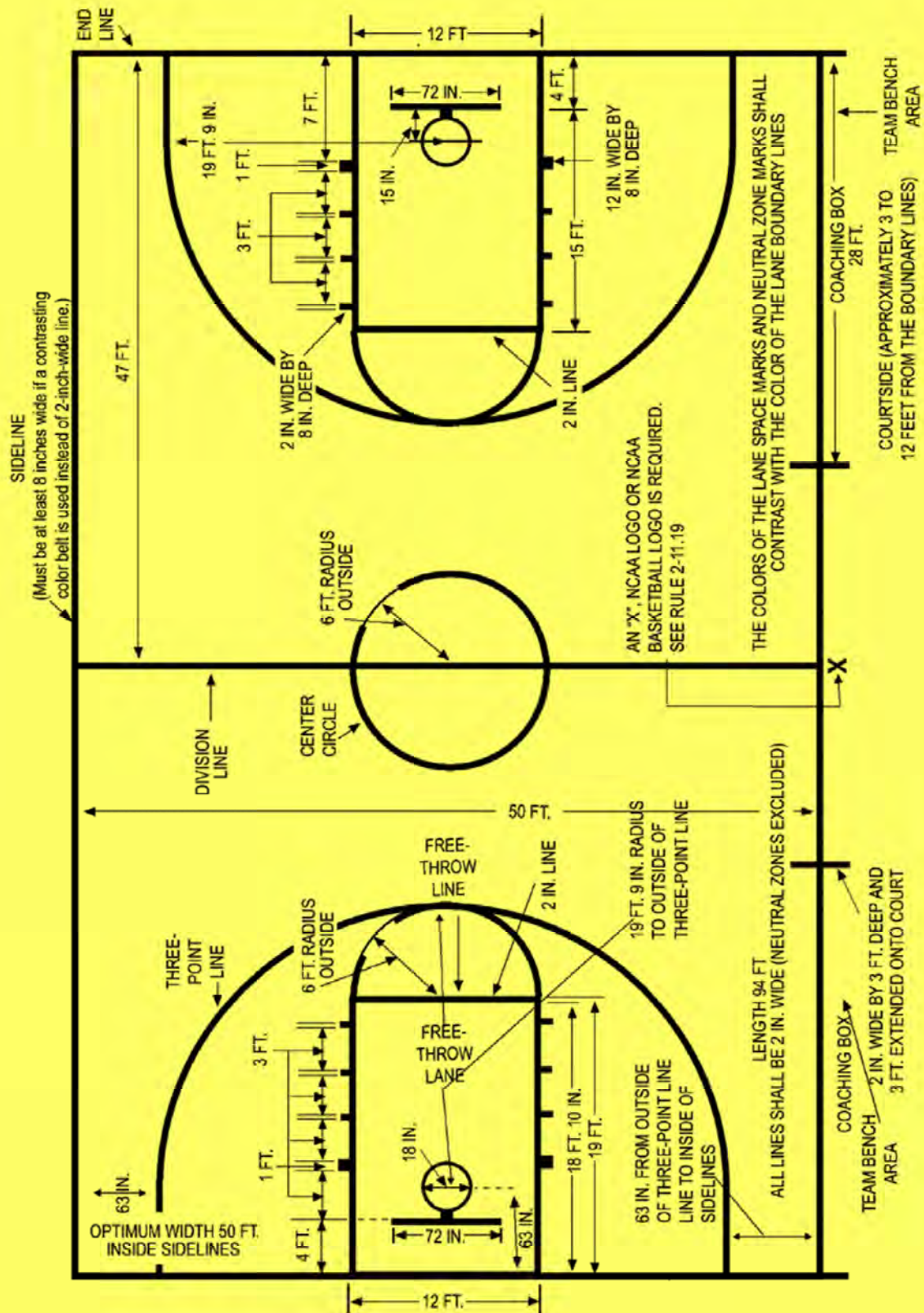


EXISTING SITE PLAN



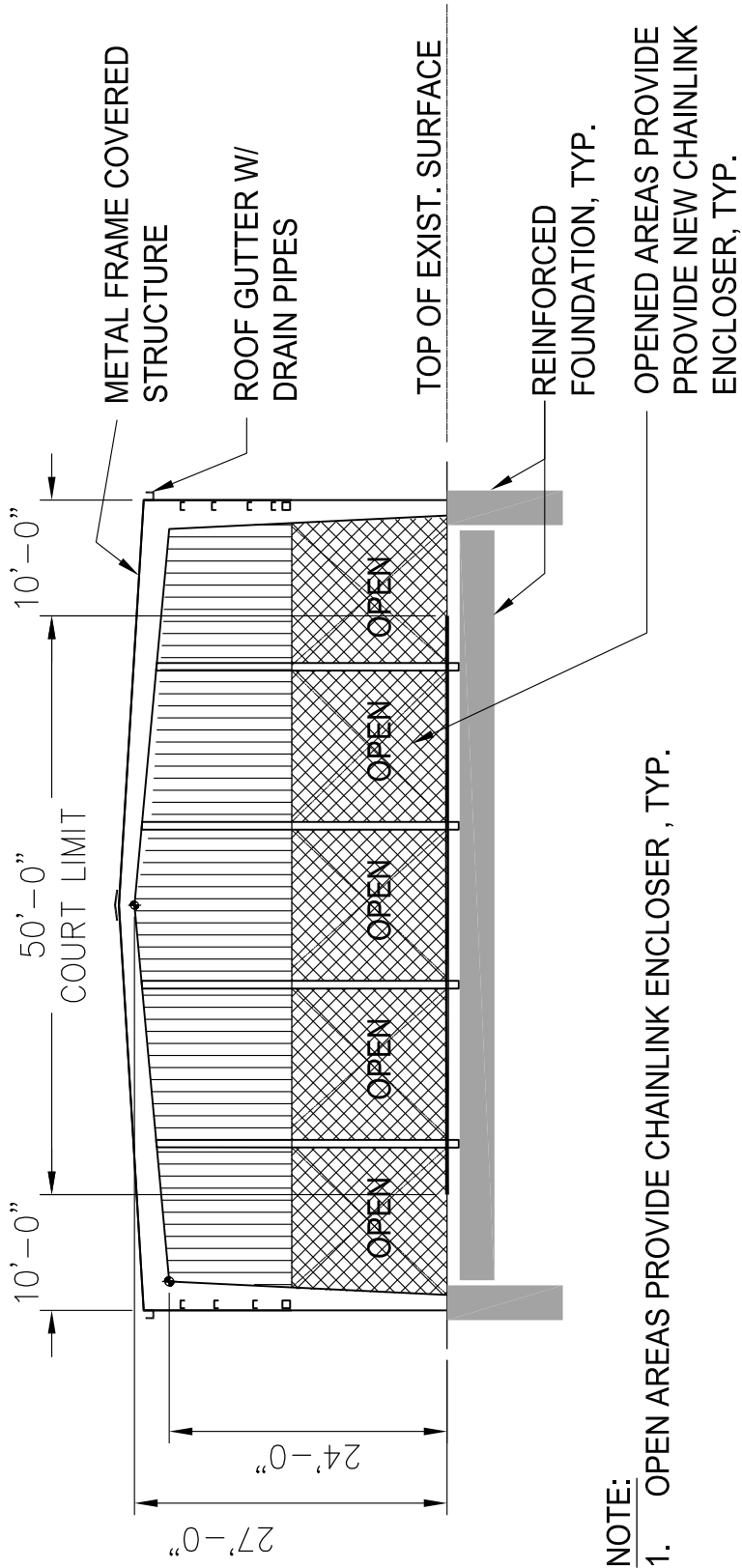


Approximate location of 6-inch water mains (in blue) and 8-inch gravity sewer mains (in yellow). All information must be field-verified, including locations and pipe size, depth, and material.



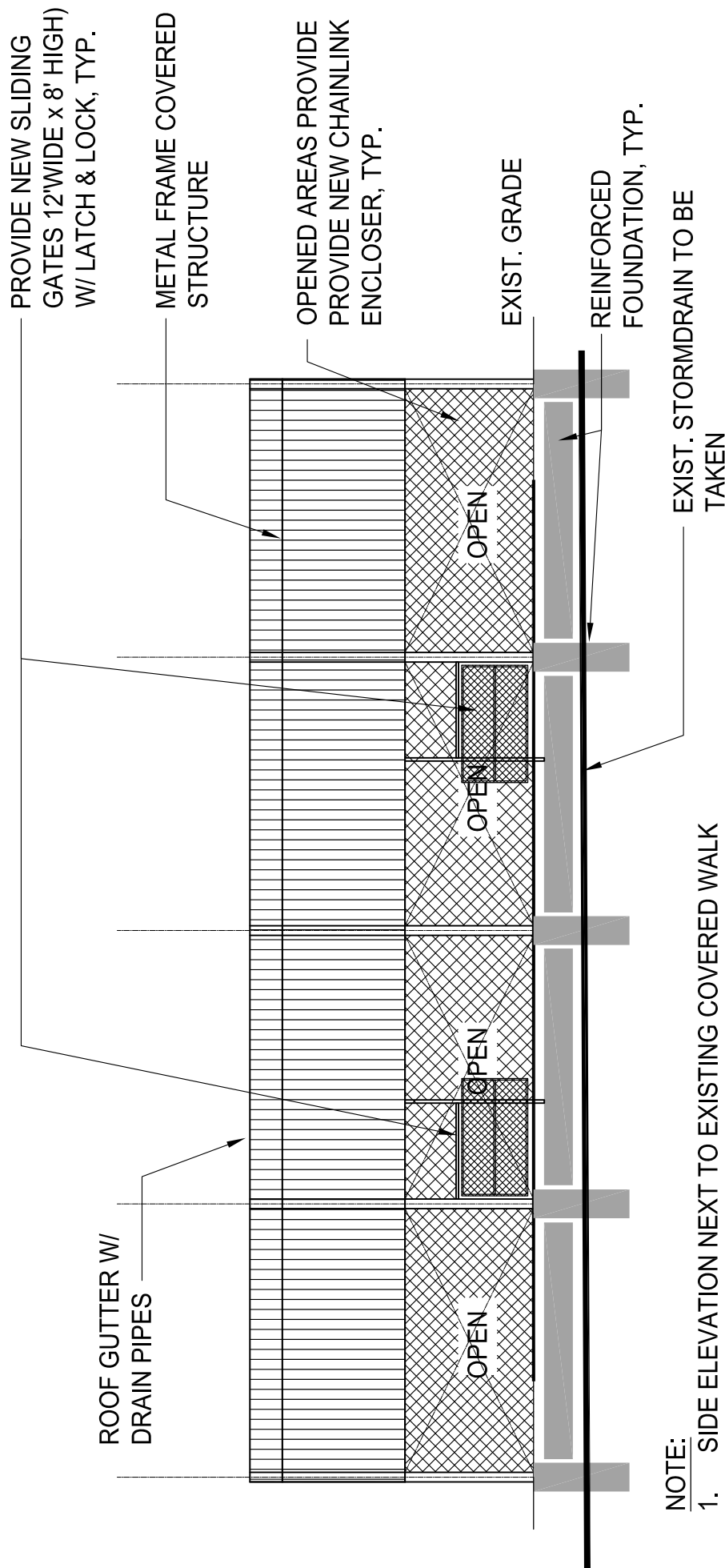
115'-0"

BASKETBALL COURT FLOOR PLAN



NEW METAL STRUCTURE (END ELEVATION)

SCALE: 1/16" = 1'-0"

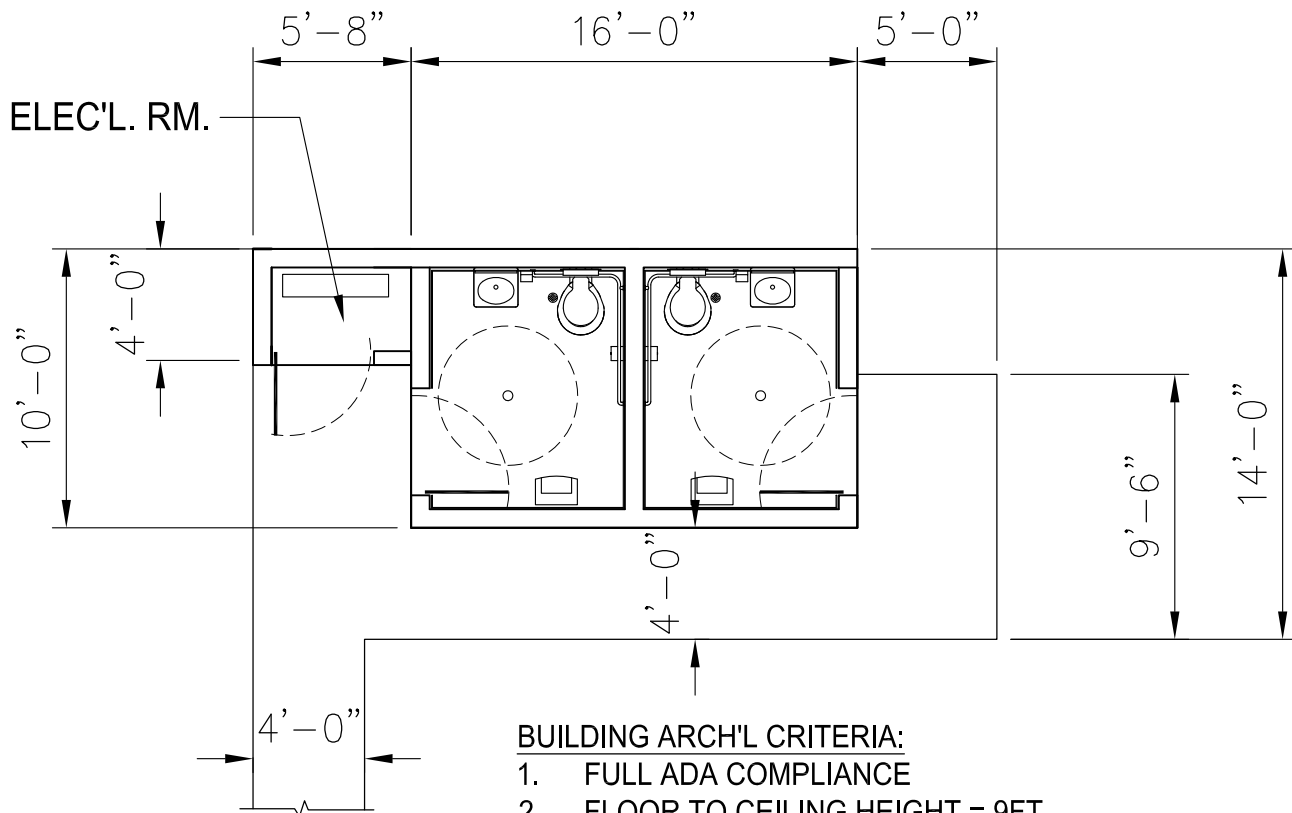


NOTE:

1. SIDE ELEVATION NEXT TO EXISTING COVERED WALK WAY, PROVIDE 2-SLIDING GATE.
2. SIDE ELEVATION ALONG CHALAN GUMAYUUS ROAD NO SLIDING GATES REQUIRED.

NEW METAL STRUCTURE (SIDE ELEVATION)

SCALE: 1/16" = 1'-0"



BUILDING ARCH'L CRITERIA:

1. FULL ADA COMPLIANCE
2. FLOOR TO CEILING HEIGHT = 9FT.
3. WALL & FLOOR CM TILES FINISH (FLOOR NON SKID TILES).
4. ALL STRUCTURES PLASTER AND PAINT FINISH
5. MECHANICAL EXHAUST VENT
6. LED LIGHT FIXTURES
7. FLOOR DRAINS
8. EXTERIOR HOSE BIB
9. ELECTRICAL ROOM
10. ALUMINUM DOORS & LEVER TYPE HANDLE

NEW RESTROOM FLOOR PLAN



GHURA

Guahan Housing and Urban Renewal Authority
Aturidat Ginima' Yan Rinueban Siudad Guahan
117 Bien Venida Avenue, Sinajana, GU 96910

Phone: (671) 477-9851 Fax: (671) 300-7565 TTY: (671) 472-3701



SPECIFICATIONS

MTM COMMUNITY RECREATIONAL FACILITY
MONG-MONG TOTO MAITE, GUAM

TABLE OF CONTENTS

DIVISION 1

Section 01027
01068
01205
01310
01340
01400
01500
01560
01631
01700

GENERAL REQUIREMENTS

Payments
Definitions and Standards
Procedure and Controls
Schedules & Reports
Shop Drawings, Product Data and Samples
Quality Control
Temporary Facilities
Environmental Protection
Products and Substitutions
Project Closeout

DIVISION 2

Section 02050
02102
02200
02203
02831

SITEWORK

Demolition
Clearing and Grubbing
Earthwork
Base Course
Chain Link Fences

DIVISION 3

Section 03100
03200
03300
03301

CONCRETE

Concrete Form-work
Concrete Reinforcement
Cast-in-Place Concrete
Miscellaneous Concrete Structures

DIVISION 4

Section 04100
04230

MASONRY

Mortar
Reinforced Unit Masonry

DIVISION 5

Section 05120
05500
05521
05600

METALS

Structural Steel
Metal Fabrications
Pipe and Tube Railings
Ornamental Metal Work

DIVISION 6

WOOD AND PLASTIC

DIVISION 7

THERMAL AND MOISTURE PROTECTION

DIVISION 8

DOORS AND WINDOWS

DIVISION 9

09100
09200
09900

FINISHES

Metal Support System
Lath and Plaster
Painting

DIVISION 10

SPECIALTIES

DIVISION 15

Section 15050
15160

MECHANICAL

Mechanical General Requirements
Storm Drainage Piping

DIVISION 16

Section 16050

16110

16120

16130

16134

16140

16170

16180

16450

16500

ELECTRICAL

Electrical General Requirements

Raceways

Conductors

Boxes

Panelboards

Wiring Devices

Disconnects

Protecting Devices

Grounding

Lighting

SECTION 01027 – APPLICATIONS FOR PAYMENT

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements governing the Contractor's Applications for Payment.
 - 1. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule, List of Subcontracts, and Submittal Schedule.
- B. The Contractor's Construction Schedule and Submittal Schedule are included in Section "Schedules and Reports".

1.3 SCHEDULE OF VALUES

- A. Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
 - a. Contractor's construction schedule.
 - b. Application for Payment Form.
 - c. List of subcontractors.
 - d. List of products.
 - e. List of principal suppliers and fabricators.
 - f. Schedule of submittals.
 - 2. Submit the Schedule of Values to the Contracting Officer, **PRIOR TO START OF CONSTRUCTION**.
- B. Format and Content: use the Specification's Table of Contents as a guide to establish the format for the Schedule of Values.
 - 1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location
 - b. Name of the architect
 - c. Project number.

- d. Contractor's name and address.
 - e. Date of submittal.
2. Arrange the Schedule of Values in a tabular form with separate columns to indicate the following for each item listed:
 - a. Generic name.
 - b. Related specification section.
 - c. Name of subcontractor
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that have affected value.
 - g. Unit cost total dollar value.
 - h. Percentage of Contract Sum to the nearest one-hundredth percent, adjusted to total 100 percent.
3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Break principal subcontract amounts down into several line items.
4. Round amounts off to the nearest whole dollar; the total shall equal the Contract Sum.
5. For each part of the Work where an Application for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed, provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
6. Margins of Cost: Show line items for indirect costs, and margins on actual costs, only to the extent that such items will be listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete including its total cost and proportionate share of general overhead and profit margin.
 - a. At the Contractor's option, temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown as separate line items in the Schedule of Values or distributed as general overhead expense.
7. Schedule Updating: Update and resubmit the Schedule of Values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Record of Change Orders is to be kept on a separate sheet.

1.4 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Contracting Officer and paid for by the Owner.

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is the 15th day of each month. The period of construction Work covered by each Application for Payment is the period ending 15 days prior to the date for each progress payment and starting the day following the end of the preceding period.
- C. Payment Application Forms: Use the HUD provided form for Application for Payment.
- D. Application Preparation: Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on behalf of the Owner. Incomplete applications will be returned without action.
 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions have been made.
 2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.
- E. Transmittal: Submit 3 executed copies of each Application for Payment to the Contracting Officer by means ensuring receipt within 24 hours; one copy shall be complete, including waivers of lien and similar attachments.
 1. Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to the Contracting Officer.
- F. Waivers of Mechanics Lien: With each Application for Payment, submit waivers of mechanics lien from every entity who may lawfully be entitled to file a mechanics lien arising out of the Contract, and related to the Work covered by the payment. This includes, but is not limited to, subcontractors and suppliers.
 1. Submit partial waivers on each item for the amount requested, prior to deductions for retainage, on each item.
 2. When an application shows completion of an item, submit final or full waivers.
 3. The Owner reserves the right to designate which entities involved in the Work must submit waivers.

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

4. Waiver delays: Submit each Application for Payment with the Contractor's waiver of mechanics lien for the period of construction covered by the application.
 - a. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of Work covered by the application who could lawfully be entitled to a lien.
 5. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to Owner.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following:
1. List of subcontractors.
 2. List of principal suppliers and fabricators.
 3. Schedule of Values.
 4. Contractor's Construction Schedule (preliminary, if not final).
 5. Schedule of principal products.
 6. Schedule of unit prices.
 7. Submittal Schedule (preliminary, if not final).
 8. List of contractor's staff assignments.
 9. List of contractor's principal consultants.
 10. Copies of building permits.
 11. Copies of authorizations and licenses from governing authorities for performance of the Work.
 12. Initial progress report.
 13. Report of pre-construction meeting.
 14. Certificates of insurance and insurance policies.
- H. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; this application shall reflect any Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

Administrative actions and submittals that shall proceed or coincide with this application include:

1. Occupancy permits and similar approvals.
2. Warranties (guarantees) and maintenance agreements.
3. Test/adjust/balance records.
4. Maintenance instructions.
5. Meter readings.
6. Start-up performance reports.

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

7. Change-over information related to Owner's occupancy, use, operation, and maintenance.
8. Final cleaning.
9. Application for reduction of retainage, and consent of surety.
10. Advice on shifting insurance coverages.
11. List of incomplete Work, recognized as exceptions to Contracting Officer's Certificate of Substantial Completion.

I. Final Payment Application: Administrative actions and submittals, which must precede or coincide with submittal of the final payment Application for Payment include the following:

1. Completion of Project closeout requirements including submission of as-built drawings, one full size prints and one electronic CAD files, AutoCad 2000 version in CD form.
2. Completion of items specified for completion after Substantial Completion.
3. Assurance that unsettled claims will be settled.
4. Assurance that Work not complete and accepted will be completed without undue delay.
5. Transmittal of required Project construction records to Owner.
6. Proof that taxes, fees and similar obligations have been paid.
7. Removal of temporary facilities and services.
8. Removal of surplus materials, rubbish and similar elements.
9. Change of door locks to Owner's access.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION

SECTION 01068 - DEFINITIONS AND STANDARDS

PART 1 - GENERAL

DEFINITIONS:

General Explanation: A substantial amount of specification language constitutes definitions for terms found in other contract documents, including drawings which must be recognized as diagrammatic in nature and not completely descriptive of requirements indicated thereon. Certain terms used in the contract documents are defined generally in this section. Definitions and explanations of this section are not necessarily either complete or exclusive, but are generally for the work to the extent not stated more explicitly in another provision of contract documents.

Indicated: The term "Indicated" is a cross-reference to graphics, notes or schedules on drawings, to other paragraphs or schedules in the specifications, and to similar means of recording requirements in contract documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used in lieu of "indicated," it is for purpose of helping reader locate cross-reference, and no limitation of location is intended except as specifically noted.

Approve: Where used in conjunction with Architect's/Engineer's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of term "approved" will be held to limitations of Architect's/Engineer's responsibilities and duties as specified in General and Supplementary Conditions. In no case will "approval" by Architect/Engineer be interpreted as a release of Contractor from responsibilities to fulfill requirements of the contract documents.

Project Site: The space available to Contractor for performance of the work, either exclusively or in conjunction with others performing other work as part of the project. The extent of project site is shown on drawings, and may or may not be identical with description of land upon which project is to built.

Furnish: Except as otherwise defined in greater detail, term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.

Install: Except as otherwise defined in greater detail, term "install" is used to describe operations at project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing protecting, cleaning and similar operations, as applicable in each instance.

Provide: Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.

Installer: The entity (person or firm) engaged by the Contractor or its subcontractor for performance of a particular unit of work at project site, including installation, erection application and similar required operations. It is a general requirement that such entities (Installers) be expert in the operations they are engaged to perform.

Testing Laboratory: An independent entity engaged to perform specific inspections or tests of the work, either at project site or elsewhere; and to report and interpret results of those inspections or tests.

FORMAT AND SPECIFICATION EXPLANATIONS:

Specifying Methods: The techniques or methods of specifying to record requirements varies, and may include "prescriptive," "open generic-descriptive," "compliance with standards," "performance," "proprietary," or a combination of these. The method used for specifying one unit of work has no bearing on requirements for another unit of work.

Overlapping and Conflicting Requirements: Where compliance with 2 or more industry standards or sets of requirements is specified, and overlapping those different standards or requirements establishes different or conflicting minimums or levels of quality, the most stringent requirement (which is generally recognized to be also the most costly) is intended and will be enforced, unless specifically detailed language written into contract documents (not by way of reference to an industry standard) clearly indicates that a less stringent requirement is to be fulfilled. Refer apparently-equal-but different requirements, and uncertainties as to which level of quality is more stringent, to Architect/Engineer for a decision before proceeding.

Number of Specified Items Required

Wherever in this specifications an article, device or piece of equipment is referred to in the singular number, such reference applies to as many articles as are indicated on the drawings or required to complete installation.

Discrepancies

In the event of a discrepancy, as between small scale drawings and larger scale details, or between drawings and specifications, or within the specifications, immediately bring the discrepancy to the attention of the Architect for a decision before proceeding with the particular work involved. Work carried out disregarding these instructions is subject to removal and replacement at the expense of the Contractor.

Minimum Quality/Quantity: In every instance, quality level or quantity shown or specified is intended as minimum for the work to be performed or provided. Except as other wise specifically indicated, actual work may either comply exactly with that minimum (within specified tolerances), or may exceed that minimum within reasonable limits. In complying with requirements, indicated numeric values are either minimums or maximums as noted or as appropriate for context of requirements. Refer instances of uncertainty to Architect/Engineer for decision before proceeding.

Abbreviations: The language of specifications and other contract documents is of the abbreviated type in certain instances, and implies words and meanings which will be appropriately interpreted. Specific abbreviations have been established, principally for lengthy technical terminology and primarily in conjunction with coordination of specification requirements with notations on drawings and in schedules. Trade association names and titles of general standards are frequently abbreviated. Singular words will be interpreted as plural and plural words will be interpreted as singular where applicable.

DRAWING SYMBOLS:

Except as otherwise indicated, graphic symbols used on drawings are those symbols recognized in the construction industry for purposes indicated.

INDUSTRY STANDARDS AND CODES:

General Applicability of Standards: Applicable standards of the construction industry and Building Codes adopted by Governing Agencies have the same force and effect (and are made a part of contract documents by reference) as if copied directly into contract documents, or as if published copies were bound herewith.

Referenced standards (referenced directly in contract documents or by governing regulations) have precedence over non-referenced standards which are recognized in the industry for applicability to work. Except as otherwise indicated, where compliance with an industry standard is required, comply with standard in effect as of the date of contract documents.

Copies of Standards and Codes: Provide where needed for proper performance of the work; obtain directly from publication sources.

END OF SECTION 01068

SECTION 01205 - PROCEDURES AND CONTROLS

PART 1 - GENERAL

DESCRIPTION OF WORK

Contractor shall be responsible for the control and coordination of all work by his forces, subcontractors and suppliers. Procedures and performance required for this purpose include:

- Coordination and meetings including meeting minutes.
- Preinstallation Conferences
- Adequate administrative/supervisory personnel.
- Maintenance surveys and records.
- Enforcement and coordination of tradespeople, subcontractors and workmanship standards.
- Conducting of inspections, tests and reports.
- Coordination of general installation provisions.
- Proper cutting and patching procedures and techniques.
- Cleaning and protection of work.

COORDINATION AND MEETINGS

General: Prepare and distribute to each entity performing work at project site, a written memorandum of instructions on required coordination activities, including required notices, reports and attendance at meetings. Prepare similar memorandum for separate contractors where interfacing of work is required.

Coordination Drawings: Where work by separate entities requires offsite fabrication of products and materials which must be accurately interfaced and closely intermeshed to produce required results, prepare coordination drawings to interface and sequence work shown by separate shop drawings.

PREINSTALLATION CONFERENCES

General: Schedule and conduct pre-fabrication and pre-installation meetings as required by the documents. Pre-fabrication and pre-installation meetings are intended to assist the Contractor in determining before hand specific project requirements and to encourage coordination between various trades. Schedule at times appropriate to the type of work involved. Provide adequate notice to all parties to be involved.

ADMINISTRATIVE/SUPERVISORY PERSONNEL

General: In addition to a General Superintendent and other administrative and supervisory personnel required for performance of the work, provide specific coordinating personnel as specified herein.

Project Coordination: Provide a full-time Project Coordinator, who is experienced in administration and supervision of building construction including mechanical and electrical work, and who is hereby authorized to act as the general coordinator of interfaces between units of work. For purpose of this provisions, "interface" is defined to include the scheduling and sequencing of work, sharing of access to work spaces, installations, protection of each other's work, cutting and preparation of coordination drawings, inspections, tests, and temporary facilities and services.

SURVEYS AND RECORDS/REPORTS

General: Working from lines and levels established by property survey, and as shown in relation to the work, establish and maintain bench marks and other dependable markers to set lines and levels for the work at each story of construction and elsewhere on site as needed to properly locate each element of entire project. Advise tradesmen performing the work, of marked lines and levels provided for their use in layout of work.

Survey Procedures: Verify layout information shown on drawings, in relation to property survey and existing bench marks, before proceeding with layout of actual work. As work proceeds, check every major element for line, level and plumb (where applicable), and maintain an accurate surveyor's log or record book of such checks, available for Architect's or Engineer's reference at reasonable times. Record deviations on record drawings.

TRADESPEOPLE AND WORKMANSHIP STANDARDS

General: Instigate and maintain procedures to ensure that persons performing work at site are skilled and knowledgeable in methods and craftsmanship needed to produce required quality-levels for workmanship in completed work. Remove and replace work which does not comply with workmanship standards as specified and as recognized in the construction industry for applications indicated. Remove and replace other work damaged or deteriorated by faulty workmanship and protection of work.

INSPECTIONS, TESTS AND REPORTS

General: Required inspection and testing services as called for in the Specifications are intended to assist in determination of probable compliance of work with requirements, but do not relieve Contractor of responsibility for those compliance, or for general fulfillment of requirements of contract documents. Specified inspections and tests are not intended to limit Contractor's quality control program. Afford reasonable access to agencies performing tests and inspections. Provide adequate notification to testing service of schedule which impacts on the performance of required tests.

Contract Conforming Work:

Resulting From Contract and Code Required Testing/Inspection: Contractor to obtain and pay for costs of Testing/Inspection Services. Contractor to provide for work required to patch any damaged work.

Resulting from Owner Required Testing/Inspection: Owner to pay for initial costs of Testing/Inspection Services. Contractor to patch any damaged work except as follows:

Nonconforming Work:

Contractor to pay for initial testing/inspection costs and other fair costs, if any, incurred by the Owner and Architect which directly resulted from the testing/inspection requirements of the nonconforming work.

Contractor to correct defective work to meet Contract requirements. Pay for all subsequent costs including, but not limited to, further testing as may be required by Owner. Requests for additional time will generally not be considered when resulting from installation of and correction of defective work.

Qualification of Testing Agencies:

Except as otherwise indicated and except where manufacturer's testing facilities are indicated as acceptable, engage independent testing laboratories specializing in required services and complying with "Recommended Requirements for Independent Laboratory Qualification" by ACIL.

Reports: Submit test/inspection reports, including agency's analysis of results and recommendation where applicable, in duplicate to Architect/Engineer except as otherwise indicated, and submit copies directly to governing authorities where required or requested.

DAMAGE CLAIMS

Contractor will be responsible to adequately secure the materials stored at the site and the Work in progress, and also conduct the Work in such a way as not to create undue risks of injury or damages to persons or property. It will be required that the Contractor adequately fence and sign the project site, as necessary, and/or provide or arrange for security personnel to adequately keep unauthorized persons from entering the

construction area at any hour of the day or night. Notwithstanding anything to the contrary in the General Conditions and without limiting the generality of anything contained in the General Conditions, Drawings or Specifications, Contractor is responsible for all damages to persons or property, including damages to work of other contractors, that occur as a result of the Contractor's negligence or the negligence of its employees, agents, representatives, or subcontractors upon the Project in connection with its operations, the use of the Project or the persecution of the Work. Contractor will indemnify and save Owner and all of its officers, agents, employees and consultants harmless against any liability, claims, demands or causes of action of any nature whatsoever for damages of any kind as above set forth, and Contractor agrees at its expense to defend any legal or other action brought against Owner founded upon such liability, claim, demand or cause of action and to pay any attorneys' fees incurred by Owner in connection therewith.

COORDINATION WITH OTHER CONTRACTORS

Schedule work activity in coordination with all on-site contractors; make adjustments in work activity to accommodate the requirements of other contractors.

PART 2 - PRODUCTS (not applicable)

PART 3 - EXECUTION

GENERAL INSTALLATION PROVISIONS

Preinstallation Conferences: Well in advance of installation of every major unit of work which requires coordination and interfacing with other work, meet at project site with installers and representatives of manufacturers and fabricators who are involved in or affected by unit of work, and in its coordination or integration with other work which has preceded or will follow. At each meeting review progress of other work and preparations for particular work under consideration, including requirements of contract documents, options, related change orders, purchases, deliveries, shop drawings, product data, quality control samples, possible conflicts, compatibility problems, time schedules, weather limitations, temporary facilities, space and access limitations, structural limitations, governing regulations, safety inspection and testing requirements, required performance results, recording requirements, and protection. Record significant discussions of each conference, record agreements and disagreements, along with final plan of action. Distribute record of meeting promptly to everyone concerned, including Architect/Engineer.

Installer's Inspection of Conditions: Require Installer of each major unit of work to inspect substrate to receive work, and conditions under which work will be performed, and to report (in writing to Contractor) unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

Manufacturer's Instructions: Where installations include manufactured products, comply with manufacturer's applicable instructions and recommendations for installation, to the extent these are more explicit or more stringent than requirements indicated in contract documents.

Inspect each item of materials or equipment immediately prior to installation, and reject damaged and defective items.

Provide attachment and connection devices and methods for securing work properly as it is installed; true to line and level, and within recognized industry tolerances if not otherwise indicated. Allow for expansions and building movements, provide uniform joint widths in exposed work, organized for best possible visual effect, as accepted by the Architect.

Recheck measurements and dimensions of the work, as an integral step of starting each installation.

Install work during conditions of temperature, humidity, exposure, forecasted weather, and status of project completion which will ensure best possible results for each unit of work, in coordination with entire work. Isolate each unit of work from non-comparable work, as required to prevent deterioration.

Coordinate enclosure (closing-in) of work with required inspections and tests, so as to minimize necessity of uncovering work for that purpose.

Mounting Heights: Where mounting heights are not indicated, mount individual units of work as industry-recognized standard mounting heights for applications indicated. Refer questionable mounting heights choices to Architect/Engineer for final decision.

CUTTING AND PATCHING

General: Do not cut-and-patch structural work in a manner resulting in reduction of load-carrying capacity or load/deflection ratio; submit proposed cutting and patching to Architect/Engineer for structural approval before proceeding. Do not cut-and-patch operational elements and safety-related components in a manner resulting in decreased operational life, increased maintenance, or decreased safety. Do not cut-and-patch work which is exposed on exterior or exposed in occupied spaces of building, in a manner resulting in reduction of visual qualities or resulting in substantial evidence of cut-and-patch work, both as judged solely by Architect. Remove and replace work judged by Architect to be cut-and-patched in a visually unsatisfactory or otherwise objectionable manner.

Materials: Except as otherwise indicated or approved by Architect/Engineer, provide materials for cutting-and-patching which will result in equal-or-better work than work being cut-and-patched; in terms of performance characteristics and including visual effect where applicable. Use materials identical with original materials where feasible and where recognized that satisfactory results can be produced thereby.

Temporary Support and Protection: Provide adequate temporary support for work to be cut, to prevent failure. Do not endanger other work. Provide adequate protection of other work during cutting-and- patching, to prevent damage; and provide protection of the work from adverse weather exposure.

Cut work by methods least likely to damage work to be retained and work adjoining.

Where physical cutting action is required, cut work with sawing and grinding tools, not with hammering and chipping tools. Core drill openings through concrete work.

Comply with the requirements of applicable sections of Division 2 where cutting-and-patching requires excavating and backfilling.

Restore exposed finishes of patched areas; and, where necessary extend finish restoration onto retained work adjoining, in a manner which will eliminate evidence of patching.

Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing patch, after patched areas have received prime and base coats.

CLEANING AND PROTECTION

General: During handling and installation of work at project site clean and protect work in progress and adjoining work on a basis of perpetual maintenance. Apply suitable protective covering on newly installed work where reasonably required to ensure freedom from damage or deterioration at time of substantial completion; otherwise, clean and perform maintenance on newly installed work as frequently as necessarily throughout remainder of construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

Limiting Exposures of Work: To extent possible through reasonable control and protection methods, supervise performance of work in a manner and by a means which will ensure that none of the work, whether completed or in progress, will be subjected to harmful, dangerous, damaging, or otherwise deleterious exposures during construction period.

END OF SECTION 01205

SECTION 01310 – SCHEDULES AND REPORTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. General: This Section specified administrative and procedural requirements for schedules and reports required for proper performance of the Work.
- B. Schedules required include:
 - 1. Preliminary Construction Schedule.
 - 2. Contractor's Construction Schedule.
 - 3. Unit Price Schedule.
- C. Reports required include:
 - 1. Field correction reports.
 - 2. Special reports.
- D. The schedule of values is included in Section "Applications for Payment".
- E. Project meeting minutes are included in Section "Project Meetings".
- F. Inspection and test reports are included in Section "Quality Control Services".
- G. Product list is included in Section "Materials and Equipment".

1.3 PRELIMINARY CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit a preliminary horizontal bar-chart type construction schedule within 7 days of the date established for Commencement of the Work.
 - 1. Provide a separate time bar for each significant construction activity. Coordinate each element on the schedule with other construction activities. Schedule each construction activity in

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

- proper sequence. Provide a continuous vertical line to identify the first working day of each week.
2. Indicate completion of the Work in advance of the date established for Substantial Completion.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION

SECTION 01340 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for submittal of Shop Drawings, Product Data and Sample to verify that products, materials and systems proposed for use comply with provisions of the Contract Documents.
- B. Shop Drawings include, but are not limited to, the following:
 - 1. Fabrication drawings.
 - 2. Installation drawings.
 - 3. Setting diagrams.
 - 4. Schedules.
 - 5. Design mix formulas.
 - 6. Standard information prepared without specific reference to the Project is not considered to be shop drawings.
 - 7. Coordination drawings are a special type of shop drawing that show the relationship and integration of different construction elements that require close and careful coordination during fabrication or during installation to fit in the restricted space provided or to function as intended.
 - a. Preparation of coordination drawings is specified in the "Project Coordination" Section and may include components previously shown in detail on shop drawings or product data.
- C. Product Data include, but are not limited to, the following:
 - 1. Manufacturer's product specifications.
 - 2. Manufacturer's installation instructions.
 - 3. Standard color charts.
 - 4. Catalog cuts.
 - 5. Standard wiring diagrams.
 - 6. Operational range diagrams.
 - 7. Standard product operating and maintenance manuals.

- D. Samples include, but are not limited to, the following:
1. Partial sections of manufactured or fabricated components.
 2. Small cuts or containers of materials.
 3. Swatches showing color, texture, and pattern.
 4. Color range sets.
 5. Field samples are full-size physical examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the work will be judged.
 6. Mock-ups are full size assemblies for review of construction, coordination, testing, or operation; they are not samples.
- E. Administrative Submittals: Refer to other Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:
1. Permits.
 2. Applications for payment.
 3. Performance and payment bonds.
 4. Insurance certificates.
 5. Listing of subcontractors.
- F. Inspection and Test Reports: Submittal of inspection and test reports is included under Section "Quality Control Services".
- G. Mock-ups: Erection of mock-ups is included under Section "Quality Control Services".

1.3 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of the Work. Transmit each submittal to the Contracting Officer sufficiently in advance of scheduled performance of related construction activities to avoid delay.
1. Coordinate each submittal with other submittals and related activities that require sequential activity including:
 - a. Testing.
 - b. Purchasing.
 - c. Fabrication.
 - d. Delivery.
 2. Coordinate transmittal of different type of submittals for the same element of the Work and different elements of related parts of the work so that processing will not be delayed by the Contracting Officer's need to review submittals concurrently for coordination.

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

- a. The Contracting Officer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are forthcoming.
 3. Scheduling: The Submittal Schedule listing submittals and indicating time requirements for coordination of submittal activity with related construction operations is included under Section "Schedules and Reports".
 4. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.
 - a. Allow two weeks for the Contracting Officer's initial review of each submittal. Where processing must be delayed to permit coordination with subsequent submittals, allow additional time. The Contracting Officer will advise the Contractor promptly when a submittal being processed must be delayed for coordination.
 - b. Where necessary to provide an intermediate submittal between the initial and final submittals, process the intermediate submittal in the same manner as the initial submittal.
 - c. Allow two weeks for reprocessing each submittal.
 - d. No extension of time will be authorized because the Contractor's failure to transmit submittals to the Contracting Officer sufficiently in advance of the Work to permit processing.
- B. Submittal Preparation: Place a permanent label or title block on each submittal for identification.
1. Indicate the name of the firm or entity that prepared each submittal on the label or title block.
 2. Provide a space approximately 4" x 5" on the label or beside the title block to record the Contractor's review and approval markings and the action taken by the Contracting Officer.
 3. Include the following information on the label for processing and recording action taken.
 - a. Project name.
 - b. Date.
 - c. Name and address of Contracting Officer.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Number and title of appropriate specification section.
 - i. Drawing number and detail references, as appropriate.

- C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Contracting Officer, and to other destinations, as indicated, by use of a transmittal form. Submittals received from sources other than the Contractor will be returned to the sender without action.
 - 1. Record relevant information and requests for data on the transmittal form. On the form, or an attached separate sheet, record deviations from requirements of the Contract Documents, including minor variations and limitations.
 - 2. Include the Contractor's signed certification stating that information submitted complies with requirements of the Contract Documents.

1.4 SPECIFIC SUBMITTAL REQUIREMENTS

- A. Shop Drawings: Submit newly prepared information, drawn to accurate scale. Do not reproduce Contract Documents or copy standard printed information as the basis of shop drawings.
 - 1. Include the following information on shop drawings:
 - a. Dimensions.
 - b. Identification of products and materials is included.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - 2. Submit coordination drawings where required for integration of different construction elements. Show construction sequences and relationships of separate components where necessary to avoid conflicts in utilization of the space available.
 - 3. Highlight, encircle or otherwise indicate deviations from the Contract Documents on the Shop Drawings.
 - 4. Do not permit Shop Drawing copies without an appropriate final stamp or other marking indicating the action taken by the Contracting Officer to be used in connections with construction.
 - 5. Sheet Size: except for templates, patterns and similar full-size drawings, submit shop drawings on sheets at least 18" x 24" but no larger than 24" x 36".
 - 6. Initial Submittal: Submit 4 blue- or black-line prints; submit 6 prints where prints are required for maintenance manuals. 3 prints will be retained; the remainder will be returned.
 - a. One of the prints returned shall be marked-up and maintained by the Contractor as a "Record Document".

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

B. Product Data: Collect Product Data into a single submittal for each element of construction or system. Mark each copy to show which choices and options are applicable to the Project.

1. Where Product Data have been printed to include information on several similar products, some of which are not required for use on the Project, or are not included in this submittal, mark copies to clearly indicate which information is applicable.
2. Where Product Data must be specially prepared for required products, materials or systems, because standard printed data are not suitable for use, submit as "Shop Drawings" not "Product Data".
3. Include the following information in Product Data:
 - a. Manufacturer's printed recommendations.
 - b. Compliance with recognized trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurements.
 - f. Notation of coordination requirements.
4. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
5. Submittals: Submit 4 copies of each required Product Data submittal; submit 2 additional copies where copies are required for maintenance manuals. The Contracting Officer will retain three copies, and will return the other marked with the action taken and corrections or modifications required.
 - a. Unless the Contracting Officer observes noncompliance with provisions of the Contract Documents, the submittal may serve as the final submittal.
6. Distribution: Furnish copies of final Product Data submittal to manufacturers, subcontractors, suppliers, fabricators, installers, governing authorities and other as required for performance of the construction activities. Show distribution on transmittal forms.
 - a. Do not proceed with installation of materials, products and systems until a copy of Product Data applicable to the installation is in the installer's possession.
 - b. Do not permit use of unmarked copies of Product Data in connection with construction.

C. Samples: Submit samples physically identical with the material or product proposed for use; submit full-size, fully fabricated samples, cured and finished in the manner specified.

1. Mount, display, or package samples in the manner specified to facilitate review of qualities indicated. Prepare samples to match

- the Contracting Officer's sample where so indicated. Include the following information:
- a. Generic description of the sample.
 - b. Size limitations.
 - c. Sample source.
 - d. Product name or name of manufacturer.
 - e. Compliance with recognized standards.
 - f. Compliance with governing regulations.
 - g. Availability.
 - h. Delivery time.
2. Submit samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
- a. Where variations in color, pattern, texture or other characteristics are inherent in the material or product represented by a sample, submit sets of multiple units of the sample (not less than 3 units), which show approximate limits of the variations.
 - b. Refer to other specification sections for requirements for samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
3. Preliminary Submittals: Where samples are specified for selection of color, pattern, texture or similar characteristics from a manufacturer's range of standard choices, submit a single, full set of available choices for the material or product.
- a. Preliminary submittals will be reviewed and returned with the Contracting Officer's marking indicating selection and other action taken.
4. Submittals: Except for samples intended to illustrate assembly details, workmanship, fabrication techniques, connections, operation and other characteristics, submit 3 sets of samples; one set will be returned marked with the action taken.
- a. Maintain sets of samples, as returned by the Contracting Officer, at the Project site, available for quality control comparisons throughout the course of construction activity.
 - b. Unless the Contracting Officer observes noncompliance with provisions of the Contract Documents, the submittal may serve as the final submittal.
 - c. Samples sets may be used to obtain final acceptance of the construction associated with each set.
5. Distribution of Samples: Prepare and distribute additional sets of samples to subcontractors, suppliers, fabricators, manufacturers, installers, governing authorities, and others as required for performance of the Work. Show distribution on transmittal forms.

1.5 CONTRACTING OFFICER'S ACTION

- A. Except for submittals for the record, for information and similar purposes, where action and return on submittals is required or requested, the Contracting Officer will review each submittal, mark to indicate the action taken, and return promptly.
1. Compliance with specified characteristics is the Contractor's responsibility, and not considered part of the Contracting Officer's review and indication of action taken.
- B. Action Stamp: The Contracting Officer will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
1. Final Unrestricted Release: Where submittals are marked "Approved", that part of the Work covered by the submittal may proceed provided it complied with requirements of the Contract Documents; final acceptance will depend upon that compliance.
 2. Final-But-Restricted Release: When submittals are marked "Approved as Noted", that part of the Work covered by the submittal may proceed provided it complies with both the Contracting Officer's notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on the compliance.
 3. Returned for Resubmittal: When submittal is marked "Not Approved, Revise and Resubmit", do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the Contracting Officer's notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
 - a. Do not permit submittals marked "Not Approved, Revise and Resubmit" to be used at the Project site, or elsewhere where construction is in progress.
 4. Other Action: Where a submittal is primarily for information or record purposes, for special processing or other Contractor activity, the submittal will be returned, marked "Action Not Required".

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01440 - REQUEST FOR INFORMATION

PART 1 - GENERAL

DESCRIPTION OF WORK

Administrative requirements for "RFI's"

DEFINITIONS

Request for Information (RFI): Contractor's written request for information to confirm, reverify, or further clarify intent required by Contract Documents.

SUBMITTALS

Submit RFI on Contractor's standard form.

QUALITY ASSURANCE

Architect's Intent: It is a condition to the Contract for the Work, that prior to the signing of the Contract, that the Contractor to be fully familiar with and clear to the requirements (Architect's design intent) for this Project as represented in the Contract Documents. It also a condition to the Contract for the Work, that prior to the signing of the Contract, should there be any aspect of the Contract which is not clear or not complete enough, that the Contractor is to secure the necessary information from the Architect in order to attain the required understanding of the Project. The primary reasons for this is that the Owner secure a fair and complete cost proposal for the Work; without hidden or additional costs to the Owner and to minimize unnecessary costs to administer the Project during the progress of the Work.

Architect's Drawings and Specifications:

Design Intent: It is an accepted historical and understood practice in the industry that the Architect's Drawings and Specifications reasonably and professionally convey his design intent for the Project, without necessarily indicating every single condition for the Work, but to the degree necessary that Contractors can propose a fair and complete cost for the Work, including for the work not indicated, but implied by the Architect's design intent.

RFI's - Basis of Communication: Due to the fact all conditions are not indicated by the Contract Documents it is understood that additional clarifications will be made necessary during the course of the work by the Contractor in order to fully achieve all aspects of the Architect's design intent and that the RFI procedure becomes the administrative basis by which information is formally communicated between the Architect and the Contractor.

Misuse of the RFI Process: RFI's are not to be used frivolously, including as a method of enlisting the Architect's services for finding information already indicated in the Contract Documents.

Contractor Initiation: RFI's must be submitted through the General Contractor.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION

PROCEDURE

Contractor's Responsibilities:

Examination: Upon discovering a potential aspect of the Work which may require further clarification from the Architect, thoroughly examine the Contract Documents to ensure that the information is not indicated.

Submittal: Where a reasonable search for needed information has been conducted without success, complete and submit an RFI.

Architect's Responsibilities:

Review: Not later than 10 working days after each RFI is received, return to Contractor a response on the submitted form.

END OF SECTION 01500

SECTION 01500 - TEMPORARY FACILITIES

PART 1 - GENERAL

DESCRIPTION OF WORK

Work Included: Temporary facilities required for this work include, but are not necessarily limited to:

- Temporary utilities such as water, electricity, and telephone.
- Sanitary facilities.
- Enclosures such as tarpaulins, barricades, and canopies.
- Temporary fencing of the construction site.
- Project sign.
- Erosion control facilities.

PART 2 - PRODUCTS

UTILITIES

Water:

Provide necessary temporary water lines and water supply and, upon completion of the work, remove such temporary facilities.

Provide and pay for water needed for construction including grading, compacting and dust abatement.

Provide such temporary water lines as called for in civil work for continuous supply to the existing complex. Remove temporary work when permanent work is operational.

Electricity:

Provide necessary temporary wiring and, upon completion of the work, remove such temporary facilities.

Provide area distribution boxes so located that the individual trades may furnish and use 100-foot maximum length extension cords to obtain adequate power and artificial lighting at points where needed for work, inspection, and safety.

Provide and pay for electricity needed for construction.

Provide such temporary transformers, emergency generators, lines, etc. as called for electrical work for continuous supply existing buildings to remain in operation. Remove temporary work when permanent work is operational.

Telephone:

Make necessary arrangements and pay costs for installation and operation of telephone service to the Contractor's office on the site. Coin operated telephones are not acceptable.

FIELD OFFICES AND SHEDS:

Contractor's Facilities:

Provide a field office building and sheds adequate in size and accommodation for Contractor's offices, and storage.

ENCLOSURES

Furnish, install, and maintain for the duration of construction all scaffolds, tarpaulins, barricades, canopies, warning signs, steps, bridges, platforms, and other temporary construction necessary for proper completion of the work and protection of the public in compliance with pertinent safety and other regulations.

TEMPORARY FENCING

Provide a temporary fence around the entire construction area, no less than six feet in height meeting requirements of the Building the Department. Provide truck and pedestrian gates as required.

PROJECT SIGN

4' x 8' temporary construction sign, design to be provided by Architect. Locate sign as indicated or as directed. Use new materials, 3/4" exterior plywood with hardwood edge trim; mount on nominal 4 x 4 posts or fence as appropriate.

Use primer and two coats of exterior paint on sign background and posts. Use exterior paint on lettering. Have lettering performed by a professional sign painter.

Allow no other signs (except safety, directional or warning signs) or advertising of any kind on the job site.

EROSION CONTROL FACILITIES

Provide erosion and control facilities satisfactorily to Department of Public Works and Guam Environmental Protection Agency and as required by Specification Section 01560.

OWNERSHIP OF TEMPORARY FACILITIES AND CONTROLS

Items provided by the Contractor under this section shall remain the property of the Contractor and shall be removed from the job site immediately upon completion of the work.

PART 3 - EXECUTION

ACCESS PROVISION

Provide ramps, stairs, ladders and similar temporary access elements as reasonably required to perform the work and to facilitate its inspection during installation. Comply with reasonable requests of governing authorities performing inspections. When permanent stairs are available for access during construction, cover finished surfaces with sufficient protection to ensure freedom from damage and deterioration at time of substantial completion.

SECURITY/PROTECTION PROVISION

The types of temporary security and protection provisions required include, but not by way of limitation, fire, protection, barricades, warning signs/lights, site enclosure fence, building enclosure/lockup, watchman service, personnel security program (theft prevention), environmental protection, and similar provisions intended to minimize property losses, personal injuries and claims for damages at project site.

Permanent Fire Protection:

Complete each fire protection facility at earliest reasonable date, make ready for emergency use, and instruct personnel at site on availability and proper use.

END OF SECTION 01500

SECTION 01560 - ENVIRONMENTAL PROTECTION

PART 1 - GENERAL

1.1 DEFINITIONS OF CONTAMINANTS

- A. Sediment: Soil and other debris that has been eroded and transported by runoff water.
- B. Solid Waste: Rubbish, debris, garbage, and other discarded materials resulting from industrial, commercial, and agricultural operations, and from community activities' such material having insufficient liquid content to be free flowing.
- C. Rubbish: A variety of combustible and noncombustible wastes such as ashes, waste materials that result from construction or maintenance and repair work, leaves and tree trimmings.
- D. Chemical Wastes: Includes salts, acids, alkalies, herbicides, pesticides, petroleum-derived products and organic chemicals.
- E. Sewage: Water-carried waste products from residences, public buildings, institutions or other buildings, including excrementitious or other discharge from the bodies of human beings or animals, together with such ground water infiltration and surface water as may be present.
- F. Garbage: Refuse and scraps resulting from preparation, cooling, dispensing, and consumption of food.
- G. Asbestos and Asbestos Materials: Asbestos means actinolite, amosite, anthophyllite, chrysotile, crocidolite, and tremolite. Asbestos materials means asbestos or any material containing asbestos such as asbestos waste, scrap, debris, bags, containers, equipment, and asbestos-contaminated clothing consigned for disposal. Friable asbestos material requires a Waste Disposal Permit. Submit one (1) copy of Guam Environmental Protection Agency (GEPA) permit or license which reflects such agency's approval of the disposal plan as being in compliance with their waste disposal regulations.

1.2 ENVIRONMENTAL PROTECTION REQUIREMENTS

- A. Provide and maintain during the life of the contract, environmental protection as defined herein. Provide environmental protective measures as required to control pollution that develops during normal construction practice.

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

- B. Provide also environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Comply with all federal and local statutes and regulations pertaining to environmental protection.

1.3 SUBMITTALS

- A. Environmental protection Plan: Submit two (2) copies of the proposed Environmental Protection Plan (EPP) to the Guam Environmental Protection Agency (GEPA) and 2 copies to the Engineer for review and approval no later than 10 calendar days after receipt of the Notice to Proceed (NTP) with work under this project. Review of the plan by the Engineer and GEPA will be accomplished simultaneously.

The Contractor shall not undertake any clearing, grubbing, earthwork, and excavations until the EPP has been approved by the GEPA and the Engineer.

- B. Solid waste Disposal Permit: Submit one (1) copy of local permit or license which reflects Guam Environmental Protection Agency's (GEPA) approval of the disposal plan as being in compliance with their solid waste disposal regulations.

PART 2 - PRODUCT (None Required)

PART 3 - EXECUTION

- 3.1 PROTECTION OF NATURAL RESOURCES: The natural resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their existing condition or restored to an equivalent or improved condition upon completion of the work. Confine construction activities to areas defined by the work schedule, drawings, and specifications.

- A. Land Resources: Except in areas indicated to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without special permission from the Engineer.

- 1. Protection: Protect existing trees which are to remain and which may be injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. Protect monuments, markers, and works of art.

- B. Repair or Restoration: Repair or restore to their original condition all trees or other landscape features scarred or damaged by the equipment or operations. Obtain

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

approval of the repair or restoration from the Engineer prior to its initiation.

- C. Temporary Construction: At the conclusion of the project, obliterate all signs of temporary construction facilities such as work areas, stockpiles of excess or waste materials, and all other vestiges of construction.
- D. Water Resources: Perform all work in such a manner that any adverse environmental impact on water resources is reduced to a level acceptable to the Engineer.
- E. Oily and Other Hazardous Substances: Take special measures to prevent oily or other hazardous substances from entering the ground, drainage areas, or local bodies of water.

3.2 CONTROL AND DISPOSAL OF SOLID, CHEMICAL, AND SANITARY WASTES: Pick up solid waste and place in containers which are emptied on a regular schedule. The preparation, cooking, and disposing of food are strictly prohibited on the project site. Conduct handling and disposal of waste to prevent contamination of the site and other areas. On completion, leave areas clean and natural looking. Remove signs of temporary construction and activities incidental to construction of the permanent work in place.

- A. Disposal of Rubbish and Debris: Dispose of rubbish and debris in accordance with the requirements specified herein.

Remove rubbish and debris from the project site and dispose of it in compliance with federal and local requirements.

- B. Garbage Disposal: Place garbage in appropriate containers and transport such refuse to an approved landfill for disposal at least once per week. As an alternative, the Contractor may arrange for weekly pickup and disposal service either with a privately-owned garbage collection service. The Contractor shall pay all fees associated with obtaining and maintaining garbage collection and disposal services.
- C. Sewage, Odor, and Pest Control: Dispose of sewage through connection to the public sewage system. Where such system is not available, use chemical toilets or comparably effective units and periodically empty waste into the public sanitary sewage system. Include provisions for pest control and elimination of odors.
- D. Chemical Waste: Store chemical waste in corrosion resistant containers labeled to identify type of waste and date filled. Remove containers from the project site, and dispose of chemical waste in accordance with federal, state, and local regulations. For oil and hazardous material spills which may be large enough to violate federal and local regulations, notify the Engineer immediately and take measures as

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

instructed by the Engineer, at no additional costs.

- E. Petroleum Products: Conduct fueling and lubricating of equipment and motor vehicles in a manner that affords the maximum protection against spills and evaporation. Dispose of lubricants to be discarded and excess oil in accordance with approved procedures meeting federal and local regulations.
- 3.3 DUST CONTROL: Keep dust down at all times, including non-working hours, weekends, and holidays. Sprinkle or treat, with dust suppressors, the soil at the site, haul roads, and other areas disturbed by operations. No dry brooming is permitted. Instead use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing is permitted only for cleaning non-particulate debris, such as steel reinforcing bars. No sandblasting is permitted unless dust therefrom is confined. Only wet cutting of concrete blocks, concrete, and asphalt is permitted. No unnecessary shaking of bags is permitted where bagged cement, concrete mortar, and plaster is used.
- 3.4 NOISE: When available, make the maximum use of "low-noise emission products" as certified by Guam Environmental Protection Agency.

END OF SECTION 01560

SECTION 01631 - PRODUCT SUBSTITUTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling requests for substitutions made after award of the Contract.
- B. The Contractor's Construction Schedule and the Schedule of Submittals are included under Section "Submittals."
- C. Standards: Refer to Section "Definitions and Standards" for applicability of industry standards to products specified.
- D. Procedural requirements governing the Contractor's selection of products and product options are included under Section "Materials and Equipment."

1.3 DEFINITIONS

- A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions." The following are not considered substitutions:
 - 1. Revisions to Contract Documents requested by the Owner or Contracting Officer.
 - 2. Specified options of products and construction methods included in Contract Documents.
 - 3. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.4 SUBMITTALS

- A. Substitution Request Submittal: Requests for **substitution will be considered if received within 60 days after commencement of the Work**. Requests received

more than 60 days after commencement of the Work may be considered or rejected at the discretion of the Contracting Officer.

1. Submit 3 copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures required for Change Order proposals.
2. Identify the product, or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:
 - a. Product Data, including Drawings and descriptions of products, fabrication and installation procedures.
 - b. Samples, where applicable or requested.
 - c. A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements such as size, weight, durability, performance and visual effect.
 - d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors, that will become necessary to accommodate the proposed substitution.
 - e. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.
 - f. Cost information, including a proposal of the net change, if any in the Contract Sum.
 - g. Certification by the Contractor that the substitution proposed is equal-to or better in every significant respect to that required by the Contract Documents, and that it will perform adequately in the application indicated. Include the Contractor's waiver of rights to additional payment or time, that may subsequently become necessary because of the failure of the substitution to perform adequately.
3. Contracting Officer's Action: Within one week of receipt of the request for substitution, the Contracting Officer will request additional information or documentation necessary for evaluation of the request. Within 2 weeks of receipt of the request, or one week of receipt of the additional information or documentation, whichever is later, the Contracting Officer will notify the Contractor of acceptance or rejection of the proposed substitution. If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use the product specified by name. Acceptance will be in the form of a Change Order.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Conditions: When a material, article, or piece of equipment is identified on the drawings or in the specifications by reference to manufacturer's or vendor's name, trade name, catalog number, or the like, it is only identified to establish a standard. Any material, article, or piece of equipment of other manufacturers or vendors that will perform equally or better the duties imposed by the general design will be considered equally acceptable provided the proposed items are, in the opinion of the Contracting Officer, of equal substance, appearance, and function. These items shall not be purchased or installed by the Contractor without the Contracting Officer's written approval.

The Contractor's substitution request will be received and considered by the Contracting Officer when one or more of the following conditions are satisfied, as determined by the Contracting Officer; otherwise requests will be returned without action except to record noncompliance with these requirements.

1. Extensive revisions to Contract Documents are not required.
2. Proposed changes are in keeping with the general intent of Contract Documents.
3. The request is timely, fully documented and properly submitted.
4. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
5. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
6. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner or separate Contractors, and similar considerations.
7. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.
8. The specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.
9. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty.

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

- B. The Contractor's submittal and Contracting Officer's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01631

SECTION 01700 – PROJECT CLOSEOUT

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for project closeout, including, but not limited to:
 - 1. Inspection procedures.
 - 2. Project record document submittal.
 - 3. Operating and maintenance manual submittal.
 - 4. Submittal of warranties.
 - 5. Final cleaning.
- B. Closeout requirements for specific construction activities are included in the appropriate Sections in Division 1 through 16.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
 - 1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the work claimed as substantially complete. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the contract sum.
 - a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the work is not complete.
 - 2. Advise Owner of pending insurance change-over requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
 - 4. Obtain and submit releases enabling the Owner unrestricted use of the work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
 - 5. Deliver tools, spare parts, extra stock, and similar items.

6. Make final change-over of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of change-over in security provisions.
 7. Complete startup testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
 8. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.
- B. Inspection Procedures: On receipt of a request for inspection, the Contracting Officer will either proceed with inspection or advise the Contractor of unfilled requirements. The Contracting Officer will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.
1. The Contracting Officer will repeat inspection when requested and assured that the work has been substantially completed.
 2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.4 FINAL ACCEPTANCE

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
 3. Submit a certified copy of the Contracting Officer's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Contracting Officer.
 4. Submit record drawings, maintenance manuals, final project photographs, damage or settlement, survey, property survey, and similar final record information. Submit complete as-built record drawings in electronic file AutoCad 2000 plus one set of full size prints.
 5. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

Completion, or when the Owner took possession of and responsibility for corresponding elements of the work.

6. Submit consent of surety to final payment.
7. Submit a final liquidated damages settlement statement.
8. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Reinspection Procedure: The Contracting Officer will reinspect the work upon receipt of notice that the work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Contracting Officer.

1. Upon completion of reinspection, the Contracting Officer will prepare a certificate of final acceptance, or advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
2. If necessary, reinspection will be repeated.

1.5 RECORD DOCUMENT SUBMITTALS

A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Contracting Officer's reference during normal working hours.

B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where shop drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the work.
2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or shop drawings.
3. Note related Change Order numbers where applicable.
4. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each sheet and submit.

C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data.

1. Upon completion of the work, submit record specifications to the Contracting Officer for the Owner's records.
- D. Record Product Data: Maintain one copy of each Product Data submittal. Mark these documents to show significant variations in actual work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the work, which cannot otherwise be readily discerned later by direct observation. Note related Change Orders and mark-up of record drawings and Specifications.
1. Upon completion of mark-up, submit complete set of record Product Data to the Contracting Officer for the Owner's records.
- E. Record Sample Submitted: Immediately prior to the date, or dates, of Substantial Completion, the Contractor will meet at the site with the Contracting Officer and the Owner's personnel to determine which of the submitted Samples that have been maintained during progress of the work are to be transmitted to the Owner for record purposes. Comply with delivery to the Owner's sample storage area.
- F. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Contracting Officer for the Owner's records.
- G. Maintenance Manuals: Organize operating and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual heavy-duty 2-inch, 3-ring vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information:
1. Emergency instructions.
 2. Spare parts list.

3. Copies of warranties.
4. Wiring diagrams.
5. Recommended "turn around" cycles.
6. Inspection procedures.
7. Shop Drawings and Product Data.
8. Fixture lamping schedule.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION

3.1 FINAL CLEANING

- A. General: General cleaning during construction is required by the General Conditions and included in Section "Temporary Facilities".
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
 1. Complete the following cleaning operations before requesting Inspection for Certification of Substantial Completion.
 - a. Remove labels that are not permanent labels.
 - b. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
 - c. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substance. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.
 - d. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
 - e. Clean the site, including landscape development areas, of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.
 - f. Replace A/C filters with new filters.

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

- C. Pest Control: Engage an experienced exterminator to make a final inspection, and rid the Project of rodents, insects, and other pests.
- D. Removal of Protection: Remove temporary protection and facilities installed for protection of the work during construction.
- E. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage system. Remove waste materials from the site and dispose of in a lawful manner.
 - 1. Where extra materials of value remaining after completion of associated work have become the Owner's property, arrange the disposition of these materials as directed.

END OF SECTION

SECTION 02050 - DEMOLITION AND REMOVAL

PART 1 - GENERAL

- 1.1 PROCEDURES: Areas in which demolition and removal is to be accomplished shall be as indicated on the drawings either specifically or as a necessary or incidental part of the work. The procedures shall provide for the safe conduct of the work, careful removal and disposition of materials to be removed, protection of property, which is to remain undisturbed, and coordination with other work involved.
- 1.2 Do not begin demolition until authorization is received from the Engineer. Remove rubbish and debris from the project site daily; do not allow accumulations inside or outside the buildings. Store materials that cannot be removed daily in areas designated by the Engineer.
- 1.3 The Contractor shall submit his/her demolition and removal procedures to the Engineer for approval before work is started. Demolition plan shall include procedures for careful removal and disposition of materials specified to be salvaged, coordination with other work in progress, a disconnection schedule of utility services, and a detailed description of methods and equipment to be used for each and sequence of operation.
- 1.4 EXPLOSIVES: Use of explosives will not be permitted.
- 1.5 PROTECTION OF EXISTING STRUCTURES, UTILITIES AND OTHER ITEMS OF PROPERTIES: Existing structures, utilities, and other items of properties to remain shall be protected from damage during demolition and removal operation. Any damage to existing facilities, structures, utilities or other works shall be repaired by the Contractor, using materials equal to or better than those existing, all at the Contractor's expense.
- 1.6 In addition, the Contractor shall seek and obtain written clearances from all utility agencies of the Government of Guam, specifically DPW, GPA, GTA, GWA, MCV etc. prior to undertaking demolition/removal operations. As part of obtaining such clearances, the Contractor shall specifically request each utility agency to stake out the location of their utilities prior to undertaking any demolition or removal work.

PART 2 - PRODUCTS (None required)

PART 3 - EXECUTION

3.1 DEMOLITION

- A. The work includes the demolition and removal of existing concrete curbs, concrete curb and gutter, asphalt pavement, and other items as indicated on the drawings or as required to accomplish the work. Miscellaneous items that will be a hindrance or hazardous to the work to be done shall be removed and disposed of as directed by the

Engineer.

- B. Dust and Noise Control: The amount of dust resulting from demolition shall be controlled to prevent the spread of dust to occupied portions of the area and to avoid creation of a nuisance in surrounding areas. Use of water will not be permitted when it will result in, or create, hazardous or objectionable conditions such as flooding, or pollution. Noise associated with the demolition shall be controlled by proper selection of the equipment used, procedure selected, time of day, or day of the week the work is accomplished, to minimize adverse effects of the necessary noise on the every-day operations or activities of the Contractor.
- C. Notifications: Furnish timely notification of demolition work to the Engineer in writing 10 working days prior to the commencement of demolition work.
- D. Traffic Control Plan: Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Notify the Engineer prior to beginning such work.
- E. Existing Work: Protect existing work, which is to remain in place, be reused, or remain the property of the Government. Repair items, which are to remain, and which are damaged during the performance of the work to their original or better condition or replace with new. Provide new supports and reinforcements to existing construction weakened by demolition or removal work. Repairs, reinforcements, or structural replacements must have Engineer's approval.
- F. Relocations: Perform the removal and reinstallation of relocated items as indicated with the workmen skilled in the trades involved. Coordinate with agency that has jurisdiction over the utility to be relocated. Repair items to be relocated, which are damaged or replace damaged items with new undamaged items as approved by the Engineer.
- G. Title to Materials: Except where specified in other Sections, all material and equipment removed, and not reused, shall become the property of the Contractor and shall be removed from the Government property. Title to material resulting from demolition, and materials and equipment to be removed, is vested in the Contractor upon approval by the Engineer of the Contractor's demolition and removal procedures, and authorization by the Engineer to begin demolition. The Government will not be responsible for the condition or loss of, or damage to, such property after contract award. Materials and equipment shall not be viewed by prospective purchasers or sold on the site.
- H. Salvage: The Contractor shall remove existing facilities, as necessary or as indicated; salvage usable materials as directed; store, transport, stockpile and/or protect it at the location designated. All salvaged materials shall be the property of the Government.

- I. Disposition: Refuse resulting from demolition operations shall be hauled at the Contractor's expense to an approved disposal site(s) or landfill and shall be disposed of at the Contractor's expense in such a manner as to meet all applicable requirements, regulations and laws of the Government of Guam regarding environmental protection, health, safety and public welfare. The Contractor may not dispose of such refuse by burning on the site of the project at any time.

In no case shall any material be left on the project, shoved onto abutting properties or areas, or be burned in embankments or trenches on the project. Demolition and removal/disposal operations shall be carried out well in advance of construction operations so as to permit a well-planned schedule of work.

- 3.2 CLEANUP: Upon completion of demolition and removal operations, the entire area shall be cleaned of all debris and rubbish in a manner satisfactory to the Engineer.

END OF SECTION 02050

SECTION 02072 - MINOR DEMOLITION FOR REMODELING

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

WORK INCLUDED

Demolition of designated structures, foundations, walls, columns and beams and roofs.

Remove designated partitions and components, doors and frames.

Remove designated building equipment and fixtures.

Remove designated finishes and specialty items.

Disconnect, cap and identify utilities.

Construct and maintain temporary partitions to allow occupancy of adjacent building.

Disposal of material at an off-site disposal area.

SUBMITTALS

Submit demolition and removal plan, procedures and schedule.

REQUIREMENTS

Conform to Environmental Protection Section and applicable codes for demolition and disposal. Obtain required permits and notify utility companies as required.

Conform to applicable regulatory procedures when discovering hazardous toxic or contaminated materials.

Conduct demolition to minimize interference with adjacent structures and occupancies. Cease operations immediately if adjacent structures appear to be in danger and take appropriate corrective measures to ensure safety of adjacent structures and occupancies.

EXISTING CONDITIONS

Conduct demolition to minimize interference with adjacent building areas. Maintain protected egress and access at all times.

Restore adjacent surfaces, equipment and fixtures to condition prior to construction, with same type material, size, and finish as the existing.

Provide, erect, and maintain temporary shoring, dust barriers, security and protection barriers.

PRE-INSTALLATION MEETING

Prior to commencing work, meet with Architect and concerned trades on site to review work under this section.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

PREPARATION

Erect and maintain weatherproof closures for exterior openings.

Erect and maintain temporary partitions or barriers to prevent spread of dust, fumes, noise and smoke to occupied areas.

Protect existing items which are not indicated to be altered. Provide bracing and shoring as required.

Disconnect, remove, and cap designated utility services within demolition areas. Mark location of disconnected utilities. Identify and indicate capping locations on Project Record Documents.

EXECUTION

Where wall, ceiling, doors and frame replacement is indicated in the drawings, remove only that portion of the existing system specified for replacement. Protect adjoining elements of the ceiling or wall system. Repair any damage to adjacent building systems.

Demolish in an orderly and careful manner. Protect existing foundation and supporting structural members to remain.

Where indicated, remove foundation walls and footings to a minimum of two feet below finished grade. Remove concrete slabs on grade. Backfill, rough grade and compact areas affected by demolition.

Remove materials to be re-installed or retained in manner to prevent damage. Store and protect until reinstalled.

Remove demolished materials from site as work progresses. Do not burn or bury materials on site. Remove and promptly dispose of contaminated, vermin infested, or dangerous materials encountered. Upon completion of work, leave areas of work in clean condition.

END OF SECTION 02072

SECTION 02102 - CLEARING AND GRUBBING

PART 1 - GENERAL

- 1.1 PROCEDURES: Areas in which clearing and grubbing is to be accomplished shall be as indicated on the drawings either specifically or as a necessary or incidental part of the work. The procedures shall provide for the safe conduct of the work, careful removal and disposition of materials to be removed, protection of property that is to remain undisturbed and coordination with other work involved.
- 1.2 EXPLOSIVES: Explosives shall not be used for clearing and grubbing work.
- 1.3 PROTECTION OF EXISTING STRUCTURES, UTILITIES AND OTHER ITEMS OF PROPERTIES: Existing structures, utilities, and other items of properties designated to remain not identified to be removed shall be protected from damage during clearing and grubbing.

In addition, the Contractor shall seek and obtain written clearances from utility agencies, with existing utilities, structures, and facilities at or near the project site, prior to undertaking any clearing and grubbing operations. Any damage to existing facilities, structures, utilities or other works shall be repaired by the Contractor, using materials equal to or better than those existing, all at the Contractor's expense.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

- 3.1 CLEARING: Clearing shall consist of the felling of trees and the satisfactory disposal of surface objects, trees, and other vegetation not designated to remain, including mowing, as required. Trees, stumps, roots, brush, and other vegetation in areas to be cleared shall be cut off six (6) inches below the existing ground surface, except such trees and vegetation as may be indicated or directed to be left standing. Hedges shall be pulled or grubbed in such a manner as to assure complete and permanent removal. Clearing shall also include the removal and disposal of structures that obtrude, encroach upon, or otherwise obstruct the work. Demolition is specified in the Section 02050 entitled "Demolition and Removal".
- 3.2 TREE REMOVAL: Trees not designated by the drawings or by the Engineer to remain shall be removed by cutting to 6 inches below the existing ground without removing stumps, unless otherwise required. The work shall include the felling and disposal of such trees.

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

- 3.3 **GRUBBING:** Grubbing shall consist of the removal and disposal of stumps, roots larger than three (3) inches in diameter, and matted roots from the area as affected by the proposed site improvements. This material, together with logs and other organic or non-perishable solid objects shall be excavated and removed to a depth of not less than eighteen (18) inches below the original soil surface level of the ground in areas indicated to be grubbed and in areas indicated as construction areas under this contract. Depressions made by grubbing shall be filled with suitable material and compacted in accordance with the requirements specified in Section 02200 entitled "Earthwork", to make the surface conform to the original adjacent surface of the ground.
- 3.4 **DISPOSAL OF CLEARED AND GRUBBED MATERIALS:** All trees, shrub vegetation, and debris shall be removed from the project site and disposed of at an approved location. The Contractor shall make all necessary arrangements with property owners in writing as well as obtain required permits for the use of off-site disposal locations. Woody material may be disposed of by chipping. The wood chips may be used for mulch, slope erosion control or may be uniformly spread over selected areas as directed.

END OF SECTION 02102

SECTION 02200 - EARTHWORK

PART 1 - GENERAL

- 1.1 APPLICABLE PUBLICATIONS: In addition to the recommendations provided within the soils report, which is to be followed closely by the Contractor, the latest issues of the publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

A. American Society for Testing and Materials:

C 136	Sieve or Screen Analysis of Fine and Coarse Aggregates
D 1140	Amount of Material in Soils Finer than the No. 200 (75 micrometer) Sieve
D 1556	Density of Soil in Place by the Sand Cone Method
D 1557	Moisture Density Relations of Soils and Soil Aggregate Mixtures Using 10-lb. (4.54kg) Rammer and 18-in (457-mm) Drop
D 2419	Test for Sand Equivalent Value of Soils and Fine Aggregate
D 2487	Classification of Soils for Engineering Purposes
D 2922	Density of Soil and Soil-Aggregate In Place by Nuclear Methods (Shallow Depth)
D 3017	Moisture Content of Soil and Soil Aggregate In Place by Nuclear Methods (Shallow Depth)
D 4318	Liquid Limit, Plastic Limit and Plasticity Index of Soils

- 1.2 Army Corps of Engineers Publications:

EM-385-1-1 Safety and Health Requirements Manual

- 1.3 DESCRIPTION OF WORK

This Section covers all earthwork required for the construction of the proposed Up-grade

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

of the Sinajana Community Recerational Facility project, including service driveways and parking area, and other work necessary to complete the work as shown in the drawings.

In addition, this Section covers all earthwork required for restoration of damaged existing roads and driveways affected by the construction activities.

1.4 SUBMITTALS

A. Certified Test Reports: Submit certified test reports before starting work for the following:

1. Fill, backfill, bedding tested in accordance with ASTM C136 and ASTM D2487.

1.5 DELIVERY AND STORAGE: Deliver and store materials in a manner to prevent contamination or segregation.

1.6 SOIL SUBSURFACE INVESTIGATIONS: Refer to Subsurface Soil Investigation Report, prepared by Geo-Engineering & Testing, Inc., dated April 30, 2004, at the end of this specification.

1.7 CRITERIA FOR BIDDING AND PREVAILING WORK CONDITIONS: Base bids on the following criteria and be fully prepared to work under the following prevailing conditions:

- A. Surface elevations are as indicated.
- B. Pipes, cables and/or other artificial obstructions in addition to those indicated will likely be encountered.
- C. Groundwater is expected to be encountered at approximately from 5.0 feet below the existing ground surface.
- D. Abandoned pipes or other artificial obstructions encountered are to be demolished and removed at the direction of the Engineer.
- E. Hard material in the form of concrete foundations, asphaltic-concrete pavement and coral rock will be encountered. Hard material is defined as solid rock, firmly cemented unstratified masses, or conglomerate deposits possessing the characteristics of solid rock which can not ordinarily be removed without systematic drilling and blasting or use of special high impact rock-breaking equipment, and any boulder,

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

masonry, or concrete except slabs, pavement, curbs and foundations, exceeding 1/2-cubic yard in volume.

- F. All earthwork is unclassified and that no special or additional compensation will be made for any class of excavation whatsoever, regardless of the type of material or quantity encountered. No extra compensation will be made by reason of any misunderstanding or error on the part of the Contractor with regards to the site, the conditions thereof or the amount and kind of earthwork to be performed.

1.8 PROTECTION OF EXISTING FACILITIES

Existing utilities and construction shall be protected from damage during earthwork operations. The Contractor shall seek and obtain written clearances from all utility agencies, both private and the Government of Guam, specifically DPW, GPA, GWA, GTA, MCV etc., prior to undertaking any earthwork operations. As part of obtaining such clearances, the Contractor shall specifically request each utility agency to stake out the location of their utilities prior to undertaking any excavation or filling work. In addition, the Contractor shall obtain and use as reference as-built drawings of existing utilities from all utility agencies that may have utilities at the project site. Any damages to existing facilities, public or private, shall be promptly repaired by the Contractor at no additional costs. Damages to existing facilities, structures, utilities or other works shall be repaired by the Contractor, using materials equal to or better than those existing, all at the Contractor's expense.

When directed by the Engineer, excavation near or around known utilities shall be by careful hand excavation. Hand excavation shall start at a reasonable distance from each side of the indicated obstruction and shall be continued until the obstruction is uncovered or until clearance for the new line is assured. The Contractor shall properly support all uncovered lines or other existing work as affected by the contract excavation.

Report to the Engineer any condition found which is not indicated on or anticipated by the drawings and specifications and do not proceed with work in the affected area until a decision is rendered.

- 1.9 SAFETY REQUIREMENTS: Work on this project shall comply with OSHA requirements and conform to safety requirements set forth in Army Corps of Engineers Manual EM-385-1-1.

PART 2 - PRODUCTS

- 2.1 SOIL MATERIALS: In general, shall be free of debris, roots, wood scrap material, vegetable matter, refuse, soft unsound particles, deleterious, or objectionable materials.

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

- A. General Fill: Shall conform to the general requirements for soil materials and shall meet the following requirements:

1. Liquid Limit (minus #40 mesh material): Not more than 35.
2. Plasticity Index: Not more than 15.
3. Material passing No. 200 mesh sieve: 25 percent maximum.
4. Maximum particle size (in any dimension): 4 inches

On-site excavated materials or materials obtained from designated borrow areas meeting the above requirements may be used.

- B. Crushed Rock: Crushed rock specified for use as sub-grade improvement, or blending with on-site excavated soil materials shall consist of clean crushed coral rock, and, except where otherwise specified, shall be in pieces varying from 1/2 inch to 2 inches.

- C. Pipe Envelope & Bedding Material: Bedding and envelope material for pipes shall conform to any one of the following materials:

1. Manufactured sand free of organic substances and/or rubbish. When tested in accordance with ASTM C136, the material shall conform to the following gradation limits.

<u>Sieve Size</u>	<u>Percent Passing</u>
3/8 inch	100
No. 4	85 - 100
No. 16	45 - 80
No. 50	10 - 30
No. 100	0 - 10
No. 200	0 - 5

Note: Mining of beach sand is not permitted on the islands of Guam.

- D. Trench Backfill: Backfill for trenches shall meet the requirements of select fill as specified in Subparagraph 2.1(A) of Section 02201 "Earthwork for Utilities", except above sub-grade level for paved areas where backfill shall be base course to the dimensions defined on the drawings.
- E. Base Course: Refer to Section 02203 of these specifications.

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

- F. Unsuitable Materials: In general, unsuitable materials consist of soft soils that cannot meet the compaction requirements after reconditioning by approved methods, and of other objectionable materials.
- G. Material Sources: The Contractor shall be responsible for procuring materials from sources approved by the Engineer. Unless otherwise indicated by the drawings, all borrow or imported materials for earthwork shall be obtained from approved sources off site. Materials shall be selected, mixed and or blended thoroughly to conform to the required specifications for each class of material and stored in stockpiles that are segregated from other materials. Representative samples of each stockpile must be taken by the Independent Laboratory employed by the Contractor in the presence of the Engineer or his authorized representative. No material shall be used in the work or placed in any other location on the project site without the written approval of the Engineer.

All clearing, grubbing, quarrying, crushing, hauling, mixing or blending and other work related or incidental to the importation or processing of materials shall be at the Contractor's expense.

PART 3 - EXECUTION

3.1 GENERAL

- A. Demolition and Removal: Shall be as specified in Section 02050, entitled "Demolition and Removal".
- B. Site Grading: Initially, the areas that need to be graded should be cleared of vegetation, debris, and other perishable mater. Top soil with roots should be stripped and removed from the site or saved for future use in landscaping.
- C. Removal of Unsuitable Material: Remove soil, muck, rubbish, debris and other unsuitable material at and under areas designated for construction.
- D. Excavation: This work shall consist of excavation, disposal and/or compaction of all materials of whatever character encountered within the limits of the work and which is necessary for the construction of improvements in accordance with the grades, thicknesses and typical cross sections shown on the drawings or established by the Engineer. Suitable materials removed from the excavation may be used as far as practicable in the formation of embankment, sub-grade, bedding, and backfill for structures and pipes, and for other purposes shown on the drawings or as directed.

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

- E. Filling (Placement of Fill and Embankment): Filling in areas indicated on the drawings shall consist of placing and compacting of approved material on approved sub-grade, including the placing and compacting of fill material in areas where unsuitable materials have been removed, holes, pits, and other depressions within the project area.
- F. Mat Foundation-Subgrade Excavation: After the site stripping is completed, the upper 3 feet of the exposed sandy soil under the building mat foundation footprint and at least one more foot wider all around the mat foundation should be further excavated for replacement with densely compacted, non-expansive backfill materials. This 3 feet thick of engineered fill may include any new fill to raise the existing site grades under mat foundation; therefore, the thickness of any new fill may be subtracted from the above mat foundation excavation.
- G. Dewatering: Include in dewatering the collection and disposal of all forms of surface and subsurface water that may be encountered in the course of construction.

3.2 REQUIREMENTS FOR GRADING

- A. Preparation for Grading: Prior to beginning excavation, grading, and filling work in any area, perform all necessary demolition and removal and clearing and grubbing work in that area in accordance with Section 02050, entitled "Demolition and Removal" and Section 02102, entitled "Clearing and Grubbing".

Where filling below sub-grade is to be made, all sod and vegetable matter, and unsuitable materials shall be removed from the surface upon which the fill is to be placed, and the cleared surface shall be completely broken up by plowing, scarifying, or stripping to a minimum depth of 6 inches and compacted as per Subparagraph 3.2(F).

- B. Utilization of Excavated Materials: All suitable material removed from excavation shall be used as far as practicable in the formation of the embankment, filling, sub-grade, and backfill for structures, and for other purposes shown on the drawings or as directed. Only approved materials shall be used in the construction of embankments and backfills. All unsuitable material shall be properly disposed of at the Contractor's expense at designated and/or approved disposal areas. All excess materials, including rock and boulders that cannot be used in fill areas shall be disposed of as directed by the Engineer on or off the project site at the Contractor's expense. Material encountered in the excavation and determined by the Engineer as suitable for topping or fill, or other purposes shall be conserved and utilized as

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

directed.

- C. **Drainage Ditches and Swales:** If any drainage ditches and swales required or to be restored after construction shall conform to the slope, grade, and shape of the required cross-section, with no projections of roots, stumps, rock or similar matter. The Contractor shall maintain and keep open and free from leaves, sticks, and other debris all ditches dug by him until final acceptance of the work.
- D. **Removal of Unsuitable Material:** The Contractor shall not excavate beyond the dimensions and elevations established, except where unsuitable materials are encountered in the sub-grade. Where unsuitable materials are encountered, such material shall be removed to a depth required to obtain a dense, unyielding sub-grade as determined by the Engineer. The excavation shall then be backfilled with general fill compacted as required in this Section. If the bottom of excavation is too soft for placing compacted general fill, crushed rock shall be used for backfill in lieu of general fill.

Crushed rock backfill shall be spread uniformly without segregation. The upper surface of the crushed rock shall be compacted until it is dense and non-yielding. This work shall be a basic responsibility of the Contractor and shall be accomplished at no additional costs.

- E. **Placing General Fill:** Unless otherwise permitted by the Engineer, fills and backfills shall not contain mulch, roots, sod, or other deleterious matter.

Rocks, broken concrete, or other solid, bulky materials shall not be placed in embankments areas where piling is to be placed or driven.

Fill material shall be placed in horizontal layers not exceeding 10 inches (loose measurement) and shall be compacted, as specified, before the next layer is placed, except as otherwise directed by the Engineer. Effective spreading equipment shall be used on each lift to obtain uniform thickness prior to compacting. As the compaction of each layer progresses, continuous leveling and manipulating will be required to assure uniform density. Water shall be added or removed, if necessary, in order to obtain the required density. Removal of water shall be accomplished through aeration by plowing, blading, disking, or other methods satisfactory to the Engineer. Hauling equipment shall be dispersed uniformly over the entire surface of the previously constructed layer to minimize rutting or uneven compaction.

- F. **Compaction:** Unless otherwise indicated on the drawings or in the other sections of these specifications, the Contractor shall compact the material placed in all general

fill layers, sub-grade and the material scarified to the designated depth below sub-grade in cut sections, until a uniform density of not less than 95 percent of the maximum determined by ASTM D1557, Method D.

3.3 EARTHWORK FOR STRUCTURES

- A. Description: This work shall consist of the necessary excavating and backfilling for foundations and structures in reasonably close conformity with the drawings or as established by the Engineer. This work shall also include necessary dewatering as well as the furnishing of equipment and materials thereto and their subsequent removal.
- B. Excavation Requirements - All Structures: Trenches or foundation pits for structures or structure footings shall be excavated to the lines and grades or elevations shown on the drawings. They shall be of sufficient size to permit the placing of structures or structure footings of the full width and length shown. The elevations of the bottoms of footings, if shown on the drawings, shall be considered as approximate only, but, in fact, the actual dimensions or elevations of footings shall be those deemed necessary by the Engineer to permit the placement of base or bedding material as indicated on the drawings or to otherwise secure a satisfactory foundation. Boulders, logs, and any other objectionable material encountered in excavation shall be removed. After each excavation is completed, the Contractor shall notify the Engineer to that effect, and no backfill, base course, structure footing or any part of the structure shall be placed until the Engineer has approved the depth of excavation and the character of the foundation material.

In excavations for footings carried below the depths indicated without specific directions from the Engineer, the additional depths shall be backfilled with lean concrete or other approved materials, or the footing shall be extended to the bottom of the excavations; all additional work of this nature shall be at the Contractor's expense. All foundation excavations shall be cleaned of all loose materials and cut to a firm surface. All loose and disintegrated rock and thin strata shall be removed.

When the foundation material is soft or mucky or otherwise unsuitable, as determined by the Engineer, the Contractor shall remove the unsuitable material as provided for in Paragraph 3.2(D). The foundation bedding of fill, as noted on the drawings, shall be placed and compacted in 10-inch loose layers up to the foundation elevation.

Excavations shall be shored and sheeted with members of sizes and arrangement sufficient to prevent injury to persons, damage to structure, injurious caving, or erosion. Shoring, sheeting, and bracing shall be removed, as the excavations are

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

backfilled; care shall be exercised to prevent injurious caving during the removal of the shoring and/or sheeting.

Utilization of Excavated Materials: All excavated material, so far as suitable, shall be utilized as fill and/or backfill. The surplus material shall not be placed within a drainage area, but shall be stockpiled or disposed of finally as directed by the Engineer and in such manner as not to obstruct drainage, or otherwise impair the efficiency or appearance of the structure. No excavated material shall be deposited at any time so as to endanger the partly finished structure.

- C. Backfill for/Fill against Structures: Backfill for or fill against structures shall be placed simultaneously on both sides of the structure, except where conditions require that backfill or embankment is to be placed on only one side or be higher on one side. In such circumstances, backfill shall be placed only with the permission of the Engineer or after the structure has attained sufficient strength. All backfill and embankments adjacent to structures shall be placed in horizontal layers having 10-inch maximum loose thickness, and then compacted as specified herein.
- D. Compaction: If the limits of backfill are within the zone of a road sub-base, a pavement structure, or immediately beneath foundations as defined on the drawings, backfill shall conform to the material and compaction requirements for base course in Section 02203 of these specifications. Compact other backfill adjacent to and not supporting any structural elements to at least 95% as determined by ASTM D1557 (Method D).
- E. Grading Adjacent to Structures: The Contractor shall perform all grading in the areas so indicated. Fill shall be brought to finish grades indicated within 0.10 of a foot and shall be graded to drain water away from structures. Existing grades that are to remain and which are disturbed by the Contractor's operations shall be graded to provide surfaces suitable for the proper use of mowing machines. Grades in areas to receive topsoil shall be brought to acceptable elevation.
- F. Disposition of Surplus and Unsuitable Material: Surplus material not required for filling, backfilling, or grading and other soil material shall be deposited in areas designated by the Engineer or hauled off the project site at the Contractor's expense to approved disposal areas. Wasted material shall be spread and leveled at the disposal area(s) to a degree satisfactory to the Engineer.

3.4 RESTORATION

All disturbed work, including grassing, planting strips, pavements, etc., shall be restored to

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

their original condition or better. Replacement materials shall be subject to the approval of the Engineer and, in the case of asphalt pavements, shall conform to the requirements of Section 02600 of these specifications.

All remaining work that will be exposed shall have all damaged unfinished areas, or defects caused by the removal and preparatory work completely repaired, patched or filled in as required to match the adjoining existing surfaces. Where the method of repair work is not indicated or specified, the Contractor shall perform the repair work in accordance with the best recognized workmanlike procedure for the area and the surrounding construction involved, subject to the approval of the Engineer.

3.5 FIELD SAMPLING AND TESTING

- A. Samples: Submit one 50-pound composite sample for fill or backfill material taken from one source or from excavated materials of a similar, uniform character. Samples in the number directed, shall be submitted whenever the source or character of the material changes. Where imported material is used, a sample shall be taken which is representative of each source. Samples shall be placed in a clean container, which shall be fastened to prevent loss of material, and tagged for identification. The tag shall contain the following information:

Contract No.:

Source:

Sample No.:

Intended Use:

Date of Sample:

Sampler:

- B. Tests: Fill, backfill and bedding shall be tested in accordance with ASTM C136 and for conformance to ASTM D2419, and D2487 gradation limits. Test fill and backfill for material finer than the No. 200 sieve in accordance with ASTM D1140. Test fill and backfill for liquid limit, plastic limit, and plasticity index in accordance with ASTM D4318. Test fill and backfill materials for moisture density relations in accordance with ASTM D1557 Method D. Perform one (1) of each of the required tests for each material used when directed by the Engineer. Provide additional tests as specified above for each source change. Perform density tests in randomly selected locations and in accordance with ASTM D1556 or D2922 as follows: One test per 2,000 square feet in each layer of lift on fill areas or per 2,000 square feet of sub-grade area in cut; one test per layer of lift per 500 linear feet of utility trench, or per utility trench section, whichever is less.

Determine moisture content of soil material in place in accordance with ASTM

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

D3017 as follows:

- a. One test per 2,000 square feet in each layer of lift at fill areas or;
- b. One test per layer of lift per 500 linear feet of utility trench, or per utility trench section, whichever is less.

A change in testing frequency or other requirements may be effected only upon the written approval of the Engineer.

END OF SECTION 02200

SECTION 02203 - BASE COURSE

PART 1 - GENERAL

- 1.1 **APPLICABLE PUBLICATIONS:** The latest issues of the publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

A. American Society for Testing and Materials (ASTM) Publications:

C136	Sieve or Screen Analysis of Fine and Coarse Aggregate.
D75	Sampling Stone, Slag, Gravel, Sand and Stone Blocks for use as Highway Materials.
D1140	Amount of Material in Soils Finer Than the No. 200 Sieve.
D1556	Density of Soil in Place by the Sand Cone Method.
D1557	Moisture-Density Relations of Soils Using 10-lb. Rammer and 18-inch Drop.
D2922	Density of Soil and Soil-Aggregate in Place by Nuclear Methods.

- 1.2 **QUALITY CONTROL:** The Quality Control provisions of Division 1, Section 01400, apply to this section. Approvals, except those required for field installations, field applications, and field tests, shall be obtained before construction is started and before delivery of materials or equipment to the project site.

- 1.3 **CERTIFIED TEST REPORTS:** Before delivery of materials and equipment, five (5) certified copies of the reports of all tests required in referenced publications or specified herein, shall be submitted and approved. The testing shall have performed in a laboratory meeting the requirements specified in the Quality Control Section of Division 1. The tests shall have been performed within three years of submittal of the reports for approval. Tests reports shall be accompanied by notarized certificates from the manufacturer certifying that the tested material and equipment is of the same type, quality, manufacture, and make as that proposed to be supplied. Certified test reports are required for the following:

- A. Plasticity Index.
- B. R-Value.
- C. Liquid Limit.

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

- D. Aggregate gradation.
- E. L.A. Abrasion.
- F. Sand equivalent.

- 1.4 DELIVERY AND STORAGE: Materials delivered to the site shall be inspected for damage, unloaded and sorted with a minimum of handling. Aggregates shall be stored in such a manner as to prevent segregation.

PART 2 - PRODUCTS

- 2.1 MATERIALS: Base Course shall consist of crushed coralline limestone meeting the requirements indicated herein:

Mechanical Analysis:

<u>Sieve Size</u>	<u>Percentage Passing</u>
2 inches	100
1-1/2 inches	90 - 100
3/4 inches	50 - 80
No. 4	30 - 60
No. 40	15 - 30
No. 200	5 - 13
Liquid Limit:	Not greater than 25.
Plasticity Index:	Not greater than 6
California Bearing Ratio (CBR)	Not less than 100
Los Angeles Abrasion:	Not greater than 40
Sand Equivalent:	Not less than 35

- 2.2 CONSTRUCTION EQUIPMENT: The Contractor shall submit a list of all construction equipment to the Engineer for approval 15 days prior to bringing equipment on the job. All equipment shall be dependable and adequate for the purpose intended, and shall be properly maintained in satisfactory and safe operating condition at all times. Calibrated equipment such as scales, batching equipment, spreaders and similar equipment, shall have been re-calibrated by a calibration laboratory recommended by the Contractor and approved by the Engineer within 12 months of commencing work and every 24 months thereafter, by such laboratory from the date of recalibration, during the term of the contract. The list of equipment shall include the make, model, and serial number, and the date on which the calibrated equipment was last re-calibrated.

- A. Three-Wheel General Purpose Rollers: These rollers shall be self-propelled,

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

weighing not less than 10 tons, and having a minimum compression of 300 pounds per inch width of rear wheel. The wheels of the rollers shall be equipped with adjustable scrapers.

- B. Tamping Rollers (Sheepsfoot Type): Tamping rollers shall consist of one or more units. Each unit shall be a watertight cylindrical drum not less than 48 inches in length, surmounted by metal studs with tamping feet projecting not less than 6 nor more than 10 inches, measured diagonally from center to center. The tamping feet shall be a type suitable for compacting the material to be used. Each unit shall be equipped with a suitable device for cleaning the tamping feet. The rolling units of multiple type tamping rollers shall be pivoted on the main frame in a manner which will permit the units to adapt themselves to uneven ground surfaces and to rotate independently. When fully loaded, the roller shall produce at least 3,500 pounds per liner foot of drum.
- C. Pneumatic-Tired Rollers: Pneumatic-tired rollers shall be single or double axle, vibrating or non-vibrating type, equipped with tires of equal size and diameter, uniformly inflated, so that the air pressure of the several tires shall not vary more than 5 pounds per square inch. Rollers may be self-propelled or towed by a suitable powered unit. The self-propelled roller, or the power unit and towed roller shall be considered a pneumatic-tired roller unit.
 - 1. Light Pneumatic-Tired Rollers: Light pneumatic-tired rollers shall have two axles on which are mounted not less than 9 pneumatic-tired wheels in such a manner that the rear group of tires will not follow in the tracks of the forward group. The axles shall be mounted in a rigid frame provided with a loading platform or body suitable for ballast loading. The roller shall develop a compression of not less than 225 pounds per inch width of tire tread and shall be capable of being loaded to provide loads up to 300 pounds per inch of normal tire width. The rollers shall be weighted as directed by the Engineer.
 - 2. Heavy Pneumatic-Tired Rollers: Heavy pneumatic-tired rollers shall be of the vibratory or non-vibratory type with a minimum loading of 25,000 pounds per tire. The tires shall be suitable for inflation to not less than 90 psi. The loading shall be distributed equally to all wheels.
- D. Grid Rollers: Grid rollers have at least two similar metal drums having a minimum outside diameter of 5 feet and a minimum length of 2 feet 6 inches, independently mounted on a common shaft in a rigid frame. The face of the drums shall have the appearance of woven open-mesh made by interlacing bars. Opening between bars shall be not less than 3 inches nor more than 4 inches; bars shall be not less than

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

1-1/4 inches or more than 1-3/4 inches in diameter. The roller shall be constructed so that counterweights can be used to adjust the gross weight to 450 pounds per inch of length of roller drum.

- E. Vibrating Tampers: Vibrating tampers shall be the self-propelled, crawler mounted type suitable for use on the project.
- F. Mechanical Hand Tampers: Mechanical hand tampers shall be standard commercial plate-type vibratory compactors.
- G. Tractors: Tractors shall be of the crawler type, suitable for compacting base course.
- H. Blade Graders: Blade graders shall have a wheel base of not less than 15 feet and a blade not less than 10 feet in length, and shall be self-propelled.
- I. Sprinkling Equipment: Sprinkling equipment shall include tank trucks, pressure distributors, or other equipment designated to apply water uniformly and at controlled quantities to variable widths of surface.
- J. Disks: Disks shall be the tandem type, and shall be constructed to prevent any cutting of the sub-grade during mixing operations.
- K. Plows: Plows shall be of the multiple-furrow type, and shall be designed so that depth of furrow can be accurately controlled.
- L. Hauling Equipment: Hauling equipment shall consist of pneumatic-tired vehicles having dump bodies suitable for dumping materials in layers on the underlying course.
- M. Miscellaneous Equipment: Miscellaneous equipment scarifiers, tractors, spring-tooth or spike-tooth harrows, windrow equalizers, spreaders, and other equipment shall be of types suitable for constructing mechanically stabilized aggregate base course.

PART 3 - EXECUTION

3.1 CONSTRUCTION

- A. General: The graded aggregate base course shall be constructed on a previously constructed course, as indicated. The base course shall consist of aggregate processed, deposited, spread, and when the atmospheric temperature is below 35

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

degrees F or when other weather conditions detrimentally affect the quality of the base course. It shall be the responsibility of the Contractor to protect all areas of complete base course against any detrimental effects. Areas of base course that are damage by weather conditions, during any phase of construction, shall be reconditioned, reshaped, and re-compacted in conformance with the requirements of this specification without additional cost to the Government. Line and grade stakes shall be provided as necessary for control. Grade stakes shall be placed in lanes paralleling the centerline of the area to the paved, and suitably spaced for string lining.

- B. **Mixing of Materials:** Coarse and fine aggregate shall be mixed in a stationary plant, or in a traveling plant. Coarse and fine aggregates shall be proportioned by weight or by volume in such quantities that specified gradation, liquid limit, and plasticity index requirements should be met after the base course has been placed and compacted. Water measured by weight or by volume in quantities sufficient to provide the necessary moisture content for the specified compaction, shall be incorporated during the mixing operation. Mixing operations shall produce satisfactory uniform blending and the method of discharging into trucks shall not produce segregation.
- C. **Placing:** Mixed material shall not be dumped in piles, but shall be placed on the prepared sub-grade in layers of 8" uniform thickness with a spreader or grader. Layers shall be so placed that when compacted they will be true to grades or levels required with the least possible surface disturbance. Where the base course is constructed in more than one layer, the previously constructed layers shall be cleaned of loose and foreign matter by sweeping with power sweepers, power brooms, or hand brooms. Water content of the material shall be maintained during the placing period as required to obtain the compaction specified. Adjustment in placing procedures or equipment shall be made as required to obtain true grades, to minimize segregation and degradation, to reduce or increase water content, and to insure a satisfactory base course.
- D. **Compacting and Finishing:** Immediately following the spreading, the layer shall be compacted with steel-faced, vibrating or pneumatic-tired rollers, or other suitable compacting equipment or combinations thereof. Compaction shall continue until the layer is compacted to at least 98 percent of maximum dry density when tested in accordance with ASTM D1557, Method D. In all areas not accessible to rollers or compactors, the mixture shall be compacted with mechanical hand tampers. If the mixture is excessively moistened by rain, it shall be aerated by means of blade graders, or other suitable equipment, until the moisture content of the material is such that, when the material is compacted, the required density is obtained. The surface of the layer shall be finished by a combination of rolling and blading, and shall be

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

smooth from waves and inequalities.

- E. **Finishing at Edges of Base Course:** Earth or other approved material shall be placed along the edges of the base course in such quantity as will compact to the thickness of the course being constructed, or, when the course is being constructed in two or more layers, to the thickness of each layer of the course, allowing in each operation at least a one-foot width of the shoulder to be rolled and compacted simultaneously with the rolling and compacting of each layer of the base course.
- F. **Maintenance:** After construction is completed, the base shall be maintained throughout except where portion of the succeeding course is under construction thereon. Maintenance shall include drainage, rolling, shaping, and watering as necessary to maintain the course in proper condition. Deficiencies in thickness, composition, construction, smoothness, or density, which develop during the maintenance, shall be corrected to conform to the requirements specified hereinbefore. Sufficient moisture shall be maintained at the surface to prevent a dusty condition, by light sprinkling with water. Before the application of the prime coat, the base course shall be permitted to partially dry until the average moisture content of the full depth of the base is less than 80 percent of the optimum moisture of the material.

3.2 **FIELD SAMPLING AND TESTING:** Samples shall be supplied by the Contractor, as specified herein, at the expense of the Contractor. Testing will be conducted by the Contractor at his expense. All material and material sources will be approved by the Engineer, 7 days prior to the use of such material in the work.

A. **Sampling:**

- 1. **Aggregates at Source:** Prior to production and delivery of aggregates, at least one initial sample shall be taken in accordance with ASTM D75 from each stockpile. Each sample shall be collected by taking three incremental samples at random from the source material to make a composite sample of not less than 50 pounds. Three random samples shall be taken from each 3,000 tons of material, or a day's run, thereafter during the course of the project. A repetition of the above sampling shall be made when the source of material is changed or when unacceptable deficiencies or variations from the specified grading or materials are found in testing.
- 2. **Sample Identification:** Each sample shall be placed in a clean container which shall be securely fastened to prevent loss of material. Each sample shall be tagged for identification. The tag shall contain, at a minimum, the following information:

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

Contract No.	
Sample No.	Quality
Date of Sample	
Sampler	
Source	
Intended Use	
For Testing	

B. Testing:

1. **Aggregate Testing:** Gradation tests shall be made on each sample without delay. All other aggregate test shall be made on the initial source samples, and shall be repeated when there is a change of source. Sieve analyses shall be made from each sample collected during the course of the project. The test shall include an analysis of each grade of material and analysis of the combined material representing the aggregate part of the mix. Sieve analysis shall be in accordance with ASTM C136. Material retained on each sieve shall not vary from the approved job curve by more than 7 percentage points, plus or minus. Sieve analysis on material passing the No. 200 sieve shall be made in accordance with ASTM D1140.
2. **Smoothness Test:** Deviations in the surface in excess of 3/8 inch when tested with a 10-foot straightedge, applied parallel with and at right angles to the centerline of the paved area, shall be corrected by loosening, adding or removing material, reshaping, watering, and compacting. When the base course is to be constructed in more than one layer, the smoothness requirements specified above shall apply only to the top layer.
3. **Field Density Tests:** Field density tests shall be in accordance with ASTM D1556 or D2922. There shall be one field density test for each 2,000 square yards of each layer of base material.
4. **Laboratory Density Tests:** Laboratory density tests shall be performed in accordance with ASTM D1557, Method D, for all material which does not have more than 5 percent retained on the 3/4 inch sieve. Projects having more than 1,000 cubic yards of base material and having more than 5 percent retained on the 3/4 inch sieve shall have the optimum moisture and density determined in the field by test section. The material shall be rolled and compacted using the equipment approved for the project, and density and moisture determinations will be performed in accordance with ASTM D1556 or ASTM D2922 to establish optimum moisture and maximum density.

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

5. **Thickness Test:** The thickness of the base course will be measured at intervals such that there will be a depth measurement for at least each 500 square yards of complete base course. The depth measurements shall be made by test holes, at least 3 inches in diameter, through the base course. Where the base course deficiency is more than 1/2 inch, such areas shall be corrected by scarifying, adding mixture of proper gradation, blading, and re-compacting. Where the measure thickness is more than 1/2 inch thicker than shown, it shall be considered as the indicated or specified thickness plus 1/2 inch for determining the average. The average thickness shall be the average of the depth measurements and shall not underrun the thickness indicated by more than 1/4 inch.

END OF SECTION 02203

SECTION 02831 - CHAIN LINK FENCES

PART 1 - GENERAL

- 1.1 SUMMARY: Provide chain link fence system where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- 1.2 APPLICABLE PUBLICATIONS: The latest issues of the following publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.
- A. American Society for Testing and Materials (ASTM)
 - A392 Standard specification for zinc-coated Steel Chain-Link Fence Fabric.
 - D1187 Standard specification for Asphalt-Base Emulsion for use as protective coating for metals.
 - F626 Standard Specification for Fence Fittings
 - F1083 Standard Specification for Pipe, Steel, Hot-dipped Zinc-Coated (Galvanized) Welded, for Fence Structures
- 1.3 RELATED SECTIONS
- A. SECTION 02200 - EARTHWORK
 - B. SECTION 03300 - CAST-IN-PLACE CONCRETE
- 1.4 SUBMITTALS
- A. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
 - 1. Materials list of items proposed to be provided under this Section;
 - 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
 - 3. Shop Drawings in sufficient detail to show fabrication, installation, anchorage, and interface of the work of this Section with the work of adjacent trades;

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

4. Manufacturer's recommended installation procedures which, when approved by the Contractor, will become the basis for accepting or rejecting actual installation procedures used on the Work.
- 1.5 **QUALITY ASSURANCE:** Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- 1.6 **DELIVERY, STORAGE, AND HANDLING:** Deliver materials to the site in an undamaged condition. Store materials off the ground to provide protection against oxidation caused by ground contact.

PART 2 - PRODUCTS

2.1 DIMENSIONAL DATA

- A. General: Pipe sizes indicated are commercial pipe sizes.

2.2 GALVANIZING

- A. On steel framework and appurtenances, provide galvanized finish with not less than the following weight of zinc per square feet.
 1. Pipe: 1.8 oz/square foot, complying with ASTM F1083.
 2. Hardware and accessories: Comply with Table I of ASTM F626.
 3. Fabric: 1.20 oz/square foot, complying with Class 1 of ASTM A392.

2.3 FABRIC

- A. Provide number 9 gage or 0.148" wires in 2" mesh, with top and bottom selvages twisted.
- B. Provide fabric in one-piece widths.

2.4 POSTS, RAILS, AND ASSOCIATED ITEMS

- A. End, corner, slope, and pull posts: Provide the following minimum sizes and weights as indicated on the plan.

CHAIN LINK FENCE

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

Material and dimensions:	Lbs per linear ft:
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Pipe, 2.87" outside Dimension	5.79
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Pipe, 3.50" outside Dimension	7.58
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Pipe, 4.00" outside Dimension	9.11
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B. Line posts: Provide minimum sizes and weights as follows:

Material and dimensions:	Lbs per linear ft:
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Pipe, 2.37" outside Dimension	3.65
----------------------------------	------

Pipe, 2.87" outside Dimension	5.79
----------------------------------	------

Pipe, 3.50" outside Dimension	7.58
----------------------------------	------

C. Gate posts: Provide gate posts for supporting single gate leaf, or one leaf of a double gate installation, for nominal gate widths as follows:

Material and dimension:	Lbs per linear ft:
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Pipe, 4" outside dimension	9.11
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1. Over 13 feet wide, and up to 18 feet wide: Use 6.62" outside diameter pipe weighing 18.97 lbs per linear ft.

2. Over 18 feet side: Use 8.62" outside diameter pipe weighing 28.55 lbs per linear ft.

D. Top rails:

1. Use 1.90" outside diameter pipe weighing 2.72 lbs per linear ft; or

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

2. Provide in manufacturer's longest lengths, with expansion type couplings approximately 6" long for each joint.
 3. Provide means for attaching top rail securely to each gate, corner, pull, slope, and end post.
- E. Post brace assemblies:
1. Provide at end and gate posts, and at both sides of corner, slope, and pull posts, with the horizontal brace located at mid-height of the fabric.
 2. Use 1.90" outside diameter pipe weighing 2.72 lbs per linear ft for horizontal brace.
 3. Use 3/8" diameter rod with turnbuckle for diagonal truss.
- F. Tension wire: Provide number 7 gage galvanized tension wire at bottom of fabric.
- G. Post tops:
1. Provide steel, wrought iron, or malleable iron, designed as watertight closure cap.
 2. Provide one cap for each post.
 3. Provide caps with openings to permit through passage of top rail.
- H. Stretcher bars:
1. Provide one-piece lengths equal to full height of fabric, with a minimum cross-section of 3/16" x 3/4".
 2. Provide one stretcher bar for each gate and end post, and two for each corner, slope, and pull post, except where baric is woven integrally into the post.
- I. Stretcher bar bands:
1. Provide steel, wrought iron, or malleable iron, spaced not over 15" on centers, to secure stretcher bars to end, corner, pull, slope, and gateposts, with a minimum cross-section of 1/8" x 3/4".
 2. Bands may be used also with special fittings for securing rails to end, corner,

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

pull, slope, and gateposts.

2.5 GATES

A. General:

1. Fabricate gate perimeter frames of tubular members.
2. Provide additional horizontal and vertical members to assure proper operation of the gate, and for attachment of fabric, hardware, and accessories.
3. Space so frame members are not more than 8 feet apart.
4. Fabricate gate frames from:

Material and dimensions:	Lbs per linear ft:
--------------------------	--------------------

- | | |
|---------------------------------|------|
| a. Pipe 1.90" outside diameter: | 2.72 |
|---------------------------------|------|

B. Fabrication:

1. Assemble gate frames by welding with special malleable or pressed steel fittings and rivets for rigid connections.
2. Use same fabric as used in the fence.
3. Install fabric with stretcher bars at vertical edges as a minimum.
4. Attach stretchers to gate frame at not more than 15" on centers.
5. Attach hardware with rivets or by other means which will provide security against removal and breakage.
6. Provide diagonal cross bracing consisting of 3/8" diameter adjustable length truss rods on gates where required to provide frame rigidity without sag or twist.

C. Gate hardware: Provide following for each gate:

1. Hinges:
 - a. Pressed or forged steel, or malleable iron, to suit the gate size; non-

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

lift-off type, offset to permit 180 degree opening.

- b. Provide 1-1/2 pair of hinges for each leaf over 6 feet in nominal heights.
2. Latches:
 - a. Provide forked type or plunger-bar type to permit operation from either side of the gate.
 - b. Provide padlock eye as integral part of latch.
3. Keeper: Provide keeper for vehicle gates, which automatically engages the gate leaf and holds it in the open position until manually released.
4. Double gates:
 - a. Provide gate stops for double gates consisting of mushroom or flush plate, with anchors.
 - b. Set in concrete to engage the center drop rod or plunger bar.
 - c. Provide locking device and padlock eyes as an integral part of the latch, requiring one padlock for locking both gate leaves.

2.6 MISCELLANEOUS MATERIALS AND ACCESSORIES

A. Wire ties:

1. For tying fabric to line posts, use number 9-gage wire ties spaced 12" on centers.
2. For tying fabric to rails and braces, use number 9-gage wire ties spaced 14" on centers.
3. For tying fabric to tension wire, use number 9 gage hog rings spaced 14" on centers.
4. Manufacturer's standard wire ties will be acceptable if of equal strength and durability.
5. Concrete: Comply with provisions of Section 03300, entitled "Cast-in-

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

Place Concrete”.

- B. Bituminous Coatings: Fence post and fencing hardware embedded in concrete shall receive two (2) coats of bituminous material as per ASTM D1187.

PART 3 - EXECUTION

- 3.1 SURFACE CONDITIONS: Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. General:

1. Install posts at a maximum spacing of 10 feet on centers.
2. Install corner or slope posts where changes in line or grade exceed a 30-degree deflection.

B. Excavating:

1. Drill holes for post footings in firm, undisturbed or compacted soil, strictly adhering to the dimensions and spacing shown.
2. Post hole dimensions:(unless otherwise specified)
 - a. Provide 30" deep by 12" diameter foundations for line posts for 5 foot fabric height and less.
 - b. Provide 36" deep by 12" diameter foundations for line posts for fabric heights exceeding 5 feet.
 - c. Provide 42" deep by 12" diameter foundations for all other posts or as specified on plan.

- C. Spread soil from excavations uniformly adjacent to the fence line, or on adjacent areas of the site if so directed.

- D. When solid rock is encountered near the surface, drill into rock at least 16" for line posts and at least 18" for end, pull, gate, and corner posts. Drill hole at least 1" greater diameter than the largest dimension of the post to be placed.

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

- E. If solid rock is below soil overburden, drill to full depth required, except penetration into rock need not exceed minimum depths specified above.
- F. Setting posts:
 - 1. Remove loose and foreign materials from sides and bottoms of holes, and moisten soil prior to placing concrete.
 - 2. Center and align posts in holes.
 - 3. Place concrete around posts in a continuous pour, and vibrate or tamp for consolidation.
 - 4. Check each post for vertical and top alignment, and hold in position during placement and finishing operations.
 - 5. Trowel tops of footings, and slope or dome to direct water away from posts.
 - 6. Extend footings for gateposts to the underside of bottom hinge.
 - 7. Set keeps, stops, sleeves, and other accessories into concrete as required.
 - 8. Keep exposed concrete surfaces moist for at least seven days after placement, or cure with membrane curing material or other curing method approved by the Engineer.
 - 9. Grout-in those posts that are set into sleeved holes, concrete constructions, or rock excavations, using non-shrink Portland cement grout or other grouting material approved by the Engineer.
- G. Concrete strength:
 - 1. Allow concrete to attain at least 75% of its minimum 28-day strength before rails, tension wires, and/or fabric is installed.
 - 2. Do not, in any case, install such items in less than seven days after placement of concrete.
 - 3. Do not stretch and tension fabric and wire, and do not hang gates, until concrete has attained its full design strength.

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

H. Rails and bracing:

1. Install fence with a top rail and bottom tension wire.
2. Install top rails continuously through post caps or extension arms, bending to radius for curved runs.
3. Provide expansion couplings as recommended by the fencing manufacturer.
4. Provide bracing to the midpoint of the nearest line post or posts at all end, corner, slope, pull, and gateposts.
5. Install tension wires parallel to the line of fabric by weaving through the fabric, and tying to each post with not less than number 6 gage galvanized wire, or by securing the wire to the fabric.

I. Installing fabric:

1. Leave approximately 2" between finish grade and bottom selvage.
2. Excavate high points in the ground to clear the bottom of the fence.
3. Place and compact fill to within 1" of the bottom of the fabric in depressions.
4. Pull fabric taut and tie to posts, rails, and tension wires.
5. Install fabric on outward side facing side of fence, and anchor to framework so that the fabric remains in tension after pulling force is removed.
6. Install stretcher bars by threading through or clamping to fabric on 4" centers, and secure to posts with metal bands spaced 15" on centers.
7. Install fence fabric to provide approximately 2-inch deflection at center of fabric span between two posts, when a force of approximately 30 pounds is applied perpendicular to the fabric. Fabric should return to its original position when force is removed.

J. Installing gates:

1. Install gates plumb, level, and secure for full opening without interference.
2. Install ground-set items in concrete for anchorage in accordance with the

GUAM HOUSING AND URBAN RENEWAL AUTHORITY

fence manufacturer's recommendations as approved by the Engineer.

3. Lubricate and adjust the hardware for smooth operation.

K. Miscellaneous:

1. Use U-shaped tie wires, conforming to diameter of pipe to which attached, clasping pipe and fabric firmly with ends twisted at least two full turns.
2. Bend ends of wire to minimize hazards to persons and clothing.
3. Fasteners:
 - a. Install nuts for tension band and hardware bolts on side of fence opposite fabric side.
 - b. Peen the ends of bolts to prevent removal of nuts.
4. Repair coatings damaged in the shop or field erection, using a hot-applied repair compound applied in accordance with its manufacturer's recommendations as approved by the Engineer.

END OF SECTION 02831

SECTION 03100 - CONCRETE FORMWORK

PART 1 - GENERAL

DESCRIPTION

Work Included:

Provide formwork in accordance with provisions of this section for cast-in-place and pre-cast concrete shown on the drawings or required by other sections of these specifications.

Related Work:

Documents affecting work of this section include but are not necessarily limited to General Conditions, Supplementary Conditions, Division I of these specifications as well as the following:

Section 03200, Concrete Reinforcement
Section 03300, Cast-In-Place Concrete

QUALITY ASSURANCE

Workmen:

Use adequate numbers of skilled workman who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed.

Design:

The design, engineering and construction of the formwork shall be the responsibility of the Contractor.

Standards: In addition to complying with pertinent regulations of governmental agencies having jurisdiction, comply with pertinent provisions of "Recommended Practice For Concrete Formwork", ACI 347, and "Specifications For Structural Concrete For Buildings", ACI 301, copies of which shall be kept in the field by the Contractor.

Allowable Tolerances:

Use wood, plywood, steel, concrete, or plastic forms sufficiently rigid to produce members true to size and dimensions shown on the drawings with tolerances conforming to ACI 347.

SUBMITTALS

Product Data:

Within thirty (30) calendar days after notice to proceed is received, submit manufacturer's data and installation instructions for proprietary materials including form coatings, ties, and accessories, and manufactured form systems and liners.

Samples:

Prepare sample vertical form for (five-foot by five-foot) typical exposed concrete finish. Sample forms shall include a form joint, and be treated with form coating. Cast concrete against the form, cure and dry, all in accordance with Section 03300 for review by the Architect prior to concreting work.

PART 2 - PRODUCTS

FORM MATERIALS

General:

Except for metal forms, use new materials. Materials may be reused during progress of the work provided they are completely cleaned and reconditioned, recoated for each use, and capable of producing formwork of the required quality.

Forms For Footings and Foundations:

Use two-inch nominal Douglas for boards or planks secured to wood or steel stakes, constructed to shapes indicated on drawings. Side forms for footings may be omitted and concrete may be placed directly against solid excavation walls only when requested by the Contractor and approved by the Architect. When omission of forms is accepted, provide additional concrete one-inch on each side of the minimum design profiles and dimensions shown on the drawings.

Forms For Exposed Finish Concrete:

Unless otherwise indicated, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood faced or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces in largest practicable sizes to minimize number of joints. Provide taped joints unless otherwise shown in Drawings. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.

Use overlaid plywood complying with U.S. Product Standard PS-1 "B-B High Density Overlaid Concrete Form", Class I.

Use plywood complying with U.S. Product Standard PS-1 "B-B (Concrete Form) Plywood", Class I, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible inspection trademark.

FORM COATINGS

Provide commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

Plywood Seal:

Resin type sealer. "Formfilm" by A.C. Horn Company, "Form-Saver" by Sonneborn and Sons, or approved equal.

Retarder:

SIKA "Rugasol F", CERESIT "Ruffup", or approved equal.

FORM TIES

Factory fabricated, adjustable length, removable or snap-off stainless steel form ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal.

Unless otherwise indicated, provide ties so portion remaining within concrete after removal is at least 1-1/2

inches inside concrete.

Unless otherwise shown, provide form ties which will not leave holes larger than one inch diameter in concrete surface, as manufactured by Burke, or approved equal.

CORNER CHAMFERS

Factory fabricated, PVC plastic, 3/4-inch by 3/4-inch (unless noted otherwise), chamfer strips.

SLEEVES/BLOCKOUTS

Standard weight or heavier galvanized steel sleeves in protected locations. Rigid polystyrene foam in unprotected areas and hand rail post sleeves, Dow "Styrofoam", Johns-Manville "Zerolite", or approved equal.

PART 3 - EXECUTION

INSPECTION

Inspect the substrate and the condition under which concrete formwork is to be performed. Do not proceed with the work until unsatisfactory conditions have been corrected.

FORM CONSTRUCTION

General:

Construct formwork in accordance with calculations and recommendations of Section 401 of ACI 347 and approved shop drawings (if any). Construct forms to the sizes, shapes, lines and dimensions shown, and as required to obtain accurate alignment, location, grades, level and plumb work in finished structure. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required. Use selected materials to obtain required finishes.

Construct formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.

Provide formwork sufficiently tight to prevent leakage of cement paste during concrete placement. Solidly butt joints and provide backup material at joints as required to prevent leakage and fins.

Provide temporary openings in wall forms, column forms and at other locations necessary for placement of concrete and to permit inspection and clean-out.

Exposed Concrete:

Smooth formed except as otherwise noted.

Surfaces To Receive Plaster Or Tile:

Rough surface boards with rough surface to concrete, or smooth forms treated with retarder.

Ties and Spreaders:

Arrange in a pattern acceptable to the Architect. Snap ties may be used except at joints between pours where threaded internal disconnecting type shall be used.

Blockouts:

Frame wall openings with two-inch lumber. Form joints and pockets with polystyrene rigid form.

Reglets and Rebates:

Accurately locate, size, and form all reglets and rebates required to receive work of other trades, including flashing, frames, and equipment.

Corner Treatment:

Form exposed corners of beams and columns with chamfer strips to produce beveled, smooth, solid, unbroken lines, except as otherwise indicated.

Form chamfers with 3/4-inch by 3/4-inch strips, unless otherwise indicated, accurately formed and surfaced to produce uniformly straight lines and tight edge joints. Extend terminal edges to required limit and miter chamfer at changes in direction.

Unexposed corners may be formed either square or chamfered.

SHORES AND SUPPORTS:

Comply with ACI 347 for shoring and reshoring in multistory construction, and as herein specified.

Extend shoring at least three floors or roof being placed for structures over four stories. Shore floor directly under floor or roof being placed, so that loads from construction above will transfer directly to these shores. Space shoring in stories below this level in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members where no reinforcing steel is provided. Extend shores beyond minimums to ensure proper distribution of loads throughout structure.

FOOTINGS

Verify elevations and provide final excavation required for footings prior to placing of concrete.

If natural soil or compacted fill can be accurately cut and maintained and concrete is increased one-inch in thickness at each earth contact surface, foundations and grade beams may be poured against earth without forming when requested by the Contractor and approved by the Architect.

EQUIPMENT BASES

Provide forming for concrete bases for all mechanical and electrical equipment indicated on the drawings, including architectural, structural, mechanical, electrical, and plumbing drawings, in accordance with approved shop details furnished by the various trades.

Coordinate size and location of equipment with mechanical, plumbing and electrical.

Tool all edges.

Provide coved base for all equipment bases poured on concrete slabs.

INSTALLATION OF EMBEDDED ITEMS

General:

Set and build into the work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of the items to be attached thereto.

Allow other trades to set work which is to be embedded in concrete such as hangers and sleeves. Coordinate with electrical and mechanical trades to locate required openings for ducts, pipes and inserts. Reinforce required openings as directed by Architect.

Piping:

Do not embed piping, other than electrical conduit, in structural concrete unless approved by Architect.

Conduit:

Place conduit occurring in structural slabs between top and bottom reinforcing. Maximum O.D. of conduit in support slab and in walls one-quarter of slab or wall thickness. Minimum clear distance between conduits shall be three diameters. Location shall not impair the strength of the structure.

Sleeves In Walls:

Standard weight or heavier galvanized steel pipe sleeves may pass through slabs or walls in protected locations. See structural drawings for special reinforcing around sleeves and for method of locating sleeves. Size sleeves to pass largest coupling on the pipeline.

Rough Hardware and Miscellaneous Metal:

Set inserts, sleeves, bolts, anchor, angels, stair nosings, steel door frames and other items to be embedded in concrete. Set embedded bolts and sleeves for fans, meters, pumps, and other equipment to template and approved shop drawings prepared by trades supplying equipment. Verify location of anchor bolts with respect to motor supports.

Wood Inserts and Nailers:

Provide approved preservative-treated lumber. Set all required nailing blocks, grounds, and other inserts as required. Wood plugs shall not be used.

FORM COATINGS

Coat form contact surfaces with form coating compound before reinforcement is placed. Do not allow excess form coating material to accumulate in the forms or to come into contact with reinforcement or surfaces which will be bonded to fresh concrete. Apply to compliance with manufacturer's instructions.

Coat steel forms with a nonstaining, rust preventative form oil or otherwise protect against rusting. Rust stained steel formwork is not acceptable.

PROVISIONS FOR OTHER TRADES

Provide openings in concrete formwork to accommodate work of other trades, including those under separate prime contracts (if any). Size and location of openings, recesses and chases are the responsibility of the trade requiring such items. Accurately place and securely support items to be built into forms.

CLEANING AND TIGHTENING

Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or

other debris just before concrete is to be placed. Retighten forms immediately after concrete placement as required to eliminate mortar leaks.

REMOVAL OF FORMS

Time: Remove forms after concrete has developed sufficient strength to sustain its own weight and superimposed loads, but not before the time (expressed in days) listed below.

			Forms	Shoring
1.	Structural beams and slabs:	7	28	
2.	Soffits of openings in walls:	7	28	
3.	Walls, columns, and beam sides:	2	10 (except as specified below)	
4.	Slabs on grade and side of footings:	2	2	

Shoring may be removed when concrete strength data derived from test specimens indicate that concrete has attained specified 28-day strength.

Reshoring: Reshores may be provided after form removal in lieu of leaving original shores in place. Reshoring shall comply with ACI 347 and shall remain in place for same length of time specified for shoring. Remove shores and reshore in a planned sequence to avoid damage to partially cured concrete. Locate and provide adequate reshoring to safely support work without excessive stress or deflection.

Vertical Elements: Shoring or reshoring for walls and columns shall not be removed until top portion has been connected to adjoining elements such as slabs and beams as indicated.

REUSE OF FORMS

Clean and repair surfaces of forms to be reused in the work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable. Apply new form coating compound material to concrete contact surfaces as specified for new formwork.

When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close all joints. Align and secure joints to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to the Architect.

END OF SECTION 03100

Clean reinforcement to remove loose rust and mill scale, earth, paint, oil, and other materials which reduce or destroy bond with concrete.

Do not bend or straighten in a manner injurious to material. Do not use bars with kinks or bends not shown on plans.

POSITIONING

General: Comply with the specified codes and standards, and Concrete Reinforcing Steel Institute recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement and supports, and as herein specified.

Accurately position, support, and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by chairs, runners, bolsters, spacers and hangers, as required.

Place reinforcement to obtain the minimum coverages for concrete protection. Arrange, space, and securely tie bars and bar supports together with tie wire to hold reinforcement accurately in position during concrete placement operations. Set wire ties so that twisted ends are directed away from exposed concrete surfaces.

For columns and beams, provide clearance between parallel bars and between bars and forms of not less than 2 times the nominal diameter, but in no case shall the clear distance be less than 2-inches nor less than 2 times the maximum size aggregate.

Do not disturb or damage vapor barrier while placing concrete reinforcing. If damage does occur, repair areas before placing concrete.

Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with 16 gauge wire. Do not make end laps midway between supporting beams, or directly over beams of continuous structures. Offset end laps in adjacent widths to prevent continuous laps. Extend fabric to within one inch of edge at slabs on grade. Cut mesh at full depth control joints.

Masonry Work: Place dowels in concrete for start of masonry work.

SPLICES

Provide standard reinforcement splices by lapping ends, placing bars in contact, and tightly wire tying. Minimum lap of spliced bars shall be as indicated.

Wherever possible, provide minimum 2-inch clearance between sets of splices. Stagger splices in horizontal bars so that adjacent splices will be 4'-0" apart, unless noted otherwise. Use mechanical connectors for column bars, size #10 or larger.

Welding: Perform in accordance with AWS D12.1.

FIELD QUALITY CONTROL

Inspection and Test of Welds: Any of the following tests may be made by the Owner's testing laboratory for reinforcing bar welds:

Certification of welders engaged in electrical-arc welding of reinforcing.

Verification of accurate location of reinforcing.

Inspection of reinforcing bar welds.

X-ray test of one of the first three arc welds made by each welder.

Tensile tests of sample welds of the largest size bar for each type of welding.

Deficient welds will require the Contractor to provide and pay for additional X-rays and tests as directed by the Architect. Repair or replace defective welds to the satisfaction of the Architect.

END OF SECTION 03200

SECTION 03200 - CONCRETE REINFORCEMENT

PART 1 - GENERAL

DESCRIPTION

Related Work Specified Elsewhere:

Concrete Formwork - Section 03100.

Work Furnished But Not Installed:

Furnish reinforcing steel for masonry work.

QUALITY ASSURANCE

Standards: Comply with requirements of the following standards, except as herein modified:

American Welding Society, AWS D12.1 "Recommended Practices for Welding Reinforcing Steel, Metal Inserts and Connections in Reinforced Concrete Construction".

Concrete Reinforcing Steel Institute (CRSI), ACI 315 "Manual of Standard Practice".

American Concrete Institute, ACI 318 "Building Code Requirements for Reinforced Concrete".

Requirements of Regulatory Agencies: Comply with requirements of the Uniform Building Code (UBC).

Welders Qualification: Per UBC Standard 27-6-1979.

Testing: Testing laboratory, tests costs and test reports in conformance with Section "Quality Control Services".

Identified Stock: One tensile and one bend test for each ten tons or fraction thereof for each size of stock identified as to heat number, provided mill analysis accompanies report.

Unidentified Stock: One tensile and one bend test for each two-and-one-half tons of unidentified stock.

SUBMITTALS

Comply with pertinent provisions of Section 01340.

Product Data: Submit manufacturer's product data, specifications, and installation instructions for proprietary materials and reinforcement accessories.

Shop Drawings: Submit shop drawings for fabrication, bending, and placement of concrete reinforcement. Comply with the ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures". Show bar schedules, stirrup spacing, diagrams of bent bars, arrangements and assemblies, as required for the fabrication and placement of concrete reinforcement.

DELIVERY, STORAGE, AND HANDLING

Deliver reinforcement at project site in bundles marked with metal tags indicating bar size and length.

Handle and store materials to prevent contamination. Store reinforcing bars and accessories above surface of ground upon platforms, skids, or other supports.

Deliver and store welding electrodes in accord with AWS D12.1.

PART 2 - PRODUCTS

REINFORCING MATERIALS

Reinforcing Bars: ASTM A615, deformed, grade 60 billet steel bars; uncoated finish.

Welded Wire Fabric: ASTM A185, in flat sheets; coiled rolls; galvanized finish.

Welded Reinforcing Bars: Welding of reinforcing bars will not be allowed except where specifically shown on the drawings. For reinforcing bars which are to be welded, conform with "Reinforcing Steel Welding Code", AWS D1.4-79. Use bars conforming to "Standard Specification for Low Alloy Steel Deformed Bars for Concrete Reinforcement" ASTM A706.

ACCESSORIES

Supports For Reinforcement: Bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcement in place.

Use plastic supports and spacers unless otherwise indicated. Do not use wood, brick, and other unacceptable materials.

Use stainless steel or plastic coated supports to prevent surface staining where supports are in contact with an exposed concrete surface.

Over earth and vapor barrier, use precast concrete block bar supports.

For slabs on grade, use supports with sand plates or horizontal runners where base materials will not support chair legs.

Tie Wire: Black annealed wire, 16 gauge or heavier.

Accessories: Provide galvanized, stainless steel or plastic coated accessories when any part of accessory is placed within 3/4-inch of exposed concrete surface.

Mechanical Reinforcing Bar Connectors: ACI 301. Provide 125 percent minimum yield strength of the reinforcing bar.

FABRICATION

Fabricate to required shapes and dimensions, complying with CRSI "Manual of Standard Practice". Furnish in the longest lengths practical and splice in accordance with ACI 318 except as noted otherwise in drawings. Make all splices at points of minimum stress. Show all splices on shop drawings.

PART 3 - EXECUTION

INSPECTION

Inspect the conditions under which concrete reinforcement is to be placed. Do not proceed with the work until satisfactory conditions have been corrected.

PREPARATION

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

DESCRIPTION OF WORK

This section covers concrete work for building construction, complete, and for site improvements, when so noted or referenced. Conform to provisions of "Specifications for Structural Concrete for Buildings", ACI 301 and as hereinafter augmented.

Related Work Specified Elsewhere:

Earthwork, Section 02200
Concrete Formwork, Section 03100
Concrete Reinforcing, Section 03200

QUALITY ASSURANCE

Testing Agency: Samples and tests, as required by the Architect, are to be made by an independent testing laboratory selected by the Architect. Costs for sampling and testing shall be as covered in the General Conditions.

Testing During Construction:

The Owner will employ a testing laboratory to perform other tests and to submit test reports.

Sampling and testing for quality control during placement of concrete may include the following, as directed by the Architect.

Sampling Fresh Concrete: ASTM C172, except modified for slump to comply with ASTM C94.

Slump: ASTM C143; one test for each concrete load at point of discharge; and one test for each set of compressive strength test specimens.

Air Content: ASTM C173, volumetric method for normal weight concrete; ASTM C231 pressure for normal weight concrete; one for each set of compressive strength test specimens.

Concrete Temperature: Test hourly when air temperature is when 80 degrees F (27 degrees C) and above; and each time a set of compression test specimens made.

Compression Test Specimen: ASTM C31; one set of three standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.

Compressive Strength Tests: ASTM C39; one set for each 100 cubic yards or fraction thereof, of each concrete class placed in any one day or for each 5,000 square feet of surface area placed; two specimens tested at seven days, three specimens tested at 28 days, and one specimen retained in reserve for later testing if required.

When frequency of testing will provide less than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.

When total quantity of a given class of concrete is less than fifty cubic yards, strength test may be waived by

Architect if, in his judgement, adequate evidence of satisfactory strength is provided.

When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

Test results will be reported in writing to Architect and Contractor on same day that tests are made. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials; compressive breaking strength and type of break for both 7-day tests and 28-day tests.

Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42, or by other methods as directed. Contractor shall pay for such tests conducted, and any other additional testing as may be required, when unacceptable concrete is verified.

Job Mockup: Provide an area representative of the complete concrete operation for the review of the Architect. Use a portion of the building, approximately 100 square feet (ten square meters). Each item of the representative area must be acceptable to the Architect prior to its use in the remainder of the building. Include in the area the following typical items.

- Forming, including form joints.
- Form ties.
- Form coating and its application.
- Concrete mix.
- Method of placing concrete.
- Curing of concrete.
- Form removal.
- Surface finish.

Concrete Placement Card: Complete concrete placement card and submit to Architect/Engineer for review at least 24 hours prior to placing concrete. Obtain cards from Architect/Engineer.

Reference Standards:

The Contractor shall have the latest issue of the following documents on hand at the construction site:

ACI 301 - Specification for Structural Concrete for Buildings.

ACI 305 - Recommended Practice for Hot Weather Concreting.

SUBMITTALS

Shop drawings and Product Data: Submit mix design test results as described herein.

Test Reports: Provide four copies of all test results, two copies to the Architect, one copy to the Contractor and one copy to the Owner, of the following:

Aggregate: When required by the Architect, test at least one sample for every 200 cubic yards (150 cubic meters) of aggregate. Aggregates from a known source of supply which have shown by actual service to produce concrete of the required quality will be tested only for gradation and deleterious substances.

Concrete Tests: Comply with ACI 301 for strength and slump tests.

Certificates: When required by the Architect, furnish manufacturer's certificate of compliance with Specifications.

Records: Maintain an accurate record of the items listed below. Keep records available for inspection at this site. Upon completion, deliver two copies of each record to Architect, in approved form.

Concrete Placement: Date and time of placement in each portion of schedule.

Test Cylinders: Correlate with placement record.

Form Removal: Dates of removal for forms, shoring and reshoring.

PROTECTION

Work of other trades shall be protected from damage and if damaged in performance of work of this section, shall be replace or patched in manner fully acceptable to the Architect at no cost to the Owner.

PART 2 - PRODUCTS

PRIMARY MATERIALS

Portland Cement: Use Type I or II, conforming to "Standard Specification For Portland Cement", ASTM C150.

Aggregate: Aggregate shall be manufactured from a Coralline Limestone having a bulk specific gravity (SSD) of not less than 2.40 and shall conform to ASTM C33, except as modified herein. Aggregates shall be free from any substance which may be deleteriously reactive with the alkalis in the cement in an amount sufficient to cause excessive expansion of the concrete. Test shall conform to the method of potential reactivity of cement-aggregate combinations (mortar bar method) in accordance with ASTM C227. Aggregates shall be washed before use.

Fine Aggregates: Unless otherwise approved, fine aggregates from different sources of supply shall not be mixed or stored in the same stockpile, or used alternately in the same structure. Fineness modulus shall be defined according to ASTM C125. Aggregate which shows a variation in fineness modulus greater than 0.20 more or less than that of the representative sample submitted shall be rejected unless, at the option of the Architect, the aggregate is accepted subject to such changes in the concrete proportions as may be directed at no additional cost to the Owner. Fine aggregate shall be graded according to the following limits:

<u>Sieve</u>	<u>Percentage Passing</u>
3/8	100
No. 4	95 to 100
No. 8	70 to 90
No. 16	45 to 75
No. 30	25 to 55
No. 50	10 to 30
No. 100	2 to 10
No. 200	0 to 5

Coarse Aggregates: The abrasion loss of coarse aggregates shall not exceed forty percent (40%) when tested in accordance with ASTM C131. Grading of coarse aggregate shall be in accordance with the following table:

Size of Coarse Aggregates (Inches)		Percentage By Weight Passing Sieves						
	1-1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#16
1	100	90-100 ---	25-60	---	0-10	0-5	--	
3/4		100	90-100 ---	20-55	0-10	0-5	--	
1/2			100	90-100	40-70	0-15	0-5	-
3/8				100	85-100	10-30	0-10	-

Water: Water for mixing and curing, including free moisture and water in the aggregate, shall be fresh, clean and potable. Turbidity of the water shall not exceed 2,000 parts per million.

Admixtures:

Retarding Densifier Admixture: Conform to "Standard Specification For Chemical Admixtures For Concrete", ASTM C494, Type D.

Superplasticizing, water-reducing admixture, Type D, ASTM C494.

SECONDARY MATERIALS

Vapor Barrier: Use reinforced double faced polyethylene film "Dampstop" by Permathene Plastics, Ltd. or "Moist Stop" by Fortifiber (Sisalcraft) lapped six inches at edges and ends and seal with plastic.

Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately nine ounces pre square yard, complying with AASHTO M182. Class 2.

Moisture Retaining Cover: One of the following, complying with ANSI/ASTM C171: Waterproof paper, Polyethylene film, Polyethylene-coated burlap.

Water Stops: Use Water Seals, Inc.; W.R. Meadows, Inc.; W. R. Grace Company. Water stops shall be of the type shown on the drawings.

Joint Sealer: Shall conform to "Standard Specification For Concrete Joint Sealer, Hot Poured Elastic Type", ASTM D1190.

Compressive Filler: Conform to "Specification For Preformed Expansion Joint Fillers For Concrete Paving and Structural Construction" ASTM D1751 unless noted otherwise on the drawings.

Preformed Control Joints: Shall be manufactured by J.A. Crawford of La Habra, Louisiana; or H. Compton Company, P.O. Box 700, La Porte, Texas.

Non-Shrink Grout For Setting Metal Items: Use "EMBEKO 636" premixed, nonshrink grout manufactured by Master Builders Company; "Ferrolith G.D.S." redi-mixed, nonshrink grout manufactured by Sonneborn Building Products, Inc.; or "SIKAGROUT 212" Non-Shrink Cementitious grout by Sika Corporation.

Curing/Hardening/Sealing/Waterproofing/ (CHSW) Compound: Shall be a clear compound having no

deleterious effect on further coatings such as elastomeric roofing, acrylic/vinyl latex paint, and latex modified grout, stucco or plaster. When exposed, the compound shall not discolor, Compound shall contain fugitive dye which vanishes in a few days.

Latex Grout Admixture: Shall be "Laticrete" #3701 by Laticrete International.

Bonding Agents: Use Epoxy-Polysulphide; Colma Dur by Sika; 15J by Sta-Crete, Inc.; Thiopoxy 62 by Grace Construction.

Epoxy Adhesive: One hundred percent (100%) solids, two component material suitable for use on dry or damp surfaces.

Products: Subject to compliance with requirements, provide one of the following: "Euco Epoxy" by Euclid Chemical Company or "Propoxy" by Unite.

Sealants: Specified in Section 07900, Caulking and Sealants.

MIXES

Design of Mix: Comply with ACI 310 or 318 as hereinafter specified. Establish the strength and quality of the concrete proposed for use by tests made in advance of the beginning of operations using the consistencies suitable for the work. Trial design batches and testing shall be responsibility of the Contractor in accordance with the terms of the General Conditions, and shall be conducted by an independent testing laboratory acceptable to the Architect. Mixes shall be developed by method 1 or method 2 of ACI 301. Send results of the tests to the Architect as Shop Drawings for review. Conduct tests within six (6) months of the date of submittal of the report to the Architect. Include with the test reports for each class of concrete specifying the following information.

- Source of each aggregate.
- Pound of aggregate per cubic unit of concrete.
- Gradation and deletrious substance tests for each aggregate.
- Brand and type of cement.
- Sacks of cement per cubic unit of concrete.

- Gallons of water per sack of cement.
- Slump in inches.
- Percent of air content.
- Amounts of other admixtures, if any.
- Standard deviation of producer.
- Amounts of superplasticizer.

Make no substitutions in the materials used in the work without additional tests in accordance herewith to show that the quality of the concrete is satisfactory.

Adjustment to Concrete Mixes: Mix design adjustments may be requested when characteristics of materials, job conditions, weather, test results, or other circumstances warrant. Laboratory test data for revised mix designs and strength results must be submitted to and accepted by the Architect before using in the work.

Concrete Strength: Use concrete strength noted on the drawings and Section 03001.

Water Cement Ratio: Shall not exceed 0.50 for concrete with specified compressive strength of 4000 psi or more.

Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:

Ramps and Sloping Surfaces: Not more than three inches.

Reinforced Foundation Systems: Not less than one inch and no more than three inches.

Concrete Containing HRWR Admixture (Super Plasticizer): Not more than six inches.

Other Concrete: Not less than one inch and not more than three inches.

Mixing: Mixing shall be as recommended in ACI 304 and as hereinafter specified.

Ready-Mixed Concrete: Mix and deliver in accordance with the requirements set forth in "Specification For Ready-Mixed Concrete", ASTM C94. Dispatch all loads of ready-mixed concrete from the mixing plant. Drivers are required to deliver the signed dispatch ticket showing where the load was dispatched, when it left the mixing plant and the exact time (to the nearest minute) the batch was mixed. Failure to show the dispatch tickets properly filled out or any delay that will result in a period of time longer than one hour between the time the batch was mixed and the time the batch is finally placed in the form will be considered as a basis for rejecting the entire batch. Dispatch tickets shall record any and all additives incorporated in the batch including and water added after the batch was mixed.

Indiscriminate addition of water to increase slump shall be prohibited. Water may be added only if neither the maximum permissible water-cement ratio nor the maximum slump is exceeded. Any addition of water above that permitted by the limitation on water-cement ratio must be accompanied by a quantity of cement sufficient to maintain the proper water-cement ratio, and then only when acceptable to the Architect. Addition of water after the truck has left the batch plant is strictly prohibited.

PART 3 - EXECUTION

JOINTS AND EMBEDDED ITEMS

Edge Construction Joints: Where joints are indicated to receive joint compound, install the parting strip with a slightly tapered, dressed and oiled one-inch (25 millimeters) deep wood strip tacked to the top edge, flush with the finished surface. Neatly finish concrete along the wood strip, fill the joint groove approximately flush with joint sealer so as to be slightly concave after curing.

Control Joints: Construct control joints for slabs, walls and other locations as herein specified.

Use no control joints in slab-on-grade to receive composition flooring, carpet, or other finish flooring. Fill all resulting cracks.

In slab-on-grade with no covering. Use control joints each way to break the slab into approximately twelve foot squares unless otherwise detailed. Where change in slab thickness, machine foundations, or wall layouts make the 12-foot dimension impractical, joints shall be spaced closer to maintain an approximately square shape between joints. Joint layout shall be reviewed by the Architect. Form control joints as indicated in Drawings.

Construction Joints: Shall be located near the middle of the spans of beams, girders, and slabs unless a beam intersects a girder at this point, in which case the joint in the girder shall be offset a distance equal to twice the width of the beam. Construction joint layout shall be reviewed by the Architect.

Installation of Embedded Items:

Do not embed aluminum conduit or accessories in concrete.

Conduits and Pipes in Reinforced Concrete. Displace no reinforcing steel to accommodate the installation of conduits, outlet boxes, and pipes. Install no outlet boxes or joists but provide concrete headers for this purpose. In general, locate all embedded conduits in the physical center of the particular section of concrete. Unless otherwise approved by the Architect, conform to the following usual type of conditions.

<u>LOCATION</u>	<u>MAXIMUM ALLOWANCE</u>
Columns	Displacement of four percent of plan area of column.
Floor and Walls	Displacement of one-third of thickness of concrete space not less than three diameters on centers.
Beams and Joists	Displacement of one-third of least dimensions spaced not less than three diameters on centers.
Sleeves through Floors	Two-inch (50 millimeters) maximum pipe size not less than three diameters on centers.

SECONDARY MATERIALS INSTALLATION

Vapor Barrier: Use under all interior slabs-on-grade except where waterproof membrane is noted on drawings. Turn up at edges to one-half inch (13 millimeters) below finished floor on the outside of the expansion joint material. Repair if punctured.

Waterstops: Where waterstops occur in conjunction with compressive filler, place the strips on each side of the waterstops. Splice waterstops as recommended by the manufacturer.

Dovetail Slots: Build into all concrete to be faced with masonry. Place slots vertically and spaced at sixteen inches (400 millimeters). Provide slots in all concrete where masonry abuts. Install anchors and slots for other facing materials in accordance with Shop Drawings for that material.

Abrasive, Non-Slip Surface Aggregate: Prepare abrasive aggregate as recommended by the manufacturer at stair treads and platforms without safety nosings or floor covering, provide a non-slip finish by evenly sprinkling 25 pounds per 100 square feet (1.22 kilogram per square meter) of abrasive over the concrete which has been screeded level. Lightly float tamp the abrasive into the surface.

Non-Shrink Grout: Clean surfaces to receive grout of all foreign material, laitance or poor concrete and then water saturate for a period of 24 hours. Remove the excess water, erect nonabsorbent edge forms, and pour grout according to the manufacturer's instructions.

Latex Grout: Clean surfaces to receive grout of all foreign material, laitance or poor concrete. On existing concrete surfaces, sandblast surfaces clean, water saturate surface for period of 24 hours, remove excess water. Erect nonabsorbent edge forms, pour grout consisting of a one-third Portland cement/sand mix gauged with latex admixture, all in strict accordance with manufacturer's instructions for grout capable of forming from four inches thick feathered to zero inches (0"). Seal with (CHSW) compound.

Grout shall be used for:

- New curbs and crickets over existing concrete roofs/surfaces as called for.
- Crickets over new concrete roof slabs wherever monolithic poured and formed concrete crickets are inadequate or nonexistent.
- Leveling of low spots in roof surface as required to create positive drainage.
- Topping over ceiling slabs with exterior walks over. Cure/seal slab with two coats.
- Other miscellaneous locations called for on drawing of (CHSW) compound, provide two inch topping of latex

grout, salt finish surface to match exterior walks. After topping has set, wash surface and salt off, spray one coat of (CHSW) compound over surface.

PLACING

General: Form and place concrete in a manner to insure uniform and monolithic concrete with surfaces free from defects and lines of pours. Give ample opportunity and full cooperation to various trades to install their embedded items. Before concrete is placed, all embedded items shall have been inspected, required tests for concrete materials or mechanical operations shall have been completed, and concrete placement release card shall have been approved.

Preparation For Placing: Comply with ACI 301 and as hereinafter specified. When concrete is placed on earth, remove any water from excavations before depositing concrete. Divert any flow of water through proper side drains and remove by methods which will avoid washing over the freshly deposited concrete. Wet sand over vapor barrier prior to pour.

Coat contact surfaces of forms with a form coating compound before reinforcement is placed. Thin form coating compounds only with thinning agent of type, and in amount, and under conditions form coating compound manufacturer's directions. Do not allow excess form coating material to accumulate in forms or to come into contact with concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

Coat steel forms with non-staining, rust preventative form oil or otherwise protect against rusting. Rust-stained steel formwork is not acceptable.

Conveying: Comply with ACI 301 except as hereinafter specified.

Concrete shall be conveyed from the mixer to the forms as rapidly as practicable by proper methods which will not cause segregation or loss of ingredients. It shall be deposited as nearly as practicable in its final position in the forms. At any points in the conveying, the free vertical drop of the concrete shall not exceed 3 feet. Conveying equipment shall be cleaned thoroughly before each run. All concrete shall be deposited as soon as practicable after the forms and the reinforcement have been inspected.

Conveyor belts or chutes are not permitted except on written permission of the Architect. Any requests for permission for conveying shall be accompanied by certified test data showing mix, strength and slump of mix before and after conveying.

For white concrete use a complete separate conveying and placing system and keep the concrete and the forms clean and prevent the mixing of gray and white concrete.

Streaks or unsightly stains in the white or gray concrete are cause for rejection and removal.

Placing and Compacting: Comply with ACI 301 and has hereinafter specified. Concrete placement shall not be permitted during inclement weather if the concrete being placed is unprotected.

Hot Weather Placement Conform with "Recommended Practice For Hot Weather Concreting", ACI 305.

The maximum temperature of concrete when placed in the forms shall not exceed 90 degrees F (32 degrees C).

Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 degrees F (32 degrees C). Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing.

Earth Foundation Placement. Place concrete footings upon undisturbed soil surfaces free from mud and standing or running water.

Slabs On Grade. Place no interior slabs-on-grade until the subgrade has been inspected by the Architect.

Bonding: Comply with ACI 301.

Preplacement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.

Coordinate the installation of joint materials and moisture and moisture barriers with placement of forms and reinforcing steel.

CONSOLIDATING CONCRETE

General: Comply with ACI 305, and as herein specified.

Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.

Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.

Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced location not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.

Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.

Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.

Bring slab surfaces to correct level with straightedge and strikeoff. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.

Maintain reinforcing in proper position during concrete placement operations.

Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix designs.

FINISH OF FORMED SURFACES

Rough Form Finish: For formed concrete surfaces not exposed-to-view in the finish work or by other

construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed or chipped off. For surfaces that are to receive tile, stucco, adobe or plaster finish, treat forms with a retarder if forms are too smooth.

Smooth Form Finish: For formed concrete surfaces exposed-to-view, or that are to be covered with a coating material applied to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, or other similar system unless noted for other finish. This is as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed.

Smooth Rubbed Finish: Provide smooth rubbed finish to scheduled concrete surfaces, which have received smooth form finish treatment, not later than one day after form removal.

Moisten concrete surfaces and rub with carborundum brick or other abrasive until a uniform color and texture is produced. Do NOT apply cement grout.

Grout Cleaned Finish: Provide grout cleaned finish to scheduled concrete surfaces which have received smooth form finish treatment. Required for Screenwall vertical surfaces.

Combine one part portland cement to 1-1/2 parts fine sand by volume, and mix with water to consistency of thick paint. Blend standard portland cement and white portland cement, amount determined by trial patches, so that final color of dry grout closely match adjacent surfaces. Thoroughly wet concrete surfaces and apply grout to coat surfaces and fill small holes. Remove excess grout by scraping and rubbing with clean burlap. Keep damp by fog spray for at least 36 hours after rubbing.

Related Unformed Surfaces: At tops of walls, horizontal offsets, surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

MONOLITHIC SLAB FINISHES

Scratch Finish: Apply scratch finish to monolithic slab surfaces that are to receive concrete floor topping or mortar setting beds for tile, portland cement terrazzo, and other bonded applied cementitious finish flooring material, and as otherwise indicated.

After placing slabs, plane surface to a tolerance not exceeding 1/4" in two feet when tested with a two-foot straight edge. Slope surfaces uniformly to drains where required. After leveling, roughen surface before final set, with stiff brushes, brooms or rakes.

Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as hereinafter specified, and slab surfaces which are to be covered with membrane or elastic waterproofing, membrane or elastic elastomeric roofing, or sand-bed terrazzo, and as otherwise indicated.

After screening and consolidating concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units. Check and level surface plane to a tolerance not exceeding 1/4" in ten feet when tested with a ten-foot straight edge. Cut down high spots and fill low spots. Uniformly slope surface to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.

Trowel Finish: Apply trowel finish to monolithic slab surfaces to be exposed-to-view, and slab surfaces to be

covered with resilient flooring, paint or other thinfilm finish coating system.

After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over the surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding 1/8" in ten feet when tested with a ten-foot straightedge. Grind smooth surface defects which would telegraph through applied floor covering system.

Non-Slip Broom Finish: Apply non-slip broom finish to exterior concrete platforms, steps and ramps, and elsewhere as indicated.

Immediately after trowel finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

Chemical-Hardener Finish: Apply chemical-hardener finish to interior concrete floors where indicated. Apply liquid chemical-hardener after complete curing and drying of the concrete surface.

Apply proprietary chemical hardeners, in accordance with manufacturer's printed instructions.

CONCRETE CURING AND PROTECTION

General: Protect freshly placed concrete from rain, premature drying and excessive cold or hot temperatures

Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than seven days.

Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least seven days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.

Curing Methods: Perform curing of concrete by either moist curing, moisture-retaining cover curing, curing compound, or by combinations thereof, as herein specified.

Provide moisture curing by following methods

Keep concrete surface continuously wet by covering with water.

Continuous water-fog spray

Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with four-inch lap over adjacent absorptive covers.

Provide Moisture-cover curings as follows:

Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least three inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams supported slabs and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

MISCELLANEOUS CONCRETE ITEMS

Filling-In: Fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.

Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections and terminations slightly rounded.

Equipment Bases and Foundations: Provide machine and equipment bases and foundations, as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of manufacturer furnishing machines and equipment.

Steel Pan Stairs: Provide concrete fill for steel pan stair treads and landings and associated items. Cast-in safety inserts and accessories as shown on drawings. Screed, tamp and finish concrete surfaces as scheduled.

Reinforced Masonry: Provide concrete grout for reinforced masonry lintels and bond beams where indicated on drawings and as scheduled. Maintain accurate location of reinforcing steel during concrete placement.

CONCRETE SURFACE REPAIRS

Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Architect. Cut out honeycomb, rock pockets, voids over 1/4" in any dimension, and holes left by tie rods and bolts, down to solid concrete but, in no case to depth of less than one inch. Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water and brush-coat the area to be patched with specified bonding agent. Place patching mortar after bonding compound has dried.

For exposed-to-view surfaces, blend white portland cement and standard portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of architect. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets; fins and other projections on surface; and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry pack mortar, or precast cement cone plugs secured in place with bonding agent.

Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.

Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness, using template having required slope.

Repair finished unformed surfaces that contain defects which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01" wide or which penetrate to reinforcement or completely through non-reinforced sections regardless of width, spalling, pop-outs, honeycomb, rock pockets, and other objectionable conditions.

Correct high areas in unformed surfaces by grinding, after concrete has cured at least fourteen days.

Correct low areas in unformed surfaces during, or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repairing areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to architect.

Repair defective areas, except random cracks and single holes not exceeding one inch diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4" clearance all around. Dampen concrete surfaces in contact with patching concrete and brush with a neat cement grout, apply or concrete bonding agent. Mix patching concrete of same materials to provide concrete of same type or class of original concrete. Place, compact and finish to blend with adjacent finished concrete. Cure in the same manner as adjacent concrete.

Repair isolated random cracks and single holes not over one inch in diameter by dry-pack method. Groove top of cracks and cut-out holes to sound concrete and clean of dust, dirt and loose particles. Dampen cleaned concrete bonding agent. Mix dry-pack, consisting of one part portland cement to two and one half parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.

Use epoxy-based mortar for structural repairs, where directed by Architect.

Repair methods not specified above may be used, subject to acceptance of Architect.

END OF SECTION 03300

SECTION 03301 - MISCELLANEOUS CONCRETE STRUCTURES

PART 1 - GENERAL

QUALITY CONTROL

The Quality Control of Division 1, apply to this section.

GENERAL REQUIREMENTS

The construction requirements of this section applies to concrete curbs, gutters, sidewalks, and drainage swales.

Earthwork: Unless otherwise specified in this section or on the plans, the earthwork requirements of Section 02200, entitled "Earthwork", shall also apply to this section.

Concrete Construction: Unless otherwise specified in this section, or on the plans, the concrete construction requirements of Section 03300, entitled "Cast-in-Place Concrete", shall also apply to this section.

PART 2 - PRODUCTS

Products mentioned in Section 03300, Cast-in-Place Concrete shall also apply to this section.

PART 3 - EXECUTION

CONSTRUCTION REQUIREMENTS:

Sidewalks, Curbs, Gutter, Drainage Swales, and Driveways: This work shall consist of the construction of concrete curbs, gutter, sidewalks, and drainage swales with reinforcement, conforming with the lines and grades shown on the plans.

Excavation: Excavation shall be made to the required depth and to a width that will permit the installation and bracing of the forms. The foundation shall be shaped and compacted to an even surface conforming to the section shown on the plan. All soft and yielding material shall be removed and replaced with acceptable material which shall be thoroughly compacted to the degree indicated on the plans.

Forms: Forms shall be of wood or metal and shall extend for the full depth of the concrete. All forms shall be straight, free from warp and of sufficient strength to resist the pressure of the concrete without springing. Bracing and staking of forms shall be such that the forms remain in both horizontal and vertical alignment until their removal.

Placing Concrete: The foundation shall be thoroughly moistened immediately prior to the placing of the concrete. The proportioning, mixing and placing of the concrete shall be in accordance with the requirements of Section 03300, entitled "Cast-in-Place Concrete".

Finishing: The surface shall be finished with a wooden float. No plastering of the surface will be permitted. All outside edges of the slab and all joints shall be edged with a 1/4 inch radius edging tool.

Joints: Expansion joints shall be of the dimensions specified, and shall be filled with the type of pre-molded expansion joint filler. The sidewalk shall be divided into sections by dummy joints formed by a jointing tool or other acceptable means as directed. These dummy joints shall extend into the concrete for at least 1/3 of the depth and shall be approximately 1/8 inch wide.

Construction joints shall be formed around all appurtenances such as manholes, utility poles, etc., extending into and through the installed in these joints. Expansion joint filler of the thickness indicated shall be installed between concrete sidewalks and any fixed structure such as a building or bridge. This expansion joint material shall extend for the full depth of the sidewalk.

Curing: Concrete shall be cured for at least 72 hours. Curing shall be by means of moist burlap or mats or by other approved methods.

Base Course Material: Base Course Material for sidewalks and driveways shall conform to the requirements for base course in Section 02203, entitled "Base Course".

Concrete Curbing: This work shall consist of the construction of curb, gutter or combination curb and gutter in accord with these specifications and in reasonably close conformity with the lines and grades shown on the plans or established by the Contracting Officer.

Excavation: Excavation shall be made to the required depth, and based upon which the curb is to be set shall be compacted to an even surface. All soft and unsuitable material shall be removed and replaced with suitable material which shall be thoroughly compacted to the degree indicated on the plans.

Forms: Forms shall be of wood, metal, or other suitable material and shall extend for the full depth of the concrete. All forms shall be straight, free from warp and of sufficient strength to resist the pressure of the concrete without displacement. Bracing and staking of forms shall be such that the forms remain in both horizontal and vertical alignment until their removal. All forms shall be cleaned and coated with an approved form release agent before concrete is placed. Divider plates shall be of metal.

Mixing and Placing: Concrete shall be proportioned, mixed and placed in accordance with the requirements of Section 03300, entitled "Cast-In-Place Concrete". Consolidation of concrete placed in the forms shall be by vibration or other acceptable methods. Forms shall be left in place for 24 hours or until the concrete has set sufficiently so that they can be removed without injury to the curbing. The concrete shall be struck off to the cross-section specified, after which it shall be finished smooth and even by means of a wood float.

For the purpose of matching adjacent concrete finishes or for other reasons, the Contracting Officer may permit other methods of finishing. No plastering will be permitted.

Sections: Curbing shall be constructed in sections having a uniform length as shown on the plans unless otherwise ordered. Sections shall be separated by open joints 1/8 inch wide except at expansion joints. Where the curb is constructed adjacent to concrete pavement, the construction or open joints in the curb shall match the contraction joints in the pavement.

Expansion Joints: Expansion joints shall be formed at the intervals shown on the plans using a pre-formed expansion joint filler having a thickness of 1/2 inch. When the curb is constructed adjacent to or on concrete pavement, expansion joints shall be located opposite or at expansion joints in the pavement.

Curing: Immediately upon completion of the finishing, the curbing shall be moistened and kept moist for three days, or the curbing shall be cured by the use of membrane forming material. The method and details of curing shall be subject to the approval of the Contracting Officer.

Backfilling: After the concrete has set sufficiently, the spaces in front and back of the curb shall be refilled to the required elevation with suitable material, which shall be thoroughly tamped, in layers of not more than eight inches thick.

Paved Waterways: This work shall consist of paving ditches or other similar waterways with concrete constructed on a prepared bed in reasonably close conformity with these specifications and with the lines, grades and dimensions shown on the plans or established by the Contracting Officer.

Excavation: Excavation shall be made to the required depth, and the base upon which the curb is to be set shall be compacted to an even surface. All soft and unsuitable material shall be removed and replaced with suitable which shall be thoroughly compacted to the degree indicated on the plans.

Forms: Forms shall be of wood, metal, or other suitable material and shall extend for the full depth of the concrete. All forms shall be straight, free from warp and of sufficient strength to resist the pressure of the concrete without displacement. Bracing and staking of forms shall be such that the forms remain in both horizontal and vertical alignment until their removal. All forms shall be cleaned and coated with an approved form release agent before concrete is placed.

Mixing and Placing: Concrete shall be proportioned, mixed and placed in accordance with the requirements of Section 03300, entitled "Cast-in-Place Concrete". Consolidation of concrete placed in the forms shall be by vibration other acceptable methods. Forms shall be left in place for 24 hours or until the concrete has set sufficiently so that they can be removed without injury to the structure. The concrete shall be struck off to the cross-section specified, after which it shall be finished smooth and even.

Sections: Waterways shall be constructed in sections as shown on the plans unless otherwise ordered.

Curing: Immediately upon completion of the finishing, the structure shall be moistened and kept moist for three days. The method and details of curing shall be subject to the approval of the Contracting Officer.

Backfilling: After the concrete has set sufficiently, the spaces shall be refilled to the required elevation with suitable material, which shall be thoroughly tamped, in layers of not more than eight inches thick.

Base Course Material: Base course material for concrete curbing shall conform to the requirements for subbase course in Section 02203, entitled "Base Course".

END OF SECTION 03301

SECTION 04100 - MORTAR

PART 1 - GENERAL

SECTION INCLUDES

Mortar and grout for masonry.

RELATED WORK

Section 04340 - Reinforced Unit Masonry System: Installation of mortar and grout.

REFERENCES

ASTM C94 - Ready-Mixed Concrete.

ASTM C144 - Aggregate for Masonry Mortar.

ASTM C150 - Portland Cement.

ASTM C207 - Hydrated Lime for Masonry Purposes.

ASTM C270 - Mortar for Unit Masonry.

ASTM C404 - Aggregates for Masonry Grout.

ASTM C476 - Grout for Masonry.

ASTM C780 - Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.

ASTM C1019 - Method of Sampling and Testing Grout.

SUBMITTALS

Submit product data under provisions of Section 01340.

Include design mix, indicated Proportion or Property method used, required environmental conditions, and admixture limitations.

Samples: Submit under provisions of Section 01340.

Submit test reports.

Submit test reports on mortar indicating conformance to ASTM C270.

Submit test reports on grout indicating conformance to ASTM C476.

Submit manufacturer's c that products meet or exceed specified requirements.

Submit manufacturer's installation instructions under provisions of section 01340.

DELIVERY, STORAGE, AND HANDLING

Deliver products to site.

Store and protect products.

Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

ENVIRONMENTAL REQUIREMENTS

Maintain materials and surrounding air temperatures to minimum 50 degrees F (10 degrees C) prior to, during, and 48 hours after completion of masonry work.

MIX TESTS

Test mortar and grout.

Testing of Mortar Mix: In accordance with ASTM C780.

Test mortar mix for compressive strength consistency, water content and air content.

Testing of Grout Mix: In accordance with ASTM C1019.

Test mortar mix for compressive strength.

PART 2 - PRODUCTS

MATERIALS

Portland Cement: ASTM C150, Type I, gray color.

Mortar Aggregate: ASTM C144, standard masonry type.

Grout Aggregate: ASTM C404.

MORTAR MIXES

Mortar for Reinforced Masonry: ASTM C270, Type S using the Property Method.

MORTAR MIXING

Thoroughly mix mortar ingredients in quantities needed for immediate use in accordance with ASTM C270.

Provide uniformity of mix and coloration.

If water is lost by evaporation, retemper only within two hours of mixing.

Use mortar within two hours after mixing at temperatures of 80 degrees F (26 degrees C), or two-and-one-half hours at temperatures under 50 degrees F (10 degrees C).

GROUT MIXES

Bond Seams Lintels: 4000 psi strength at 28 days; 7-8 inches slump in accordance with ASTM C476
Fine, Course, Grout.

GROUT MIXING

Mix concrete in accordance with ASTM C94.

PART 3 - EXECUTION

EXAMINATION

Request inspection of spaces to be grouted.

INSTALLATION

Install mortar and grout to requirements of the specific masonry Section.

Work grout into masonry cores and cavities to eliminate voids.

Do not displace reinforcement while placing grout.

Remove grout spaces of excess mortar.

END OF SECTION

SECTION 04230 - REINFORCED UNIT MASONRY

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

DESCRIPTION OF WORK

Extent of each type of reinforced unit masonry work is indicated on drawings and in schedules.

DELIVERY AND STORAGE

Delivery cement, lime and other cementitious materials to the site in unbroken bags, barrels, or other approved containers, plainly marked and labeled with manufacturer's names and brands. Store cementitious materials in dry, weather tight sheds or enclosures and handle so as to prevent entry of foreign materials and damage by water or dampness. Handle masonry units with care to avoid chipping and breakage. Protect masonry materials from damage by water or dampness. handle masonry units with care to avoid chipping and breakage. Protect masonry materials from damage and, except for sand, keep dry until used.

PART 2 - PRODUCTS

MATERIALS

Masonry Units: Concrete masonry units of modular dimensions and air, water or steam cured. Before use, store Type II units at the site a minimum of twenty-eight days for air cured units, ten days for atmospheric steam or water cured units, and three days for units cured with steam at a pressure of 120 to 150 pounds per square inch and at a temperature of 350 to 365 degrees Fahrenheit for at least five hours. Surfaces of units which are to be plastered or stuccoed shall be sufficient rough to provide a suitable bond.

Hollow Load Bearing Units: ASTM C90, Grade N-I or N-II, made with normal weight aggregate. Provide load bearing units for walls.

Special Shapes: Provide special shapes such as closures, header units, and jamb units as necessary to complete the work. Special shapes shall conform to the requirements for the units with which special shapes are used.

MORTAR

Portland Cement: ASTM C150, Type I or II.

Hydrated lime shall be used. Admixtures free of lime and chlorides may be used to produce a workable mix.

Masonry Cement: ASTM C91, except that the air content of the mortar specimen shall be not more than 16 percent by volume in lieu of 22 percent. Containers shall bear complete instructions for proportioning and mixing to obtain the required types of mortar.

Sand: ASTM C144.

Water: Clean, potable and free from substances which could adversely affect the mortar.

Mortar: ASTM C270, Type M. If masonry cement is used, submit the manufacturer's printed instructions on proportions of water and aggregates and on mixing to obtain the type of mortar required.

ACCESSORIES

Reinforcement: Reinforcing bars, except No. 2, shall be deformed and unless otherwise indicated or specified shall conform to ASTM A615, Grade 60.

PART 3 - EXECUTION

PLACING REINFORCEMENT

General: Clean reinforcement of loose rust, mill scale, earth or other materials which will reduce bond to mortar or grout. Do not use reinforcement bars with kinks or bend not shown on drawings or final shop drawings, or bars with reduced cross-section due to excessive rusting or other causes.

Position reinforcement accurately at the spacing shown. Support and secure vertical bars against displacement. Horizontal reinforcement may be placed as the masonry work progresses. Where vertical bars are shown in close proximity, provide a clear distance between bars of not less than the nominal bar diameter or one inch (whichever is greater).

For columns, pier and pilasters, provide a clear distance between vertical bars as shown, but not less than 1.50 times the nominal bar diameter or 1.50 inches, whichever is greater. Provide lateral ties as shown.

Splice reinforcement bars where shown; do not splice at other points unless acceptable to the Architect. Provide lapped splices, unless otherwise shown. In splicing vertical bars of attaching to dowels, lap ends, place in contact and wire tie.

Provide not less than minimum lap shown, or if not shown, as required by governing code.

Anchoring: Anchor reinforced masonry work to supporting structure as indicated.

INSTALLATION, GENERAL

Temporary Formwork: Provide formwork and shores as required for temporary support of reinforced masonry elements. Design, erect, support, brace and maintain formwork.

Construct formwork to conform to shape, line and dimensions shown. Make sufficiently tight to prevent leakage of mortar grout, or concrete (if any). Brace, tie and support as required to maintain position and shape during construction and curing of reinforced masonry.

Do not remove forms and shores until reinforced masonry member has hardened sufficiently to carry its own weight and all other reasonable temporary loads that may be placed on it during construction.

Allow not less than the following minimum time to elapse after completion of member before removing shores or forms, provided suitable curing conditions have been obtained during the curing period.

Ten days for girders and beams.

Seven days for slabs.

Seven days for reinforced masonry soffits.

Low-Lift Grouting:

Use Low-Lift grouting techniques with "Fine Grout" mix for the following:

Columns, pier or pilasters where masonry units are shown in core areas enclosed by exterior masonry units.

At Contractor's option, low-lift grouting techniques may be used for reinforced masonry construction with grout spaces wider than two inches, except use "Course Grout" mix and place in lifts not to exceed eight inches in height.

Construct low-lift masonry by placing reinforcement, laying masonry units and pouring grout as the work progresses.

Place vertical reinforcing bars and supports prior to laying of masonry units. Extend above elevation of maximum pour height as required to allow for splicing. Horizontal reinforcement bars may be placed progressively with laying of masonry units.

Limit grout pours as required to prevent displacement of masonry by grout pressures (blowout), but do not exceed twelve inches pour height.

Lay masonry units prior to each grout pour, but do not construct more than twelve inches above maximum grout height in one exterior wythe and four inches above in other exterior wythe. Provide metal wall ties if required to prevent blowouts.

Pour grout using container with spout and consolidate immediately by rodding, or puddling; do not use trowels. Place grout continuously; do not interrupt pouring of grout for more than one hour. If poured in lifts, place from center-to-center of masonry courses. Terminate pour 1-1/2 inches below top of highest course in pour.

High-Lift Grouting:

High-Lift grouting technique may be used for the following masonry construction:

Columns, piers, or pilaster when no unit masonry fill is shown to be placed in reinforced grout space.

Place reinforcement and support in proper position, prior to laying of masonry units, except if shown to be placed in mortar joints, place as masonry units are laid. Place horizontal bars in grout spaces on same side of vertical bars.

Construct high-lift masonry by laying masonry on full height and width prior to placing of grout. Provide cleanout holes in first course of masonry, and use high-pressure water jet stream to remove excess mortar from grout spaces, reinforcement bars and top surface of structural members which support wall. Clean grout spaces daily during construction of masonry.

Preparation of Grout Spaces: Prior to grouting, inspect and clean grout spaces. Remove dirt, dust, mortar droppings, loose pieces of masonry and other foreign materials from grout spaces. Clean reinforcement and adjust to proper positioning. Clean top surface of structural members supporting masonry to ensure bond. After cleaning and inspection, close cleanout holes with matching masonry units and brace closures to resist grout pressures.

Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist grout pressure, but not less than three days curing time. Install shores and bracing, if required, before starting grouting operations.

Place grout by pumping into grout spaces, unless alternative methods are acceptable to the Architect.

Use "Course Grout" mix. Rod or vibrate each grout lift during placing and again after excess moisture has been absorbed, but before plasticity is lost. Do not penetrate or damage grout placed in previous lifts or pours.

Limit grout pours to sections which can be completed in one working day with not more than one hour interruption of pouring operation. Limit pours so as not to exceed the capacity of masonry to resist displacement of loss of mortar bond due to grout pressures.

Do not exceed 12-foot pour height.

Do not exceed 25-foot horizontal pour dimension.

Where pour height exceeds four feet, place grout in a series of lifts not exceeding four-foot height. Place each lift as a continuous pouring operation. Allow not less than thirty minutes, not more than one hour between lifts of a given pour.

When more than one pour is required to complete a given section of masonry, extend reinforcement beyond masonry as required for splicing. Pour grout to within 1-1/2 inches of top course of first pour. Remove excess grout from top course and extended reinforcement before concrete has hardened. After grouted masonry is cured, remove temporary dams (if any), and lay masonry units and place reinforcement for second pour section before grouting. Repeat sequence, if more pours are required.

INSTALLATION OF REINFORCED CONCRETE UNIT MASONRY

General:

Do not wet concrete masonry units (CMU).

Lay CMU units with full-face shell mortar beds. Fill vertical head joints (end joints between units) solidly with mortar from face of unit to a distance behind head joint equal to not less than the thickness of longitudinal face shells. Solidly bed cross-webs of starting courses in mortar. Maintain head and bed joint widths shown, or if not shown, provide 3/8-inch joints.

Walls:

Pattern Bond: Lay CMU wall units in one-half running bond with vertical joints in each course centered on units in courses above and below, unless otherwise indicated. Bond and interlock each course at corners and intersections. Use special-shaped units where shown, and as required for corners, jambs, sash, control joints, lintels, bond beams and other special conditions.

Maximum vertical continuity of core or cell cavities, which are to be reinforced and grouted, to provide minimum clear dimensions indicated and to provide minimum clearance and grout coverage for vertical reinforcement bars. Keep cavities free of mortar. Solidly bed webs in mortar where adjacent to reinforced core or cells.

Where horizontal reinforced beams (bond beams) are shown, use special units or modify regular units to allow for placement of continuous horizontal reinforcement bars. Place small mesh expanded metal lath or wire screening in mortar joints under bond beam courses over cores or cells of non-reinforced vertical cells, or provide units with solid bottoms.

Option: Where all vertical cores are not shown to be grouted, Contractor may elect to fill all vertical cores with grout. In which case, requirements for mortar bedding of cross-webs and closing of core spaces below bond beams do not apply.

Columns, Piers and Pilasters:

Use CMU units of the size, shape and number of vertical core spaces shown. If not shown, use units which provide minimum clearances and grout coverage for number and size of vertical reinforcement bars shown.

Provide pattern bond shown, or if not shown, alternate head joints in vertical alignment.

Where bonded pilaster construction is shown, lay wall and pilaster units together to maximum pour height specified.

Grouting:

Use "Fine Grout" for filling spaces less than four inches in both horizontal directions.

Use "Coarse Grout" for filling four-inch spaces or larger in both horizontal directions.

Grouting Technique: At the Contractor's option, use either low-lift or high-lift grouting techniques subject to the requirements which follow.

Provide minimum clear dimensions of two inches and clear area of eight square inch in vertical cores to be grouted.

Low-Lift Grouting:

Place vertical reinforcement prior to laying of CMU. Extend above elevation of maximum pour height as required to allow for splicing.

Support in position at vertical intervals not exceeding 192 bar diameters nor ten feet.

Lay CMU to maximum pour height. Do not exceed five-foot height, or if bond beam occurs below five-foot height stop pour at course below bond beam.

Pour grout using container with spout or by chute. Rod or vibrate grout during placing. Place grout continuously; do not interrupt pouring of grout for more than one hour. Terminate grout pours 1-1/2 inches below top course of pour.

Bond Beams: Stop grout in vertical cells 1-1/2 inches below bond beam course. Place horizontal reinforcing in bond beams; lap at corners and intersections as shown. Place grout in bond beam course before filling vertical cores above bond beam.

High-Lift Grouting:

Do not use high-lift grouting techniques for grouting of CMU unless minimum cavity dimension is three inches and ten square inches, respectively.

Provide cleanout holes in first course at all vertical cells which are to be filled with grout.

Use units with one face shell removed and provide temporary supports for units above, or use header units with concrete brick supports, or cut openings in one face shell.

Construct masonry to full height of maximum grout pour specified, prior to placing grout.

Limit grout lifts to a maximum height of 5 feet and grout pour to a maximum height of twenty four feet, for single wythe hollow concrete masonry walls, unless otherwise indicated.

Place vertical reinforcement before grouting. Place before or after laying masonry units, as required by job conditions. Tie vertical reinforcement to dowels at base of masonry where shown and thread CMU over or around reinforcement. Support vertical reinforcement at intervals not exceeding 192 bar diameters nor ten feet.

Where individual bars are placed after laying masonry, place wire loops extending into cells as masonry is laid and loosen before mortar sets. After insertion of reinforcement bar, pull loops and bar to proper position and tie free ends.

Where reinforcement is prefabricated into cage units before placing, fabricate units with vertical reinforcement bars and lateral ties of the size and spacing shown. Place horizontal beam reinforcement as the masonry units are laid.

Separation of Grout Spaces: Prior to grouting, inspect and clean grout spaces. Remove dust, dirt, mortar dropping, loose pieces of masonry and other foreign materials from grout spaces. Clean reinforcement and adjust to proper position. Clean top surface of structural members supporting masonry to ensure bond. After final cleaning and inspection, close cleanout holes and brace closures to resist grout pressures.

Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist displacement of masonry units and breaking of mortar bond. Install shores and bracing, if required, before starting grouting operations.

Place grout by pumping into grout spaces unless alternate methods are acceptable to the Architect.

Limit grout pours to sections which can be completed in one working day with not more than one hour interruption of pouring operation. Place grout in lifts which do not exceed five feet. Allow not less than thirty minutes, nor more than one hour between lifts of a given pour. Rod or vibrate each grout lift during pouring operation.

Place grout in lintels or beams over opening in one continuous pour.

Where bond beam occurs more than one course below top of pour, fill bond beam course to within one inch of vertically reinforced cavities, during construction of masonry.

When more than one pour is required to complete a given section of masonry, extend reinforcement beyond masonry as required for splicing. Pour grout to within 1-1/2 inch of top of first pour. After grouted masonry is cured, lay masonry units and place reinforcement for second pour section before grouting. repeat sequence if more pours are required.

CLEANING

Protection: Protect work which may be damaged, stained, or discolored during cleaning operations.

Pointing: Upon completion masonry work, cut out defective mortar joints and tuck joints and holes solidly with mortar.

Cleaning: Clean exposed masonry surfaces with clear water and stiff fiber brushes and rinse with clear water. Where stains mortar or other soil remain, continue cleaning as follows. Clean masonry surfaces by scrubbing with warm water and soap and rinsing thoroughly with clear water. Restore damages, stained, and discolored work to its original condition or replace with new work.

END OF SECTION 04230

SECTION 05120 - STRUCTURAL STEEL

PART 1 - GENERAL

WORK INCLUDED

Furnish, fabricate and erect all structural steel indicated on Drawings, and required to complete the work.

QUALITY ASSURANCE

Welder qualifications: Currently certified in accord with AWS D1.1.

Codes and Standards: Comply with the following as applicable:

UBC: 1994 Edition, Chapter 22.

AISC: Manual of Steel Construction, Ninth Edition.

AISC: Specification for the Design, Fabrication and Erection of Structural Steel for Buildings.

AISC: Code of Standard Practice for Steel Buildings and Bridges.

AWS D1.1: Standard Welding Code.

Project conditions: Do not fabricate components which require fitting to other structural elements or into finished spaces until dimensions are verified at the site.

SUBMITTALS

Shop Drawings:

Fully detailed shop drawings of all structural steelwork. Indicate methods of assembly, hardware locations, anchors, and all necessary accessories.

Include all shop and erection details, including cuts, pipes, connections, holes, bolts, and welds in structural steel. Indicate all welds, both shop and field welds; use standard AWA welding symbols.

Show size, length and type of each weld.

Contractor shall be responsible for all fabrication errors and for correct fitting of structural members. Do not fabricate or deliver materials to the site until shop drawings have been approved by the Architect.

Test reports:

Furnish three copies of mill test reports of all structural steel materials to the Architect, showing conformance with the specifications prior to fabrication of work. Identify all certified lots.

Weld testing, if required, shall be non-destructive type weld testing in accord with AWS standard procedures.

Certificates: Furnish manufacturers certification, in triplicate, that all materials conform to specification requirements.

PRODUCT HANDLING

Deliver materials, off load and store in a manner to prevent damage and to allow ready access for inspection and identification of each shipment.

Store steel materials above the ground, on platforms, pallets, skids or other supports.

Protect materials from dirt, grease, corrosion and all foreign matter. Material showing evidence of damage will be rejected and shall be immediately removed from the work.

PART 2 - PRODUCTS

MATERIALS

Structural steel: ASTM A36, standard structural sections, and plates; sizes and shapes as indicated on Drawings.

Steel tube for columns and other locations where indicated: ASTM A 500, Grade B, structural tubing.
Steel pipe for columns: ASTM A53, Grade B

Bolts and nuts: ASTM A 325.

Washers:

Round washers: ANSI B27.2, Type B. Place cut washers under all bolts and nuts bearing on steel and at other locations shown on Drawings.

Beveled washers: Square, smooth and sloped so that contact surfaces of bolt head and nut are parallel. Diameter of hole in square-beveled washers shall be 1/16" greater than bolt size for bolts not larger than 1", and 1/8" greater than bolt size for bolts larger than 1".

Electrodes: ANSI A5.1 arc-welding electrodes (E70XX). Provide coated rods of size and classification number as recommended by the manufacturers for the positions and conditions of actual use.

Grout: Master Builder's Embeco pre-mixed grout, Conrad Sovig's Metal-Mix Grout, or approved equal, or an approved Portland cement and aluminum powder pre-mixed grout.

FABRICATION

Shop fabrication and assembly: Fabricate and assemble structural materials in the shop to the greatest extent practical.

Shearing, flame cutting, and shipping shall be done carefully and accurately. Assemblies shall be taken apart, if necessary, for the removal of burrs and shavings produced by remaining operations.

Coordinate all connection details to concrete. Report discrepancies to the Architect promptly. For attachment to concrete, verify all lines, levels and dimensions where possible, prior to fabrication of connection details.

Correct work that does not fit at no additional cost to the Owner.

Schedule and coordinate all work with that of other trades to the extent necessary to attain a complete system in accordance with the design intent.

When not otherwise shown or specified, comply with all applicable requirements of AISC Specifications for Design, Fabrication and Erection of Structural Steel for Buildings. Finished surfaces of exposed members shall be smooth and free of any markings, burrs, or other defects.

Connections: Bolt or weld connections as indicated. When connections are not indicated, make connections in accord with the applicable requirements of AISC Specification for the Design, Fabrication and Erection of Structural Steel for Buildings. One sided or other types of eccentric connections will not be permitted unless shown in detail and approved on the shop drawings.

Holes: Cut, drill, or punch at right angles to the surface of the metal; do not make or enlarge by burning. Holes in base or bearing plates shall be drilled. Provide holes in members to permit connection of the work of other trades. Holes shall be clean-cut without torn or ragged edges. Outside burrs resulting from drilling or reaming operations shall be removed with a tool making a 1/16" bevel. Make bolt holes 1/16" oversize.

Draw: Make allowance for draw in all tension bracing.

WELDING

Make welding connections where and as indicated on the approved shop drawings. Comply with the applicable requirements of AISC Specification for the Design, Fabrication and Erection of Structural Steel for Buildings.

Do all welding indicated and required to make exposed joints water and weather tight. Make welds by the shielded arc method. Welding rods shall be uniformly and heavily coated (not washed), and shall be of such a nature that the coating will not chip or peel while being used with the maximum amperage specified by the manufacturer. Welds shall be clean and smooth.

Welded joint details shall comply with all requirements for joints which are exempt from qualification tests under the AWS D1.1.

Clean all surfaces to be welded. Remove loose scale, slag, rust, grease paint and other foreign material. Grind burned edges to be welded.

Gas cutting: Cutting torch may be used to make unimportant shear cuts provided that stress will not be transmitted into the metal through the burned surface. Make cuts true to line with a maximum deviation of 1/16".

Finish burned edges by grinding whenever specified deviation is exceeded or where it is exposed to view and, in the Architect's judgement, the burned edge will be unsightly. Metal adjacent to a burned surface for a distance equal to the thickness of the material shall not be considered a part of net section for tension members.

Burning shall be done by mechanics skilled in this work, and only after the Architect has given approval of where cuts are to be made.

Welded connections:

Make welded connections in accord with AWS D1.1. Do all welding in the shop unless otherwise shown or specified.

Make fillet and butt welds with such a number of passes or beads as may be necessary to secure sound and fully fused joints, except that each deposit shall not exceed 1/8" of weld for each bead or pass. Thoroughly clean preceding layers and wire-brush to remove all scale and slag before succeeding layers are placed.

Grind and dress welds smooth where exposed in the finished work. Preserve the shape and profile of the item welded.

GALVANIZING

Where noted on drawings, galvanize steel in accord with ASTM A123. Hot dip galvanizing shall be done after fabrication, in the largest section possible. Items too large for available dip tanks shall be sprayed by approved methods, with molten zinc to coating thickness of .003" to .004.

Weight of zinc coating per square foot of actual surface shall average not less than 2.0 ounces and no individual specimen shall show less than 1.8 ounces.

Restore damaged galvanized surfaces after field welding and assembly using Ferraloy, Tin Easy Fluid, Galvaloy cold galvanizing compound.

Galvanize bolts and screws used for attachment of galvanized items.

SHOP COATINGS

Except as otherwise specified, shop coat structural steelwork, except steelwork to be embedded in concrete or mortar and steelwork for temporary structures. Surfaces to be welded shall not be coated with 0.5 inch from the specified toe of the weld prior to welding, except that coating will be allowed to surfaces on which metal decking or shear studs are to be welded. Insure that surfaces are thoroughly dry and clean when the coating is applied. Prior to assembly, paint surfaces which will be concealed or inaccessible after assembly.

Cleaning: Except as modified herein, blast clean surfaces in accordance with SSPC-SP6. Wash cleaned surfaces which become contaminated with rust, dirt, oil, grease, or other contaminants with solvents until clean. Insure that steel to be embedded in concrete is free of dirt and grease. Do not paint or galvanize bearing surfaces, including contact surfaces within friction-type joints, but coat surfaces with a rust preventive applied in the shop.

Remove such coating just prior to field erection using remover approved by the rust preventive manufacturer. Insure that the surfaces, when assembled, are free from rust, grease, dirt, and other foreign matter.

Pretreatment: Except as modified herein, immediately after cleaning and before rust has formed, coat surfaces with a pretreatment coating conforming to Mil. spec. DOD-P-15328 applied to a dry film thickness of 0.3 to 0.5 mil or with crystalline phosphate base coating conforming to Fed. Spec. TT-C-490, Method I except apply phosphate base coating only to blast cleaned, bare metal surfaces.

Priming: Prime treated surfaces as practicable after the pretreatment coating has dried. Except as modified herein, prime with zinc chromate primer conforming to Fed. Spec. TT-T-645, applied to a minimum dry film thickness of 1.0 mil. Prime surfaces that will be concealed after construction and will

require no overpainting for appearance with a coat of asphalt varnish conforming to Fed. Spec. TT-V-51 applied to a minimum dry film thickness of 1.0 mil in lieu of zinc chromate primer. Repair damage to primed surfaces with primer.

PART 3 - EXECUTION

INSPECTION

Examine surfaces for conditions that will adversely affect execution, permanence and quality of the work.

Correct all unsatisfactory conditions before proceeding with erection of steel.

Defective work: Fabricator shall assign identifying letters or numbers to each welder employed and shall require each welder to "autograph" the welds he makes with a suitable mark. Keep the welding inspector supplied with an up-to-date list of such letters or numbers. "Autographing" of welds shall be done to the satisfaction of the welding inspector. Die stamping or marking steel numbers with weld metal will not be permitted.

PREPARATION

Field measurements: Secure all field measurements required for proper and adequate fabrication and installation of the work. Exact measurements are the Contractor's responsibility.

Templates: Furnish templates for exact location of items to be embedded in concrete and any setting instructions required for all installation work.

ERECTION:

Erect structural steel as rapidly as the progress of other work permit. Make splices and field connections with bolts, except where welding is indicated or approved on the shop drawings.

Erecting equipment shall be suitable and safe for the workmen. Errors in shop fabrication or deformation resulting from handling and transportation that prevent the proper assembly and fitting of parts shall be reported promptly to the Architect and approval for the method of correction obtained. Make such approved corrections at no additional cost to the Owner.

Make field welds in accord with AWS D1.1.

Provide temporary bracing as required, and keep in position until final completion. Brace shop fabricated items subject to damage and carefully handle to prevent distortions or other damage. Properly brace all items installed before concrete is placed to prevent distortion by pressure of concrete. Continually observe and maintain bracing during concrete operations.

Lines and levels: Set steel work accurately at the established lines and levels. Steel must be plumb and level before bolting is commenced. Erection shall be in accord with approved Drawings and actual conditions, true and horizontal or perpendicular as required, level and square with angles and edges parallel with related lines of the building.

Riveted connections will not be permitted. Proportion items to meet the applicable building code and to support any live loads which may normally be imposed unless specific live loads are indicated on the Drawings.

Contractor shall be responsible for all errors of detailing, fabrication, and for the correct fitting of all structural members.

Bases, bearing plates and anchors:

Provide steel bearing plates and anchors for items bearing on concrete, as indicated. Provide leveling nuts.

After leveling to correct elevation, pack the space below plates solid with full bed of non-shrink grout. Furnish templates with instructions for setting anchors, anchor bolts, and bearing plates. Contractor shall supervise and verify that anchors and related items are properly set in concrete during the progress of the work.

Accurately locate all required anchor bolts and anchors into connecting work. Set all bolts and anchors using templates or such other methods as may be required to locate the anchors and anchor bolts accurately.

Support bases, bearing plates and ends of beams which require grouting exactly at the proper level using leveling nuts. Set bases and plates accurately using a high-strength, non-shrink grouting mortar, to obtain uniform bearing. Mix and place grout in accord with the manufacturer's instructions. Clean and moisten surfaces thoroughly immediately prior to placing grout. Water cure exposed surfaces with wet burlap for seven days. Contractor shall assume full responsibility for grouting and its proper performance.

After assembly, align and adjust the various members forming parts of a completed frame or structure accurately before fastening. Tolerances shall comply to the applicable requirements of AISC Code of Standard Practice. Fastening of splices of compression members shall be done after the abutting surfaces have been brought completely into contact.

Clean bearing surfaces and surfaces that will be in permanent contact before the members are assembled. As erection progresses, securely fasten the work to take care of all dead load, wind load, and erection stresses.

Splices will be permitted only where indicated. Unless removal is required, erection bolts used in welded construction may be tightened securely and left in place. If erection bolts are removed, fill holes and plug welds. Correct poor matching of holes by drilling to the next larger size.

Welding for redrilling will not be permitted.

Driftpins may be used only to bring together the several parts. Do not use driftpins in such manner as to distort or damage the metal.

Use of gas-cutting for correcting fabrication errors will not be permitted on any major member. Use of gas-cutting torch will be permitted only on minor members, when the member is not under stress, and then only after the approval of the Architect has been obtained.

Drive bolts accurately into the holes without damaging the thread. Protect bolt heads from damage during driving. Place washers under all bolt heads and nuts. Bolt heads and nuts shall rest squarely against the washer. Where bolts are used on beveled surfaces having slopes greater than 1 in 20 with a plane normal to the bolt axis, provide beveled washers to give full bearing to the head or nut. Where self-locking nuts are not furnished, bolt threads shall be upset to prevent nuts from backing off. Bolts transmitting shear shall be threaded to such a length that not more than one thread will be within the grip of the metal.

Provide bolts of such length that will extend entirely through, but shown on Drawings. Draw bolt heads and nuts tight against the work. Tap bolt heads with a hammer while the nut is being tightened. Lock nuts after final tightening.

CLEANING AND PAINTING

Thoroughly clean all steel and iron materials by mechanical means, such as wire brushing, to remove all mill scale, rust, grease, oil, and other foreign matter. Wire brush field welds. After cleaning, treat steel and iron materials with phosphoric acid and a vinyl resin primer pretreatment. After erection, spot paint all abraded areas, field bolts and welds and touch up with the same material used for shop priming.

END OF SECTION 05120

SECTION 05500 - METAL FABRICATIONS

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

DESCRIPTION OF WORK

Definition: Metal fabrications include items made from iron and steel shapes, plates, bars, strips, tubes, pipes and castings which are not a part of structural steel or other metal systems specified elsewhere.

Extent of metal fabrications is as indicated on drawings, schedules and as required. All light iron and miscellaneous metal work not specified under another section but required for the work shall be provided under this section whether or not specifically referred to herein.

Types of work in this section include metal fabrications for:

- Rough hardware
- Loose bearing and leveling plates
- Miscellaneous Framing and Support
- Miscellaneous steel trim
- Steel pipe railings

Structural Steel is specified in Section 05100.

DEFINITIONS

Custom Metal Fabrications: Metal fabrications which are custom built to meet specific Project purposes.

Premanufactured Metal Fabrications: Metal fabrications which are factory fabricated for specific architectural purposes. These products may require modification to meet Project requirements but their primary manufactured purpose is not altered.

Nonstructural Metal Fabrications: Metalwork which has not been designed by the Architect's Structural Engineering Consultant and which is not part of the Structural Engineering Consultant's documents.

SYSTEM PERFORMANCES

Structural Performances: Provide assemblies which, when installed, comply with the following minimum requirements for structural performance, unless otherwise indicated.

Guardrail and handrails shall comply with applicable Uniform Building Code and other codes which apply to this work.

Guardrails, Handrails and Toprails: Installation of completed railings and supporting structure capable of withstanding the following loads applied as indicated when tested per ASTM E935.

Concentrated loads of 200 pounds force applied to handrails at any point in any direction.

Uniform load of 50 pounds per linear foot applied to balcony railings and guardrails simultaneously in both vertical and horizontal directions.

Concentrated and uniform loads above need not be assumed to act concurrently.

Guards: Intermediate rails, balusters and panel fillers capable of withstanding load of 50 pounds per linear foot or 25 pounds per square foot of gross area of guard, including any open areas, of which they are a part.

ADA Americans with Disabilities Act of 1990, 250 pounds per linear foot maximum bending stress and shear stress.

QUALITY ASSURANCE

Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting whenever taking field measurements before fabrication might delay work.

Dielectric Isolation: Where metal surfaces are in contact with, or fastened to dissimilar metals, except stainless steel, the metal surface shall be protected from dielectric interaction with dissimilar metals concrete or masonry construction. Surfaces in contact with sealants after installation need not be coated with any type of protective material.

SUBMITTALS

Product Data: Submit manufacturer's specifications, anchor details and installation instructions for premanufactured products. Submit data indicating materials used in miscellaneous metal fabrications, including paint products and grout.

Shop Drawings: Submit shop drawings for fabrication and erection of miscellaneous metal fabrications. Include plans, elevations and details of sections and connections. Show anchorage and accessory items. Provide templates for anchor and bolt installation by others.

Where materials or fabrications are indicated to comply with certain requirements for design loadings, include structural computations, material properties and other information of structural analysis.

Samples: Submit representative samples of materials and finished products as may be requested by Architect.

PART 2 - PRODUCTS

MATERIALS

Ferrous Metals:

Metal Surfaces, General: For fabrication of miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.

Steel Plates, Shapes and Bars: ASTM A36.

Steel Bar Grating: ASTM A569 or ASTM A36.

Steel Tubing: Cold-formed, ASTM A500; or hot-rolled, ASTM A501.

Structural Steel Sheet: Hot-rolled, ASTM A570; or cold-rolled ASTM A611, Class 1; of grade required for design loading.

Galvanized Structural Steel Sheet: ASTM A446, of grade required for design loading. Coating designation as indicated, or if not indicated, G90.

Steel Pipe: ASTM A53; Type and grade (if applicable) as selected by fabricator and as required for design loading; black finish unless galvanizing is indicated; standard weight (schedule 40), unless otherwise indicated.

Stainless Steel: AISI type 304 for formed and welded products; ASTM A276 for base shapes and forging; ASTM A167 or A176 as best suited for plates sheets and strip. Satin Finish typical.

Gray Iron Castings: ASTM A48, Class 30.

Malleable Iron Castings: ASTM A47, grade as selected by fabricator.

Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.

Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A47, or cast steel, ASTM A27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A153.

Non-Shrink Non-Metallic Grout: Premixed, factory-packaged, non-staining, non-corrosive, non-gaseous grout complying with CE CRD-C621. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this section.

Fasteners:

General: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.

Bolts and Nuts: Regular hexagon head type, ASTM A307, Grade A.

Lag Bolts: Square head type, FS FF-B-561.

Machine Screws: Cadmium plated steel, FS FF-S-92.

Wood screws: Flat head carbon steel, FS FF-S-111.

Plain Washers: Round, carbon steel, FS FF-W-92.

Masonry Anchorage Devices: Expansion shields, FS FF-S-325.

Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class and style as required.

Lock Washers: Helical spring type carbon steel, FS FF-W-84.

Shop primer for Ferrous Metal: Fast-curing, lead-free, abrasion-resistant, rust-inhibitive primer selected for compatibility with substrates and with types of alkyd-type finish paint systems indicated, and for compatibility to provide a sound foundation for field-applied topcoats despite prolonged exposure; complying with performance requirements of FS TT-P-86, Types I, II, and III.

Galvanizing Repair Paint: High zinc dust content paint for reglazing welds in galvanized steel, complying with Military Specification MIL-P-21035 (Ships) or SSPC-Paint-20 and ASTM A780.

Concrete Fill:

Concrete Materials and Properties: Comply with requirements of Division 3 section "Concrete Work" for normal weight, ready-mix concrete with minimum 28-day compressive strength of 4000 psi, 440 pounds cement per cubic foot minimum and W/C ratio of 0.65 maximum, unless higher strengths indicated.

Non-Slip Aggregate Finish: Factory-graded, packaged material containing fused aluminum oxide grits or crushed emery as abrasive aggregate; rust-proof and non-glazing; unaffected by freezing, moisture or cleaning materials.

FABRICATION

Workmanship: Use materials of size and thickness indicated or, if not indicated, as required to produce strength and durability in finished product for use intended. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of work.

Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32" unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

Weld corners and seams continuously, complying with AWS and UBC recommendations. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces.

Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts.

Provide for anchorage of type indicated, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.

Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware and similar items.

Galvanizing: Provide a zinc coating for all items unless indicated or specified otherwise.

ASTM A153 for galvanizing iron and steel hardware.

ASTM A123 for galvanizing rolled, pressed and forged steel shapes, plates, bars and strip 1/8-inch thick and heavier.

ASTM A386 for galvanizing assembled steel products.

Fabricate joints which will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.

Shop Painting:

Apply shop primer to surfaces of metal fabrications except those which are galvanized or as indicated to be embedded in concrete or masonry, unless otherwise indicated, and in compliance with requirements of SSPC-PA1 "Paint Application Specification No.1" for shop painting.

Surface Preparation: Prepare ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications.

Exteriors (SSPC Zone 1B): SSPC-SP6 "Commercial Blast Cleaning".

Interiors (SSPC Zone 1A): SSPC-SP3 "Power Tool Cleaning".

ROUGH HARDWARE

Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures.

Fabricate items to sizes, shapes and dimensions required. Furnish malleable iron washers for heads and nuts which bear on wood structural connections; elsewhere, furnish steel washers.

LOOSE BEARING AND LEVELING PLATES

Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of required thickness and bearing area. Drill plates to receive anchor bolts and for grouting as required. Galvanize after fabrication.

MISCELLANEOUS FRAMING AND SUPPORTS

Provide miscellaneous steel framing and supports which are not a part of structural steel framework, as required to complete work.

Fabricate miscellaneous units to sizes, shapes and profiles indicated or, if not indicated, of required dimensions to receive adjacent other work to be retained by framing. Except as otherwise indicated, fabricate from structural steel shapes and plates and steel bars, of welded construction using metered joints for field connection. Cut, drill and tap units to receive hardware and similar items.

Equip units with integrally welded anchors for casting into concrete or building into masonry. Furnish inserts if units must be installed after concrete is placed.

MISCELLANEOUS STEEL TRIM

Provide shapes and sizes indicated for profiles shown. Unless otherwise indicated, fabricate units from structural steel shapes, plates and steel bars, with continuously welded joints and smooth exposed edges. Use concealed field splices wherever possible. Provide cutouts, fittings and anchorages as required for coordination of assembly and installation with other work.

SHELF ANGLES

Provide structural steel shelf angles of sizes indicated for attachment to concrete framing. Provide slotted holes to receive 3/4" bolts, spaced not more than 6" from ends and not more than 24" o.c., unless otherwise indicated.

Furnish wedge-type concrete inserts, complete with fasteners, for attachment of shelf angles to cast-in-place concrete.

STEEL PIPE RAILINGS AND HANDRAILS

Fabricate steel pipe railings and handrails to design, dimensions, and details indicated. Provide railings and handrails members formed of pipe of sizes and wall thickness indicated, but not less than that required to support design loading.

Railings shall fully comply with ADAAG and Building Code. Gap portion of railings shall be 1 1/2" diameter. Railings shall project beyond upper and lower landings and return. Space between rails and walls shall be 1/2".

Interconnect railing and handrail members by butt-welding or welding with internal connectors, at fabricator's option, unless as otherwise indicated.

At tee and cross intersections provide coped joints.

At bends interconnect pipe by means of prefabricated elbow fittings or flush radius bends, as applicable, of radiuses indicated.

Form bends by use of prefabricated elbow fittings and radius bends or by bending pipe, at fabricator's option.

Form simple and compound curves by bending pipe in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of pipe throughout entire bend without buckling, twisting or otherwise deforming exposed surfaces of pipe.

Provide wall returns at ends of wall-mounted handrails, except where otherwise indicated.

Close exposed ends of pipe by welding 3/16" thick steel plate in place or by use of prefabricated fittings.

Toe Boards: Where indicated, provide toeboards at railings around openings and at the edge of open-sided floors and platforms. Fabricate to dimensions and details indicated, or if not indicated, use a 4" high x 1/8" plate welded to, and centered between, each railing post.

Brackets, Flanges, Fittings and Anchors: Provide wall brackets, end closures, flanges, miscellaneous fittings and anchors for interconnection of pipe and attachment of railings and handrails to other work. Furnish inserts and other anchorage devices for connecting railings and handrails to concrete or masonry work.

For railing posts set in concrete provide sleeves of galvanized steel pipe not less than 6" long and with an inside diameter not less than 1/2" greater than the outside diameter of pipe. Provide steel plate closure welded to bottom of sleeve and of width and length not less than 1" greater than outside diameter of sleeve.

PART 3 - EXECUTION

PREPARATION

Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.

Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as concrete inserts, sleeves, anchor bolts and miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

INSTALLATION

General:

Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including, threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.

Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, plus, level, true and free of rack, measured from established lines and levels.

Provide temporary bracing or anchors in formwork for items which are to be built into concrete, masonry or similar construction.

Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch-up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.

Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.

Setting Loose Plates: Clean concrete and masonry bearing surfaces of any bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of bearing plates.

Set loose leveling and bearing plates on wedges, or other adjustable devices. After the bearing members have been positioned and plumbed, tighten the anchor bolts. Do not remove wedges or shims, but if protruding, cut-off flush with the edge of the bearing plate before packing with grout. Use metallic non-shrink grout in concealed locations where not exposed to moisture; use non-metallic non-shrink grout in exposed locations, unless otherwise indicated. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

Steel Pipe Railings and Handrails:

Adjust railing prior to anchoring to ensure matching alignment at abutting joints. Space posts at spacing indicated, or if not indicated, as required by design loadings. Plumb posts in each direction. Secure posts and railing ends to building construction as follows.

Anchor post in concrete by means of pipe sleeves preset and anchored into concrete. After posts have been inserted into sleeves, fill annular space between post and sleeve solid with non-shrink, non-metallic grout, mixed and placed to comply with grout manufacturer's directions. Leave anchorage joint exposed; wipe off excess grout and leave 1/8" build-up, sloped away from post. For installation exposed on exterior or to flow of water, seal grout to comply with grout manufacturer's directions.

Secure handrails to wall with wall brackets and end fittings. Provide bracket with not less than 1-1/2" clearance from inside face of handrail and finished wall surface. Locate brackets as indicated or, if not indicated, at spacing required for design loading. Secure wall brackets and wall return fittings to building construction as follows:

Use type of bracket with flange tapped for concealed anchorage to threaded hanger bolt.

For concrete and solid masonry anchorage, use drilled-in expansion shield & concealed hanger bolt.

For hollow masonry anchorage, use toggle bolts having square heads.

For stud partitions use lag bolts set into wood backing between studs. Coordinate with stud installations for accurate location of backing members.

ISOLATION REQUIREMENTS

Wood Contact: Isolate from cedar, redwood, oak and acid-treated lumber by means of unbroken 6-mil polyethylene construction sheet or heavy coating of metal-protective paint.

Aluminum surfaces: Shall not directly contact other metals except stainless steel, zinc, or zinc coating. Where aluminum contacts another metal, paint the dissimilar metal with a primer followed by two coats of aluminum paint. Where drainage from a dissimilar metal passes over aluminum, paint the dissimilar metal with a non-lead pigmented paint.

Metal surfaces: Paint where in contact with mortar, concrete or other masonry materials with alkali-resistant coatings such as heavy-bodied bituminous paint or epoxy paint.

ADJUST AND CLEAN

Touch-Up Painting: Cleaning and touch-up painting of field welds, bolted connections and abraded areas of the shop paint on miscellaneous metal is specified in Division 9 of these specifications.

For galvanized surfaces: Clean field welds, bolted connections and abraded areas and apply two coats of galvanizing repair paint to comply with ASTM A 780.

END OF SECTION 05500

SECTION 05600 - ORNAMENTAL METAL WORK

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

DESCRIPTION OF WORK

Aluminum ornamental grills at entrance canopies as indicated on the drawings.

Products Furnished But Not Installed: Under this section include inserts and anchors preset in masonry and concrete for anchorage of ornamental metal work systems.

PERFORMANCE

For exterior uses, design, fabricate, reinforce and anchor grillwork to resist combined positive and negative loading in accordance with UBC 1618 with a qs of 61.5 psf, exposure C and importance factor of 1.0. In no case shall combined loading be less than 75 psf.

Dielectric Isolation: Where aluminum surfaces are in contact with, or fastened to dissimilar metals, except stainless steel, the aluminum surface shall be protected from dissimilar metal. Surfaces in contact with sealants after installation shall not be coated with any type of protective material.

QUALITY ASSURANCE

Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

SUBMITTALS

Product Data: Submit manufacturer's product specifications and installation instructions for products and processes used for ornamental metal work, including finishes.

Shop Drawings: Submit shop drawings for fabrication and erection of ornamental metal work. Include plans, elevations and details of fittings, connections, and anchorages to other work. Provide templates for anchor and bolt installation by others.

Where materials or fabrications are indicated to comply with certain requirements for design loadings, include structural computations, material properties and other information needed for structural analysis.

Samples: Submit samples for each type of use and metal finish indicated. Prepare samples on metal of same gage and alloy to be used in work. Where normal color and texture variations are to be expected, provide "range" samples showing limits of such variations. Include 2-foot square sample of grillwork and trellises.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:

Julius Blum, Inc.
Barry Craft Art, Inc.

MATERIALS

Metals: Comply with standards indicated for forms and types of metals indicated or required for ornamental metal work components.

Aluminum Alloy and Temper: Provide alloy and temper recommended by aluminum producer or finisher for type of use and finish indicated, and with not less than the strength and durability properties of the alloy and temper, designated below for each aluminum form required.

Extruded Bar and Shape: ASTM B 221, 6063-T6.

Extruded Pipe and Tube: ASTM B 429, 6063-T6.

Plate and Sheet: ASTM B 209, 6061-T6.

Castings: ASTM B 26, 356-T6.

Welding Electrodes and Filler Metal: Provide type and alloy of filler metal and electrodes as recommended by producer of metal to be welded, and as required for color match, strength and compatibility in fabricated items.

Fasteners: Use fasteners of same basic metal as the fastened metal, unless otherwise indicated. Do not use metals which are corrosive or incompatible with materials joined.

Provide concealed fasteners for interconnection of components and for their attachment to other work, except where otherwise indicated.

Provide Phillips flat-head machine screws for exposed fasteners, unless otherwise indicated.

Anchors and Inserts: Provide anchors of proper type, size, and material for type of loading and installation condition shown, as recommended by manufacturer, unless otherwise indicated. Use stainless steel anchors and inserts. Use weld-in type anchors with appropriate isolation of noncompatible metals. Furnish inserts, as required, to be set into concrete or masonry work.

FABRICATION

Fabricate ornamental grillwork to design and dimensions shown and in accordance with the approved shop drawings. Grillwork, when fabricated in sections, shall provide for flush, smooth and rigid joints which are compatible with the design intent for grillwork appearance. Provide members in sizes and profiles indicated, with supporting posts and brackets of size and spacing shown, but not less than required to support the design loadings indicated.

Nonwelded Connections: Fabricate for interconnection of members by means of manufacturer's standard concealed mechanical fasteners and fittings unless otherwise indicated. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

Fabricate splice joints for field connection using epoxy structural adhesive where this represents manufacturer's standard splicing method.

Welded Connections: Fabricate aluminum for interconnection of members by concealed internal welds, which eliminate surface grinding, using manufacturer's standard system of sleeve and socket fittings.

Brackets, Flanges, Fittings and Anchors: Provide manufacturer's standard brackets, flanges, miscellaneous fittings and anchors for interconnection of members to other work, unless otherwise indicated. Furnish inserts and other anchorage devices for connecting to concrete or masonry work. Fabricate and space anchorage devices as indicated and as required to provide adequate support. Coordinate anchorage devices with supporting structure.

For items set in concrete provide sleeves of styrofoam with inside dimensions not less than one-half inch greater than outside dimensions of item. Dip entire area of item that is to be embedded with an epoxy paint.

PART 3 - EXECUTION

PREPARATION

Coordinate setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as sleeves, concrete inserts, anchor bolts and miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for adjustments during installation where taking field measurements before fabrication might delay work.

INSTALLATION

GENERAL:

Fit Exposed Connections accurately together to form tight, hairline joints.

Perform cutting, drilling and fitting required for installation. Set work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Do not weld, cut or abrade surfaces of ornamental metal work components which have been coated or finished after fabrication, and are intended for field connection by mechanical means without further cutting or fitting.

Corrosion Protection: Coat concealed surfaces of aluminum, which will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of epoxy paint.

Anchorage in concrete by means of sleeves preset and anchored into concrete. After items have been inserted into sleeves, fill space between posts and sleeve solid with non-shrink, non-metallic grout, mixed and placed to comply with grout manufacturer's directions.

Leave anchorage joint exposed; wipe off excess grout and leave one eighth inch build-up, sloped away. For installation exposed on exterior or to flow of water, seal grout to comply with grout manufacturer's directions.

Anchor to metal surfaces with manufacturer's standard fittings designed for this purpose unless otherwise indicated.

Permanently connect components together using manufacturer's standard mechanical or adhesive joiner method and fittings, unless otherwise indicated. Use wood blocks and padding to prevent damage to railing members and fittings. Seal recessed holes of exposed locking screws using plastic filler cement colored to match finish of grill work.

Isolation requirements:

Wood Contact: Isolate metal from cedar, redwood, oak and acid-treated lumber by means of unbroken 6-mil polyethylene construction sheet or heavy coating of metal-protective paint.

Dissimilar metals: Insulate juncture between dissimilar metals with heavy coating of insulating film.

Concrete contact: Coat underside of metal with asphaltum or epoxy at concrete surfaces.

ADJUST AND CLEAN

Protect finishes of ornamental metal work from damage during construction period by use of temporary protective coverings approved by manufacturer. Remove protective covering at project completion or when directed by Architect. Restore finishes damaged during installation and construction period so that no evidence remains of correction work. Return items which cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units as required.

END OF SECTION 05600

SECTION 09100 - METAL SUPPORT SYSTEMS

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Divisions 1 Specification sections, apply to work of this section.

DESCRIPTION OF WORK

Types of Work Include:

Non-loadbearing metal support systems.

Suspended metal support systems.

RELATED SECTIONS

Section 09200 - Lath & Plaster

Section 09250 - Drywall

DEFINITIONS

Load Bearing Metal Support Systems: Cold formed metal framing assemblies supporting axial and/or transverse loads in addition to loads that may be directly attached to the framing.

Non-Loadbearing Metal Support Systems: Cold formed metal framing assemblies supporting only loads directly attached to the framing and minor axial and/or transverse loading not greater than 5 psf.

Suspended Metal Support Systems: Cold formed metal framing assemblies, generally horizontal, characterized by wire hanger or metal framing supports and supporting only loads directly attached to the framing.

Seismic Performance, Suspended Assemblies: UBC Section 25-2.

SYSTEM DESCRIPTION

Composite System Performance:

Non-Loadbearing Partitions:

With Tile/Stone Finishes: Limit deflection to $L/360$ maximum for all imposed loads, including point loads and 5 psf minimum transverse load.

With Other Finishes: Limit deflection to $L/240$ maximum with 5 psf minimum transverse load.

SUBMITTALS

Product Data: Submit Manufacturer's standard publications with product descriptions for all materials and accessories required. Submit specific assembly requirements for each different composite assembly, including following.

Structural Performance Data: For each different assembly, submit data indicating gage and framing requirements based upon size of framing required, framing heights/configuration, composite assembly configuration, and structural performances required.

Fire Design Requirements: For each rated assembly, submit framing requirements which have been coordinated with requirements of materials forming composite assembly.

QUALITY ASSURANCE

Structural Design: Comply with American Iron and Steel Institute (AISI) "Specification for the Design of Cold Formed Steel Structural Members" or stricter requirements of local Codes and Authorities.

Fire Assembly Certification: For each fire assembly, Installer to certify in writing that installed metal support systems are in conformance with types of assemblies required at each location, including for coordination with specific assemblies of other components affecting each fire assembly and for compliance with requirements for Code/Authorities.

Other Metal Support Systems: Other metal support systems are specified in other Sections including, but not limited to, following.

Section 09250 - Gypsum Drywall. Shaftwall systems.

Section 09510 - Acoustical Ceilings: Direct hung systems, except Gypsum Board systems as specified herein.

Attachment Limitations: Do not fasten any assemblies to metal decks. Alternate light gage supports may be used which are attached to adjacent construction when acceptable to Architect. Submit methods for review prior to any installation.

PRE-INSTALLATION MEETING

Prior to commencing work, meet with Architect and concerned trades on site to review work under this Section.

PART 2 - PRODUCTS

MANUFACTURERS

C-Shaped, Loadbearing and Non-Loadbearing Metal Support Systems.

Angeles Metal

Dale Industries, Inc.

Incor Inc.

Gold Bond Building Products, Div. National Gypsum Co.

Ceiling Suspension System:

U.S. Gypsum Co.

Chicago Metallic

METAL SUPPORT SYSTEMS

C-Shaped, Loadbearing Metal Support: Unless otherwise indicated, primary framing as follows.

Cold formed punched metal framing.

Depth as required by loading, framing conditions, and composite assembly configuration; but not less than 3-5/8" depth minimum, unless otherwise indicated.

ASTM C 955, 18 gage (0.0451" base metal) minimum. ASTM A 446, Grade C, 40 ksi minimum.

Finish: ASTM A 525, G-60 minimum, hot dipped galvanized.

C-Shaped, Non-Loadbearing Metal Support: Unless otherwise indicated, primary framing as follows.

Cold formed punched metal framing. 3-5/8" depth minimum, unless otherwise indicated.

ASTM C 645, 22 gage (0.0179" minimum base metal) minimum, unless otherwise indicated. ASTM A 446, Grade A, 33ksi minimum.

Finish: ASTM A 525, G-60 minimum, hot dipped galvanized.

Ceiling Suspension System: Primary framing as follows.

Indirect Hung, Metal Framed System: 16 gage (0.0598" base metal thickness) cold rolled channels, minimum G-60 galvanized or black asphaltum painted; of following sizes for component types.

Main Runners: 1-1/2" depth x 1/2" flange.

Cross Furring: ASTM C 645, hat shaped furring channels may be substituted at the Contractor's option.

Hanger Wire: #8 ASTM A641, Class 1 galvanized, not to be used as primary bracing at exterior areas or areas subject to wind loading.

Bracing: Galvanized metal framing only vertical and diagonal at exterior areas and areas subject to wind loading. Threaded hanger rods will not be considered sufficient.

Direct Hung, Metal Framed System: For gypsum board, except at exterior areas or areas subject to windloading, Contractor at his option may provide ASTM C 635, intermediate duty, direct hung system specifically designed for fastening of gypsum board as follows. Submit for Architect's acceptance.

Available Manufacturer/Product: Chicago Metallic "630/650 System Series" appropriate for the assembly conditions, or a comparable product acceptable to Architect.

Related Materials:

Runner Tracks: Comply with same standards, size, gage, and finish as primary framing components of assembly.

Cold Rolled Channels: For stiffener reinforcement, 3/4" minimum depth, unless otherwise indicated, 16 gage (0.0598" minimum base metal), ASTM A 525 minimum G-60 galvanized or black asphaltum painted.

Furring Channels (Hat Shaped): ASTM C 645, $F_y = 33$ ksi, 25 gage (0.0179" minimum base metal), nominal 3/4" depth x 2-1/2" overall width, ASTM A 525 minimum G-60 hot dipped galvanized.

Wire Ties: #8 ASTM A 641, soft, Class 1 galvanized, gage complying with UBC Chapter 47 requirements.

Hanger Rods and Flats: Mild steel.

Hanger Anchorage: Screws, clips, bolts, cast-in-place concrete inserts or other devices applicable to the indicated method of structural anchorage for ceiling hangers and whose suitability for use intended has been proven through standard construction practices or by certified test data. Size devices for 3 x calculated hanger loading except size direct pull-out concrete inserts for 5 x calculated hanger loading.

Anchorage Devices: Galvanized, screws, power actuated devices, and bolts of size, type, and spacing as recommended by the Metal Support Framing Manufacturer for type, sizes, structural performances, and other project specific conditions of use.

Welding Material: AWS D1.1, ASW D1.3, AISI Manual Section E2.

Touchup Paint: Zinc rich paint designed for touchup of damaged galvanized work.

PART 3 - EXECUTION

METAL SUPPORT SYSTEMS, GENERAL

Coordinate work with structural ceiling work to ensure that inserts and other structural anchorage provisions have been installed to receive ceiling hangers.

Furnish concrete inserts, steel deck hanger clip and similar devices to other trades for installation well in advance of time needed for coordination with other work.

Tolerances:

Loadbearing Framing: Installation not to exceed 1/4 inch in 12'-0" from required plans.

Non-Loadbearing Framing: Installations not to exceed 1/4" in 12'-0" from required plane.

Suspended Ceiling Framing: Installations not to exceed 1/4" in 12'-0" from required plane.

Tile/Stone Finishes: Installations to receive tile/stone finishes not to exceed 1/8" in 8'-0" from required plane.

Variation from Location: Each plane not to exceed required location by more than 1/2" from any point on plane.

Spacing: 16" oc, unless otherwise indicated.

Span Limits: Do not exceed design performance requirements for each composite assembly. For vertical assemblies generally carry to structure above. Where indicated to be carried above ceiling line, but not to structure above, carry not less than 12" above ceiling line.

Lateral Support: Provide types recommended and engineered (if required) by the primary Framing Manufacturer.

Coordination, Support Framing: In addition to other coordination requirements with other Trades, coordinate support framing and anchorages required by other Installers. Installers of other work are responsible for the proper support of their work. Where arranged by other Installers, install supports and anchorages in accordance with their requirements.

Isolation: Where metal support and finish system abuts building structure horizontally, and where partition/wall work abuts overhead structure, isolate the work from structural movement sufficiently to prevent transfer of loading into the work from the building structure. Install slip or cushion type joints to absorb deflections but maintain lateral support.

Control Joint: Frame each side of control joints in manner to ensure performance of these joints and gypsum board assemblies.

Anchorage:

Loadbearing/Non-Loadbearing Metal Support Systems: Fastening of components is to be accomplished with screws, bolts, or welding or combination of these as required for proper structural performances.

Suspended Metal Support Systems: Comply with referenced standards.

Welding: If required or used by Contractor, welded components to be not less than 16 gage steel material. Perform welding in conformance with AWS requirements. Welds and welding procedures to develop required strengths for structural performances. If any welded work reduces the amount of available metal to extent that Architect determines that such reduction could jeopardize the structural integrity of the framing, reinforce work as directed by Architect.

Fixture Support Framing: Install supplementary framing, blocking, hangers and bracing where work is indicated to support lighting fixtures, equipment, casework, heavy trim and furnishings and similar work requiring attachment and support.

LOADBEARING FRAMING

Standard: Comply with "Gypsum Construction Handbook" by the United States Gypsum Company, 3rd Edition, except as otherwise indicated.

ASTM C 754

Lateral Support Framing:

Primary Vertical Framing Stopped Above Ceiling Line: At Contractor's option, provide one of following.

Extend Framing: Extend each stud spaced at 48" oc maximum to structure above. Gage of studs to be designed for proper performances.

Stud/Runner Cross Bracing: Same size/gage as framing being braced with one bracing component on each side of the partition and directly opposite or adjacent to each other and screw fastened at top track and fastened to structure above. Provide two fasteners minimum per fastened end. Space bracing at 48" oc.

Primary Framing Fastened to Suspended Ceiling Grid: Fasten to each ceiling grid member wherever top runner track crosses or 24" oc when in line and under ceiling grid members.

Bending/Rotational Bridging: Comply with AISI Specification, Section D4 but not less than continuous runs at maximum 5' oc spacing.

Shear Bracing: Engineered conditions, if required.

Openings: Comply with USG "Gypsum Construction Handbook" with metal framing complying with following.

Framing, General: Same as adjacent primary framing, but not less than 3-5/8" studs and as follows.

Up to 3'-0" Wide x 100 Lbs Max: 25 gage minimum with double studs at each jamb and head.

Up to 4'-0" Wide x 300 Lbs Max: 20 gage framing minimum with double studs at each jamb and head.

Up to 6'-0" Wide x Pairs of Doors x 150 Lbs Max/Door: 20 gage framing minimum with double studs at each jamb and at head.

Doors at exit corridors, at stairs, at exterior walls. Comply with framing requirements for door opening size/weight as indicated herein and provide additional 16 gage x 3/4" depth, galvanized or black asphaltum painted, cold rolled channel reinforcements. Place one continuous reinforcement 12" above the head extending 20" minimum beyond jamb studs on each side. Place reinforcements at the mid hinge height at each side of the jamb 36" minimum length each.

Openings in Fire Rated Partitions: Provide size/gage framing as required by fire rating of assembly, but never less than 20 gage. Where opening requirements specified herein require a heavier gage steel material than required by the fire rated assembly, provide the heavier gage of size not less than the primary framing.

Access Doors: 20 gage framing minimum.

Furring: Space furring members 16" on center, except as otherwise indicated.

Where interior face of exterior walls are indicated with long length gypsum lath, install channel furring horizontally, spaced 3'-0" on center, supported on furring brackets. Install floor and ceiling runners of type indicated.

SUSPENDED METAL SUPPORT SYSTEMS

Standard:

Indirect Hung; UBC Section 25-2 and ASTM C 754.

Direct Hung (For Gypsum Board): ASTM C 653.

Ceiling Suspension System: Secure hangers to structural support by connecting directly to structure where possible, otherwise connect to insert, clips or anchorage devices or fasteners as indicated.

Space Runner Channels: As indicated or, if not otherwise indicated, 4'-0" o.c. and at the perimeter; and space hangers along channels as indicated or, if not otherwise indicated, 4'-0" o.c.

Level runner channels to a tolerance of 1/4" in 12'-0".

Lateral Force Bracing: Cross brace for ceiling areas greater than 144 SF. Where substantiating design calculations are not provided, horizontal restraints shall be effected by four No. 12 gauge wires secured to the main runner within 2 inches of the cross runner intersection and splayed 90 degrees from each other at an angle not exceeding 45 degrees from the plane of the ceiling. A strut fastened to the main runner shall be extended to and fastened to the structural members supporting the roof or floor above. The strut shall be adequate to resist the vertical component induced by the bracing wires. These horizontal restraint points shall be placed 12 feet on center in both directions with the first point within 6 feet from each wall. Attachment of the restraint wires to the structure above shall be adequate for the load imposed.

For exterior applications, hangers and lateral force bracing shall be of the same size as the runner channels. Wires and treaded rods are not allowable.

END OF SECTION 09100

SECTION 09200 - LATH AND PLASTER

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

DESCRIPTION OF WORK

Types of work includes:

- Metal lathing
- Gypsum sheathing
- Portland cement plastering

QUALITY ASSURANCE

Standards: Comply with the following:

- Uniform Building Code (UBC)

- Interior Lathing and Furring Installation Standard ASTM C841

- Interior Gypsum Plaster Application Standard ASTM C842

- Portland Cement Plastering Standards ANSI A42.2 and A42.3

Allowable Tolerances: For flat surfaces, do not exceed 1/8-inch in 8'-0" for bow or warp of surface and for plumb or level.

Fire Resistance Rating: Where plastered assemblies with fire resistance ratings are indicated or are required to comply with governing regulations, provide materials and installations identical with applicable assemblies which have been tested and listed by recognized authorities including UL and AIA.

Provide plaster having same aggregate as specified for similar non-rated work, unless specified aggregate has not been tested and approved by UL for the required rating.

Workmen: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

Coordination of Work: Coordinate layout and installation of suspension system components for suspended ceilings with other work supported by, or penetrating through, ceiling.

Single Source Responsibility: Obtain Portland cement plaster materials from a single manufacturer and source.

SUBMITTALS

Product Data: Submit manufacturer's product specifications and installation instructions for each material, including other data as may be required to show compliance with these specifications.

Shop Drawings: Submit shop drawings for plaster ceilings, cornice eave details and other decorative architectural details. Indicate by dimensioned plans, elevations and large scale details.

PRODUCT HANDLING

Deliver, store and protect manufactured materials to comply with referenced standards.

JOB CONDITIONS

Environmental Conditions: Comply with referenced standards.

Protect contiguous work from soiling, spattering, moisture deterioration and other harmful effects which might result from plastering.

DELIVERY, STORAGE, AND HANDLING

Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer.

Store materials inside, under cover and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic and other causes. Neatly stack lath flat to prevent deformation.

PART 2 - PRODUCTS

PLASTER ACCESSORIES AND REINFORCEMENT

General: Provide as detailed, specified herein or job required. Coordinate depth of accessory with thickness of and number of coats of plaster to be applied. Plastic accessories, color as selected, shall be "Vinyl Tech" as manufactured by Plastic Components, Inc.; 7570 N.W. 79th street, Miami, FI 33166.

Small-Nose Corner Beads: General purpose type with perforated flanges.

Bridge Screed: Two piece.

Cornerite: Manufacturer's standard preformed interior corner reinforcement.

Casing Bead: With 3/16-inch return.

Two-Piece Control Joints: Manufacturer's standard pair of casing beads with modified back flanges providing positive slip joint action and dust barrier, adjustable for joint width variation of 1/8-inch to 5/8-inch.

Drip Screed: Two piece.

Fasteners: Galvanized steel, of type and length suitable for adequate penetration of the substrate. Use pancake screws to secure lath to studs.

PORTLAND CEMENT PLASTER MATERIALS

Provide either neat or ready-mixed (where applicable) materials, at Installer's option, complying with ANSI A42.2.

Cement: Type is Installer's option.

Lime: Special finishing hydrated lime, Type S.

Aggregate: Sand.

Fiber: Hair or fiber; mix with plaster for brown coat on metal lath.

Bonding Agent: ASTM C932

PART 3 - EXECUTION

GENERAL REQUIREMENTS

Defects which appear in the work of this section due to defective workmanship and/or materials furnished and installed hereunder, shall be repaired and refinished with materials and in a manner to meet the requirements of this section.

Enclosures to receive recessed light fixtures in fire rated ceilings shall conform to UL requirements for materials and assemblies. Provide UL design number P251 enclosures over recessed lights.

PREPARATION

Plastering: Clean plaster bases and substrates to be plastered, removing loose materials, coatings and other substances which might impair the work.

INSTALLATION OF METAL LATH AND ACCESSORIES

Isolation: Where lathing and metal support system abuts building structure horizontally, and where partition/wall work abuts overhead structure, isolate the work from structural movement sufficiently to prevent transfer of loading into the work from the building structure. Install slip or cushioning type joints to absorb deflections but maintain lateral support.

Frame both sides of control and expansion joints independently, and do not bridge joints with furring, lathing or accessories.

Fixture Support Framing: Install supplementary framing, blocking, hangers and bracing where work is indicated to support lighting fixtures, equipment, services, casework, heavy trim and furnishings and similar work requiring attachment and support.

Plastering Accessories:

Anchor each flange of accessories 8" o.c. to plaster base.

Miter or cope accessory corners, and install with tight joints accurately aligned.

Set accessories plumb, level and true to line, with a tolerance of 1/8" in 10'-0".

Install vinyl corner beads at external corners.

Install vinyl casing beads at terminations of plaster work, except where plaster is indicated to pass through other work and be concealed by lapping work, and except where special screens, bases or frames act as casing beads including interior metal door frames.

For exterior work, set casing beads 1/4" from abutting frames and other work (for application of sealant).

Where plaster abuts concrete, set casing bead 1/4" from concrete and seal all joints with sealant.

Where interior plaster abuts exterior masonry, apply waterproof plastic adhesive tape on concealed face of bead.

At "Control Joints" and "Expansion Joints" set pair of casing beads back to back, with strip behind anchored to only one side of joint. At "Expansion Joints" space beads 1/4" apart for interior work, 3/8" apart for exterior work. Seal joint with Sealant. Install control joints at a maximum of each 150 square feet of surface areas or where indicated, make lath behind joint discontinuous.

MIXING AND APPLICATION OF PLASTER

Standards: Mix and apply all plastering materials in accordance with the Portland Cement Association Specifications and manufacturer's instructions. Measure with calibrated boxes or other approved means of accurate measurement.

Where plaster occurs on concrete or masonry surfaces, apply liquid bonding agent directly to surface to be plastered, in strict conformity with manufacturer's direction.

General Application: Finish all plastering to match approved samples without cracks or imperfections. All plastering shall form proper foundations for trim, paint and other finish materials. Complete all plastering in rooms and spaces where acoustical treatment is required before acoustical material is installed. After plaster has set hard, provide free circulation of air. Plaster behind all interior wood finish, cabinets, counters, cases, shelving and other equipment, finish same as adjoining exposed plaster. Where plaster is indicated flush with metal frames, let base coat free from metal section before coat sets. Apply "V" groove to final coat, at junction of finish coat with metal frames where indicated on drawings.

Grout hollow metal frames, bases and similar work occurring in plastered areas, with base coat plaster material and prior to lathing where necessary. Except where full grouting is indicated or required for fire resistance, grout 6" lengths at each anchorage.

Thickness: Apply plaster in two coats (total 3/4") over masonry substrate. Fireproofing thickness shall be that required for the purpose and location.

Texture of Plaster Finishes: Except as otherwise indicated, apply finish coat as follows.

Interior & Exterior Portland Cement Plaster: Smooth dense sand finish.
Prepare sample for approval by Architect.

Curing: Provide proper continuous moist curing for Portland Cement plaster, for 48 hours minimum for scratch coat and for brown coat, including periods that extend over into holidays or weekends.

CUTTING & PATCHING

Cut, patch, point-up and repair plaster as necessary to accommodate other work and to restore cracks, dents and imperfections. Repair or replace work to eliminate blisters, buckles, excessive crazing and check cracking, dry-outs, efflorescence, sweat-outs and similar defects, including areas of the work which do not comply with specified tolerances, and where bond to the substrate has failed.

Sand smooth-troweled finishes lightly to remove trowel marks and arises.

CLEANING AND PROTECTION

Remove temporary protection and enclosure of other work. Promptly remove plaster from door frames, windows, and other surfaces which have been stained, marred or otherwise damaged during the plastering work. When plastering work is completed, remove unused materials, containers and equipment and clean floors of plaster debris.

Installer shall advise the Contractor of requirements for the protection of plaster from deterioration and damage during the remainder of the construction period.

END OF SECTION 09200

SECTION 09900 - PAINTING

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Condition and Divisions I Specifications section, apply to work of this section.

DESCRIPTION OF WORK

Extent of painting work is indicated on drawings and schedules, and as herein specified.

Provide painting work as specified and as shown complete. The work includes the cleaning and preparation of all interior and exterior surfaces to be painted or finished and the painting and finishing of all interior and exterior surfaces unless hereinafter excluded.

GENERAL

Paint exposed exterior and interior plumbing, heating and electrical equipment, apparatus, conduits, pipes and fitting, supports and hangers and all other unfinished surfaces of mechanical and electrical work.

Work includes field painting of exposed bare and covered pipes and ducts (including color coding), and of hangers, exposed steel and iron work, and primer or factory painted metal surfaces of equipment installed under mechanical and electrical work, except as otherwise indicated.

Equipment In Finished Rooms: Unless otherwise authorized, paint wall grilles and diffusers, door louvers, panelboard fronts and other equipment having a factory finish, occurring in rooms other than storage, mechanical and custodial.

"Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as primer, intermediate or finish coats.

Surfaces To Be Painted: Except where natural finish of material is specifically noted as a surface not to be painted, paint exposed surfaces whether or not colors are designated. Where items or surfaces are not specifically mentioned, paint the same as similar adjacent materials or areas. If color or finish is not designated, Architect will select these from standard colors or finishes available.

Do not paint over any code-required labels, such as Underwriter's Laboratories and Factory Mutual, or any other equipment identification, performance rating name, door label or nomenclature plates.

Following categories of work are not included as part of field-applied finish work.

Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas, foundation spaces, furred areas, utility tunnels, pipe spaces, duct shafts and elevator shafts.

Finished Metal Surfaces: Unless otherwise indicated, metal surfaces of prefinished aluminum, anodized aluminum, stainless steel, chromium plate, copper, bronze and similar finished materials will not require finish painting.

Operating parts: Unless otherwise indicated, moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkage, sinkage, sensing devices, motor and fan shafts will not require finish painting.

Following categories of work are included under other sections of these specifications.

Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under various sections for structural steel, metal fabrications, hollow metal work and similar items.

Unless otherwise specified, shop priming of fabricated components such as architectural woodwork, wood casework and shop-fabricated or factory-built mechanical and electrical equipment or accessories is included under other sections of these specifications.

QUALITY ASSURANCE

Codes and Standards: Work and materials shall conform to regulations of Fire Department, safety color coding in conformance with OSHA and all other regulatory ordinances having jurisdiction. Conform to the most stringent requirements and authorities having jurisdiction.

Single Source Responsibility: Provide primers and other undercoat paint produces by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.

Coordination of Work: Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information or characteristics of finish materials provided for use, to ensure compatible prime coats are used.

PRE-INSTALLATION MEETING

Prior to commencing work, meet with Architect and concerned trades on site to review work under this Section.

SUBMITTALS

Product Data: Submit manufacturer's technical information including paint label analysis and application instructions for each material proposed for use.

Samples: Prior to beginning work, Architect will furnish color chips for surfaces to be painted. Use representative colors when preparing samples for review. Submit samples for Architect's review of color and texture only. Provide a listing of material and application for each coat of each finish sample.

On 12" x 12" hardboard, provide two samples of each color and material, with texture to simulate actual conditions. Resubmit samples as requested by Architect until acceptable sheen, color, texture is achieved.

On actual wood surfaces, provide two 4" x 8" samples of natural and stained wood finish. Label and identify each as to location and application.

On concrete masonry, provide two four-inch square samples of masonry for each type of finish and color, defining filler, prime and finish coat.

Mock-Up: On actual wall surfaces and other exterior and interior building components, duplicate painted finishes of prepared samples. Provide full-coat finish samples on at least 100 square feet of surface, as directed, until required sheen, color and texture is obtained; simulate finished lighting conditions for review of in-place work.

DELIVERY AND STORAGE

Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label, and following information:

Name or title of material

Manufacturer's stock number and date of manufacturer.

Manufacturer's name
Contents by volume, for major pigment and vehicle constituents
Thinning instructions
Application instructions
Color name and number

Store materials not in actual use in tightly covered containers. Maintain containers used in storage of paint in a clean condition, free of foreign materials and residue.

Keep storage area neat and orderly. Remove oily rags and waste daily. Take all precautions to ensure that workmen and work areas are adequately protected from fire hazards and health hazards resulting from handling, mixing and application of paints.

JOB CONDITIONS

Do not apply paint in rain, fog or mist when relative humidity exceeds 85 percent, or to damp or wet surfaces, unless otherwise permitted by paint manufacturer's printed instructions.

Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and within humidity limits specified and allowed by paint manufacturer during application and drying periods.

REPLACEMENT STOCK

Replacement Materials: After completion of work, deliver to project site replacement materials from same production run as original material. 2% of each type and color; not less than 1 quart or more than ten gallons of each type and color.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS

Manufacturer: Subject to compliance with requirements, provide products of one of the following:

Ameritone Paint Corporation
Benjamin Moore
Frazee Paint Company
Sherwin Williams Paint Co.
Olympic Stains
Watco Co.
L.M. Schofield Co.

MATERIALS

Material Quality: Provide best quality grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.

Proprietary names used to designate colors or materials are not intended to imply that products of named manufacturers are required to exclusion of equivalent products of other manufacturers.

Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.

All exterior colors and interior deep tone colors shall be ground in at the factory. Shop mixing is not permitted. Colors as selected by the architect, and subject to modification on the job at the Architect's

discretion.

Lead content in pigment, if any, is limited to contain not more than 0.06 percent lead, as lead metal based on the total non-volatile (dry-film) of paint by weight. This limitation is extended to interior surfaces and those exterior surfaces, such as stairs, decks, porches, railings, windows, and doors which are readily accessible to children.

MATERIAL LIST

Submit complete and detailed list with Painting Contractor's signature of the materials proposed for use on the work before ordering materials. Obtain Architect's acceptance before proceeding. Materials shall be the best quality of their respective kinds and suitable for the intended purpose, equal to or exceeding the following products, which are hereby set as standards.

The following products are provided to establish the desired paint quality. Cross reference manufacturers colors to finish schedule, interior drawings and details for colors selected.

(EAE) Exterior Acrylic Emulsion: A 100% acrylic latex water thinned coating with extra mildewcide, flat finish, #202/203 Duratec and 226 Epotilt acrylic-epoxy primer by Frazee Paint Company. Or, Loxon primer with A-100 100% acrylic latex by Sherwin-Williams.

(AEE) Interior Acrylic Eggshell Enamel: A 100% acrylic water thinned, eggshell enamel, #022 Lo-Glo by Frazee Paint Company.

(AREM) Alkyd Resin Enamel for Interior and Exterior Metal: 628 Aro-plate semi gloss with 661 metal prime by Frazee Paint Company.

(RIP) Rust Inhibitive Primer: An alkyd mineral spirit thinned, satin finish primer, Frazee #661 metal prime, rust inhibitive prime.

(BF) Block Filler: A acrylic block filler, #262 Acrylic block filler by Frazee Paint Company.

(PS) Primer Sealer: PVA vinyl acrylic water thinned, flat finish primer, #061 Aqua Seal interior PVA Sealer by Frazee Paint Company.

(PSU) Polyurethane: Clear finish polyurethane varnish, Satin. ZAR #203.

PART 3 - EXECUTION

INSPECTION

Applicator must examine areas and conditions under which painting work is to be applied and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to applicator.

Starting of painting work will be construed as Applicator's acceptance of surfaces and conditions within any particular area.

Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

SURFACE PREPARATION

General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition.

Provide barrier coats over incompatible primers or remove and reprime as required. Notify Architect in writing of any anticipated problems in using the specified coating systems with substrates primed by others.

Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of painting of each space or area, reinstall removed items.

Clean surfaces to be painted before applying paint or surface treatment. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly-painted surfaces.

Cementitious Materials: Prepare cementitious surfaces of concrete, concrete block, cement plaster and cement-asbestos board to be painted by removing efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze. Clean concrete surfaces scheduled to be painted with a commercial solution of muriatic acid, or other etching cleaner. Flush with clean water to neutralize acid, and allow to dry before painting.

Determine alkalinity and moisture content of surfaces to be painted by performing appropriate tests. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint correct this condition before application of paint. Do not paint over surfaces where moisture content exceeds that permitted in manufacturer's printed directions.

Wood: Clean wood surfaces to be painted of dirt, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finished surfaces exposed to view, and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.

Prime, stain, or seal wood required to be job-painted immediately upon delivery to job. Prime edges, ends, faces, undersides, and backsides of such wood, including cabinets, counters, cases, paneling.

When transparent finish is required, use spar varnish for backpriming.

Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on backside.

Seal tops, bottoms, and cut-outs of unprimed wood doors with a heavy coat of varnish or equivalent sealer immediately upon delivery to job.

Ferrous Metals: Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.

Touch-up shop-applied prime coats wherever damaged or bare, where required by other sections of these specifications. Clean and touch-up with same type shop primer.

Galvanized Surfaces: Clean free of oil and surface contaminants with non-petroleum based solvent.

MATERIALS PREPARATION

Mix and prepare painting materials in accordance with manufacturer's directions.

Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue.

Stir materials before application to produce a mixture of uniform density, and stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

APPLICATION

General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

Paint finishes are scheduled. Provide prime coats which are compatible with finish paints to be used.

Apply additional coats when undercoats, stains or other conditions show through final coat of paint until paint film is of uniform finish, color and appearance. Give special attention to insure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently- fixed equipment or furniture with prime coat only before final installation of equipment. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non- specular black paint.

Paint back sides of access panels, and removable or hinged covers to match exposed surfaces.

Finish exterior doors on tops, bottoms and side edges same as exterior faces.

Sand lightly between each succeeding enamel or varnish coat.

Omit first coat (primer) on metal surfaces which have been shop- primed anuch-up painted, unless otherwise indicated.

Scheduling Painting: Apply first-coat material to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness or, if not indicated, as recommended by coating manufacturer.

Roof Flashing: Paint all exposed roof flashing that is not stainless steel.

Mechanical and Electrical Work: Painting of mechanical and electrical work includes those items exposed in mechanical equipment rooms, in occupied spaces and equipment on roof.

Mechanical items to be painted include, but are not limited to, the following:

- Factory pre-painted diffusers at public spaces.
- Piping, pipe hangers, and supports.
- Heat exchangers.
- Tanks.
- Ductwork, insulation.
- Sprinkler covers and pipes.
- Motor, mechanical equipment, and supports.
- Accessory items.

Electrical items to be painted include, but are not limited to, the following:

- Rooftop equipment.

Panel Boards in public spaces.
Conduit and fittings.
Speaker grilles.
Switchgear.

Prime Coats: Apply prime coat of material which is required to be painted or finished, and which has not been prime coated by others.

Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.

Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling such as laps, irregularity in texture, skid marks, or other surface imperfections.

Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.

Transparent (Clear) Finishes: Use multiple coats to produce glass-smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections.

Provide satin finish for final coats, unless otherwise indicated.

Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

FIELD QUALITY CONTROL

The right is reserved by Owner to invoke the following material testing procedure at any time, and any number of times during period of field painting:

Engage services of an independent testing laboratory to sample paint being used. Samples of materials delivered to project site will be taken, identified and sealed, and certified in presence of Contractor.

Testing laboratory will perform appropriate tests for any or all of following characteristics: Abrasion resistance, apparent reflectivity, flexibility, washability, absorption, accelerated weathering, dry opacity, accelerated yellowness, recoating, skinning, color retention, alkali resistance and quantitative materials analysis.

If test results show that material being used does not comply with specified requirements, Contractor may be directed to stop painting work, and remove non-complying paint; pay for testing; repaint surfaces coated with rejected paint; remove rejected paint from previously painted surfaces if, upon repainting with specified paint, the two coatings are non-compatible.

CLEAN-UP AND PROTECTION

Clean-Up: During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each work day.

Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

Protection: Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.

Provide "Wet Paint" signs as required to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.

At completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

SCHEDULE OF PAINT TREATMENTS

General: Paint abbreviations refer to those noted previously in Part 2, Material List.

NO.	LOCATION	MATERIALS
1	Exterior & Interior metal including factory prefinished items scheduled for finish	<u>Shop Coat:</u> As specified in respective Specification section <u>Prime Coat:</u> (RIP) <u>Finish:</u> Two coats (AREM)
2	Exterior Plaster, & Concrete Including: Fascia, Soffits, Walls of Bldgs., Exposed Concrete Beams, Exposed Concrete Retaining Walls	<u>Prime Coat:</u> Acrylic-epoxy Surface Conditioner <u>Finish:</u> Two coats (EAE)
3	Exterior Wood:	Prime and two coats (AREW)
4	Interior Smooth Concrete and Gypsum Board Where Scheduled.	<u>Prime Coat:</u> (PS) <u>Finish:</u> Two coats (AEE)
5	Interior Masonry Where Scheduled.	<u>Prime Coat:</u> (BF) <u>Finish:</u> Two coats (AEE)
6	Interior metal including factory prefinished items schedule for painting	<u>Prime Coat:</u> (RIP) except where prefinished <u>Finish:</u> Two coats (AREM)
7	Interior Wood for opaque finish.	<u>Prime Coat:</u> Manufacturer recommended primer <u>Finish:</u> Two coats (AEE)

END OF SECTION 09900

GUAM HOUSING & URBAN RENEWAL AUTHORITY

SECTION 15050 - BASIC MECHANICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:

1. Piping materials and installation instructions common to most piping systems.
2. Transition fittings.
3. Dielectric fittings.
4. Sleeves.
5. Escutcheons.
6. Grout.
7. Equipment installation requirements common to equipment sections.
8. Painting and finishing.
9. Concrete bases.
10. Supports and anchorages.

1.3 DEFINITIONS

- A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.
- B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.
- C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.
- D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.
- E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.
- F. The following are industry abbreviations for plastic materials:
 1. ABS: Acrylonitrile-butadiene-styrene plastic.
 2. CPVC: Chlorinated polyvinyl chloride plastic.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

3. PE: Polyethylene plastic.
4. PVC: Polyvinyl chloride plastic.

G. The following are industry abbreviations for rubber materials:

1. EPDM: Ethylene-propylene-diene terpolymer rubber.
2. NBR: Acrylonitrile-butadiene rubber.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Transition fittings.
2. Dielectric fittings.
3. Escutcheons.

1.5 QUALITY ASSURANCE

A. Electrical Characteristics for Mechanical Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.
- B. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.

1.7 COORDINATION

- A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for mechanical installations.
- B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.
- C. Coordinate requirements for access panels and doors for mechanical items requiring access that are concealed behind finished surfaces. Access panels and doors are specified in Division 8 Section "Access Doors and Frames."

GUAM HOUSING & URBAN RENEWAL AUTHORITY

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
 2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.2 PIPE, TUBE, AND FITTINGS

- A. Refer to individual Division 15 piping Sections for pipe, tube, and fitting materials and joining methods.
- B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.3 JOINING MATERIALS

- A. Refer to individual Division 15 piping Sections for special joining materials not listed below.
- B. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.
1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch (3.2-mm) maximum thickness unless thickness or specific material is indicated.
 - a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.
 - b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.
 2. AWWA C110, rubber, flat face, 1/8 inch (3.2 mm) thick, unless otherwise indicated; and full-face or ring type, unless otherwise indicated.
- C. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.
- D. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.
- E. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.
- F. Brazing Filler Metals: AWS A5.8, BCuP Series, copper-phosphorus alloys for general-duty brazing, unless otherwise indicated; and AWS A5.8, BAgl, silver alloy for refrigerant piping, unless otherwise indicated.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

G. Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

H. Solvent Cements for Joining Plastic Piping:

1. ABS Piping: ASTM D 2235.
2. CPVC Piping: ASTM F 493.
3. PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.
4. PVC to ABS Piping Transition: ASTM D 3138.

I. Fiberglass Pipe Adhesive: As furnished or recommended by pipe manufacturer.

2.4 TRANSITION FITTINGS

A. AWWA Transition Couplings: Same size as, and with pressure rating at least equal to and with ends compatible with, piping to be joined.

1. Available Manufacturers:

- a. Cascade Waterworks Mfg. Co.
- b. Dresser Industries, Inc.; DMD Div.
- c. Ford Meter Box Company, Incorporated (The); Pipe Products Div.
- d. JCM Industries.
- e. Smith-Blair, Inc.
- f. Viking Johnson.

2. Underground Piping NPS 1-1/2 (DN 40) and Smaller: Manufactured fitting or coupling.
3. Underground Piping NPS 2 (DN 50) and Larger: AWWA C219, metal sleeve-type coupling.
4. Aboveground Pressure Piping: Pipe fitting.

B. Plastic-to-Metal Transition Fittings: PVC one-piece fitting with manufacturer's Schedule 80 equivalent dimensions; one end with threaded brass insert, and one solvent-cement-joint end.

1. Available Manufacturers:

- a. Eslon Thermoplastics.

C. Plastic-to-Metal Transition Adaptors: One-piece fitting with manufacturer's SDR 11 equivalent dimensions; one end with threaded brass insert, and one solvent-cement-joint end.

1. Available Manufacturers:

- a. Thompson Plastics, Inc.

2.5 DIELECTRIC FITTINGS

A. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

- B. Insulating Material: Suitable for system fluid, pressure, and temperature.
- C. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig (1725-kPa) minimum working pressure at 180 deg F (82 deg C).
 - 1. Available Manufacturers:
 - a. Capitol Manufacturing Co.
 - b. Central Plastics Company.
 - c. Eclipse, Inc.
 - d. Epco Sales, Inc.
 - e. Hart Industries, International, Inc.
 - f. Watts Industries, Inc.; Water Products Div.
 - g. Zurn Industries, Inc.; Wilkins Div.
- D. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig (2070-kPa) minimum working pressure at 225 deg F (107 deg C).
 - 1. Available Manufacturers:
 - a. Calpico, Inc.
 - b. Lochinvar Corp.
- E. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig (2070-kPa) minimum working pressure at 225 deg F (107 deg C).
 - 1. Available Manufacturers:
 - a. Perfection Corp.
 - b. Precision Plumbing Products, Inc.
 - c. Sioux Chief Manufacturing Co., Inc.
 - d. Victaulic Co. of America.

2.6 SLEEVES

- A. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.
- B. Cast Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
- C. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.
 - 1. Underdeck Clamp: Clamping ring with set screws.
- D. PVC Pipe: ASTM D 1785, Schedule 40.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

2.7 ESCUTCHEONS

- A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.
- B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with polished chrome-plated finish.
- C. One-Piece, Cast-Brass Type: With set screw.
 - 1. Finish: [**Polished chrome-plated**] [**Rough brass**] [**Polished chrome-plated and rough brass**].
- D. Split-Casting, Cast-Brass Type: With concealed hinge and set screw.
 - 1. Finish: [**Polished chrome-plated**] [**Rough brass**] [**Polished chrome-plated and rough brass**].
- E. One-Piece, Stamped-Steel Type: With [set screw] [spring clips] [set screw or spring clips] and chrome-plated finish.
- F. Split-Plate, Stamped-Steel Type: With [concealed] [exposed-rivet] hinge, [set screw] [spring clips] [set screw or spring clips], and chrome-plated finish.
- G. One-Piece, Floor-Plate Type: Cast-iron floor plate.
- H. Split-Casting, Floor-Plate Type: Cast brass with concealed hinge and set screw.

2.8 GROUT

- A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.
 - 1. Characteristics: Post-hardening, volume-adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
 - 2. Design Mix: 5000-psi (34.5-MPa), 28-day compressive strength.
 - 3. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.1 PIPING SYSTEMS - COMMON REQUIREMENTS

- A. Install piping according to the following requirements and Division 15 Sections specifying piping systems.
- B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

- C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.
- D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
- F. Install piping to permit valve servicing.
- G. Install piping at indicated slopes.
- H. Install piping free of sags and bends.
- I. Install fittings for changes in direction and branch connections.
- J. Install piping to allow application of insulation.
- K. Select system components with pressure rating equal to or greater than system operating pressure.
- L. Install escutcheons for penetrations of walls, ceilings, and floors according to the following:
 - 1. New Piping:
 - a. Piping with Fitting or Sleeve Protruding from Wall: One-piece, deep-pattern type.
 - b. Chrome-Plated Piping: One-piece, cast-brass type with polished chrome-plated finish.
 - c. Insulated Piping: One-piece, stamped-steel type with spring clips.
 - d. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, cast-brass type with polished chrome-plated finish.
 - e. Bare Piping at Ceiling Penetrations in Finished Spaces: Split-casting, cast-brass type with polished chrome-plated finish.
 - f. Bare Piping in Unfinished Service Spaces: One-piece, cast-brass type with rough-brass finish.
 - g. Bare Piping in Equipment Rooms: One-piece, cast-brass type.
 - h. Bare Piping at Floor Penetrations in Equipment Rooms: One-piece, floor-plate type.
- M. Sleeves are not required for core-drilled holes.
- N. Permanent sleeves are not required for holes formed by removable PE sleeves.
- O. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, and concrete floor and roof slabs.
 - 1. Cut sleeves to length for mounting flush with both surfaces.
 - a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches (50 mm) above finished floor level. Extend cast-iron

GUAM HOUSING & URBAN RENEWAL AUTHORITY

sleeve fittings below floor slab as required to secure clamping ring if ring is specified.

2. Install sleeves in new walls and slabs as new walls and slabs are constructed.
 3. Install sleeves that are large enough to provide 1/4-inch (6.4-mm) annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:
 - a. PVC Pipe Sleeves: For pipes smaller than NPS 6 (DN 150).
 - b. Steel Sheet Sleeves: For pipes NPS 6 (DN 150) and larger, penetrating gypsum-board partitions.
 - c. Stack Sleeve Fittings: For pipes penetrating floors with membrane waterproofing. Secure flashing between clamping flanges. Install section of cast-iron soil pipe to extend sleeve to 2 inches (50 mm) above finished floor level.
 - 1) Seal space outside of sleeve fittings with grout.
 4. Except for underground wall penetrations, seal annular space between sleeve and pipe or pipe insulation, using joint sealants appropriate for size, depth, and location of joint. Refer to Division 7 Section "Joint Sealants" for materials and installation.
- P. Aboveground, Exterior-Wall Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.
1. Install steel pipe for sleeves smaller than 6 inches (150 mm) in diameter.
 2. Install cast-iron "wall pipes" for sleeves 6 inches (150 mm) and larger in diameter.
 3. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.
- Q. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Refer to Division 7 Section "Through-Penetration Firestop Systems" for materials.
- R. Verify final equipment locations for roughing-in.
- S. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

3.2 PIPING JOINT CONSTRUCTION

- A. Join pipe and fittings according to the following requirements and Division 15 Sections specifying piping systems.
- B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

- D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.
- E. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.
- F. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
 - 1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
 - 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.
- G. Welded Joints: Construct joints according to AWS D10.12, using qualified processes and welding operators according to Part 1 "Quality Assurance" Article.
- H. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.
- I. Plastic Piping Solvent-Cement Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:
 - 1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
 - 2. ABS Piping: Join according to ASTM D 2235 and ASTM D 2661 Appendixes.
 - 3. CPVC Piping: Join according to ASTM D 2846/D 2846M Appendix.
 - 4. PVC Pressure Piping: Join schedule number ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
 - 5. PVC Nonpressure Piping: Join according to ASTM D 2855.
 - 6. PVC to ABS Nonpressure Transition Fittings: Join according to ASTM D 3138 Appendix.
- J. Plastic Pressure Piping Gasketed Joints: Join according to ASTM D 3139.
- K. Plastic Nonpressure Piping Gasketed Joints: Join according to ASTM D 3212.

3.3 PIPING CONNECTIONS

- A. Make connections according to the following, unless otherwise indicated:
 - 1. Install unions, in piping NPS 2 (DN 50) and smaller, adjacent to each valve and at final connection to each piece of equipment.
 - 2. Install flanges, in piping NPS 2-1/2 (DN 65) and larger, adjacent to flanged valves and at final connection to each piece of equipment.
 - 3. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

3.4 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

- A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.
- B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.
- C. Install mechanical equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.
- D. Install equipment to allow right of way for piping installed at required slope.

3.5 PAINTING

- A. Painting of mechanical systems, equipment, and components is specified in Division 9.
- B. Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.6 CONCRETE BASES

- A. Concrete Bases: Anchor equipment to concrete base according to equipment manufacturer's written instructions and according to seismic codes at Project.
 - 1. Construct concrete bases of dimensions indicated, but not less than 4 inches (100 mm) larger in both directions than supported unit.
 - 2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch (450-mm) centers around the full perimeter of the base.
 - 3. Install epoxy-coated anchor bolts for supported equipment that extend through concrete base, and anchor into structural concrete floor.
 - 4. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 5. Install anchor bolts to elevations required for proper attachment to supported equipment.
 - 6. Install anchor bolts according to anchor-bolt manufacturer's written instructions.
 - 7. Use 3000-psi (20.7-MPa), 28-day compressive-strength concrete and reinforcement as specified in Division 3 Section "Cast-in-Place Concrete."

3.7 ERECTION OF METAL SUPPORTS AND ANCHORAGES

- A. Refer to Division 5 Section "Metal Fabrications" for structural steel.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor mechanical materials and equipment.
- C. Field Welding: Comply with AWS D1.1.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

3.8 GROUTING

- A. Mix and install grout for mechanical equipment base bearing surfaces, pump and other equipment base plates, and anchors.
- B. Clean surfaces that will come into contact with grout.
- C. Provide forms as required for placement of grout.
- D. Avoid air entrapment during placement of grout.
- E. Place grout, completely filling equipment bases.
- F. Place grout on concrete bases and provide smooth bearing surface for equipment.
- G. Place grout around anchors.
- H. Cure placed grout.

END OF SECTION 15050

SECTION 15160 - STORM DRAINAGE PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes storm-drainage piping inside the building and to locations indicated.

1.3 DEFINITIONS

- A. The following are industry abbreviations for plastic piping materials:
 - 1. PVC: Polyvinyl chloride plastic.

1.4 PERFORMANCE REQUIREMENTS

- A. Provide components and installation capable of producing piping systems with the following minimum working-pressure ratings, unless otherwise indicated:
 - 1. Storm Drainage Piping: 10-foot head of water (30 kPa).
 - 2. Storm Drainage, Force-Main Piping: 50 psig (345 kPa).

1.5 SUBMITTALS

- A. Product Data: For pipe, tube, fittings, and couplings.
- B. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

1.6 QUALITY ASSURANCE

- A. Piping materials shall bear label, stamp, or other markings of specified testing agency.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

GUAM HOUSING & URBAN RENEWAL AUTHORITY

- A. Refer to Part 3 "Piping Applications" Article for applications of pipe, tube, fitting, and joining materials.
- B. Flexible Transition Couplings for Underground Nonpressure Piping: ASTM C 1173 with elastomeric sleeve. Include ends of same sizes as piping to be joined and include corrosion-resistant metal band on each end.
- C. Transition Couplings for Underground Pressure Piping: AWWA C219 metal, sleeve-type coupling or other manufactured fitting same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.

2.2 PVC PIPING

- A. PVC Pipe: ASTM D 2665, solid-wall drain, waste, and vent.
 - 1. PVC Socket Fittings: ASTM D 2665, made to ASTM D 3311, drain, waste, and vent patterns.
- B. Cellular-Core, Schedule 40, PVC Pipe: ASTM F 891, Schedule 40.
 - 1. PVC Socket Fittings: ASTM D 2665, made to ASTM D 3311, drain, waste, and vent patterns and to fit Schedule 40 pipe.
- C. Cellular-Core, Sewer and Drain Series, PVC Pipe: ASTM F 891, Series PS 100.
 - 1. PVC Socket Fittings: ASTM D 2665, made to ASTM D 3311, drain, waste, and vent patterns and to fit Series PS 100 sewer and drain pipe.
- D. PVC Special Fittings: ASTM F 409, drainage-pattern tube and tubular fittings with ends as required for application.

PART 3 - EXECUTION

3.1 EXCAVATION

- A. Refer to Division 2 Section "Earthwork" for excavating, trenching, and backfilling.

3.2 PIPING APPLICATIONS

- A. Transition and special fittings with pressure ratings at least equal to piping pressure ratings may be used in applications below, unless otherwise indicated.
- B. Flanges may be used on aboveground pressure piping, unless otherwise indicated.
- C. Aboveground Storm Drainage Piping: Use the following piping materials for each size range:
 - 1. NPS 2 to NPS 4: PVC pipe, PVC socket fittings, and solvent-cemented joints.

STORM DRAINAGE PIPING

GUAM HOUSING & URBAN RENEWAL AUTHORITY

2. NPS 5 and NPS 6: Use NPS 6 PVC pipe, PVC socket fittings, and solvent-cemented joints.
 3. NPS 8: PVC pipe, PVC socket fittings, and solvent-cemented joints.
- D. Underground Storm Drainage Piping: Use the following piping materials for each size range:
1. NPS 3 and NPS 4: PVC pipe, PVC socket fittings, and solvent-cemented joints.
 2. NPS 5 and NPS 6: PVC pipe, PVC socket fittings, and solvent-cemented joints.
 3. NPS 8 and NPS 10: PVC pipe, PVC socket fittings, and solvent-cemented joints.

3.3 PIPING INSTALLATION

- A. Refer to Division 2 Section "Storm Drainage" for Project site storm sewer and drainage piping.
- B. Refer to Division 15 Section "Basic Mechanical Materials and Methods" for basic piping installation.
- C. Install cleanouts at grade and extend to where building storm drains connect to building storm sewers.
- D. Install cleanout fitting with closure plug inside the building in storm drainage force-main piping.
- E. Install cast-iron sleeve with water stop and mechanical sleeve seal at each service pipe penetration through foundation wall. Select number of interlocking rubber links required to make installation watertight. Refer to Division 15 Section "Basic Mechanical Materials and Methods" for sleeves and mechanical sleeve seals.
- F. Make changes in direction for storm piping using appropriate branches, bends, and long-sweep bends. Do not change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.
- G. Lay buried building drain piping beginning at low point of each system. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab in piping and pull past each joint as completed.
- H. Install storm drainage piping at the following minimum slopes, unless otherwise indicated:
 1. Building Storm Drain: 1 percent downward in direction of flow for piping NPS 3 and smaller; 1 percent downward in direction of flow for piping NPS 4 and larger.
 2. Horizontal Storm-Drainage Piping: 2 percent downward in direction of flow.
- I. Install force mains at elevations indicated.
- J. Sleeves are not required for cast-iron soil piping passing through concrete slabs-on-grade if slab is without membrane waterproofing.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

- K. Install ABS storm drainage piping according to ASTM D 2661.
- L. Install PVC storm drainage piping according to ASTM D 2665.
- M. Install underground PVC storm drainage piping according to ASTM D 2321.
- N. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.

3.4 JOINT CONSTRUCTION

- A. Refer to Division 15 Section "Basic Mechanical Materials and Methods" for basic piping joint construction.
- B. Cast-Iron, Soil-Piping Joints: Make joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."
 - 1. Gasketed Joints: Make with rubber gasket matching class of pipe and fittings.
 - 2. Hubless Joints: Make with rubber gasket and sleeve or clamp.
- C. Soldered Joints: Use ASTM B 813, water-flushable, lead-free flux; ASTM B 32, lead-free-alloy solder; and ASTM B 828 procedure, unless otherwise indicated.
- D. Grooved Joints: Assemble joint with keyed coupling, gasket, lubricant, and bolts according to coupling and fitting manufacturer's written instructions.
- E. PVC Nonpressure Piping Joints: Join piping according to ASTM D 2665.

3.5 HANGER AND SUPPORT INSTALLATION

- A. Refer to Division 15 Section "Hangers and Supports" for pipe hanger and support devices. Install the following:
 - 1. Vertical Piping: MSS Type 8 or Type 42, clamps.
 - 2. Individual, Straight, Horizontal Piping Runs: According to the following:
 - a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
 - b. Longer Than 100 Feet: MSS Type 43, adjustable roller hangers.
 - c. Longer Than 100 Feet, if Indicated: MSS Type 49, spring cushion rolls.
 - 3. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
 - 4. Base of Vertical Piping: MSS Type 52, spring hangers.
- B. Install supports according to Division 15 Section "Hangers and Supports."
- C. Support vertical piping and tubing at base and at each floor.
- D. Rod diameter may be reduced 1 size for double-rod hangers, with 3/8-inch minimum rods.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

- E. Install hangers for PVC piping with the following maximum horizontal spacing and minimum rod diameters:
 - 1. NPS 1-1/2 and NPS 2: 48 inches with 3/8-inch rod.
 - 2. NPS 3: 48 inches with 1/2-inch rod.
 - 3. NPS 4 and NPS 5: 48 inches with 5/8-inch rod.
 - 4. NPS 6: 48 inches with 3/4-inch rod.
 - 5. NPS 8 to NPS 12: 48 inches with 7/8-inch rod.
- F. Install supports for vertical PVC piping every 48 inches.
- G. Support piping and tubing not listed above according to MSS SP-69 and manufacturer's written instructions.

3.6 CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Connect interior storm drainage piping to exterior storm drainage piping. Use transition fitting to join dissimilar piping materials.
- C. Connect storm drainage piping to roof drains and storm drainage specialties.

3.7 FIELD QUALITY CONTROL

- A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.
 - 1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in.
 - 2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
- B. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.
- C. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.
- D. Test storm drainage piping according to procedures of authorities having jurisdiction or, in absence of published procedures, as follows:
 - 1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
 - 2. Leave uncovered and unconcealed new, altered, extended, or replaced storm drainage piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

3. Test Procedure: Test storm drainage piping on completion of roughing-in. Close openings in piping system and fill with water to point of overflow, but not less than 10-foot head of water. From 15 minutes before inspection starts to completion of inspection, water level must not drop. Inspect joints for leaks.
4. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.
5. Prepare reports for tests and required corrective action.

3.8 CLEANING

- A. Clean interior of piping. Remove dirt and debris as work progresses.
- B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.
- C. Place plugs in ends of uncompleted piping at end of day and when work stops.

END OF SECTION 15160

SECTION 16050 - BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

RELATED DOCUMENTS

This Section supplements all sections of Division 16, and shall apply to all phases of work specified, shown on the drawings, and required to provide all electrical systems complete and operable for the project. The work required under the Division is not limited to the work shown on the electrical drawings. Refer to site, architectural, structural and mechanical drawings, coordinate all such work to attain fully operational systems throughout the project. The intent of this specification is to provide a complete and operating electrical systems in accordance with all Contract Documents.

WORK INCLUDED

Provide all labor, materials, services and skilled supervision necessary for the construction, erection, installation, connection, testing, and adjustment of all circuits and electrical equipment required by the Contract Documents, complete in all respects and ready for use.

SUPERVISION OF WORK

Electrical work shall be under the full supervision of a professional electrical engineer or a master electrician registered to practice in Guam. Within 30 calendar days after the Contractor has received the Owner's Notice to Proceed, submit a certification from the Professional Engineer or master electrician stating that the work will be done under his full supervision. At the conclusion of the work, prior to final inspection, submit certification that the work was done in accordance with electrical construction documents and the installation complies with the latest edition of the National Electrical Code.

Fire alarm system manufacturer's Technical Representative shall supervise, approve and certify the complete Fire Alarm System installation.

COORDINATION OF WORK

Plan all work so that it proceeds with a minimum of interference with other trades. Coordinate all openings required for equipment and conduit required for work of other trades. Provide all special frames, sleeves and anchor bolts as required. Coordinate electrical work with the mechanical installation.

Work lines and established heights shall be in accordance with architectural drawings. Verify all dimensions shown and establish all elevations and detailed dimensions not shown.

Lay out and coordinate all work well in advance to avoid conflicts or interference with other work in progress so that in the event of interference, the electrical layout may be altered to suit the conditions, prior to the installation of any work, and without additional cost to the Owner. Conflicts arising from lack of coordination shall be the contractor's responsibility.

Maintain all code required clearance around electrical equipment. Unless specifically noted otherwise, establish the exact location of electrical equipment based on the actual dimensions of equipment furnished.

COOPERATION WITH OTHER TRADES

Cooperate and coordinate all work of Division 16 with that of other trades; afford reasonable opportunity for the execution of their work. Properly connect and coordinate this work with the work of other trades at such time and in such a manner as not to delay or interfere with their work.

Examine the drawings and specifications for the general and mechanical work and the work of other trades. Coordinate this work accordingly.

Promptly report to the Contracting Officer any delay or difficulties encountered in the installation of this work which might prevent prompt and proper installation, or make it unsuitable to connect with or receive the work of others. Failure to report shall constitute an acceptance of the work of other trades as being fit and proper for the execution of this work.

CODES, PERMITS AND FEES

Perform work in accordance with the National Electrical Code, applicable building ordinances, and other applicable codes, hereinafter referred to as the "Code". Where the Contract Documents exceed minimum requirements, the most stringent shall apply unless variance is approved.

Comply with all requirements for permits, licenses, fees, and codes. Obtain all required permits, licenses, inspections, and pay all fees required to perform the work described in the Contract Documents.

Comply with all requirements of the applicable utility authorities serving the project. Make all arrangements with the utility authorities for proper coordination of the work.

MATERIALS AND EQUIPMENT FURNISHED BY OTHERS

The electrical work includes the installation or connection of certain materials and equipment furnished by others. Verify installation details. Foundations for apparatus and equipment will be furnished by others unless otherwise noted or detailed.

CONTRACT DRAWINGS

The Contract Drawings are shown in part diagrammatic, and intend to convey the scope of work, indicating the intended general arrangement of equipment, conduit and outlets. Follow the drawings in laying out the work and verify spaces for the installation of materials and equipment based on actual dimensions of equipment furnished. Wherever a question exists regarding the intended location of outlets or equipment, circuiting, etc., obtain instructions from the Contracting Officer before proceeding with the work.

EQUIPMENT OR FIXTURES

Equipment or fixtures shall be connected to provide circuit continuity in accordance with applicable codes whether or not each piece of conductor, conduit, or protective device is shown between such items of equipment or fixtures, and the point of circuit origin.

NEW EQUIPMENT AND MATERIAL

Unless otherwise specified, equipment and materials of the same type of classification, and used for the same purpose shall be products of the same manufacturer. Use only new and unweathered material.

Furnish products listed and classified by Underwriter's Laboratories, Inc.

APPLICABLE DOCUMENTS

Design, manufacture, testing and method of installation of all apparatus and materials furnished under Division 16 of the specifications shall conform to the latest publications or standard rules of the following:

Institute of Electrical and Electronic Engineers
(Formerly American Institute of Electrical Engineers) - IEEE

National Electrical Manufacturers' Association - NEMA
Underwriters' Laboratories, Inc. - UL
National Fire Protection Association - NFPA
American Society for Testing and Materials - ASTM
American National Standards Institute - ANSI
National Electrical Code - NEC
National Electrical Safety Code - NESC
Uniform Fire Code - UFC
Uniform Building Code - UBC
Insulated Power Cable Engineers Association - IPCEA
American Institute of Steel Construction - AISC
Department of Public Works Standards, Government of Guam - DPW
Guam Fire Department Standards, Government of Guam - GFD
Guam Power Authority Standards, Government of Guam - GPA
Guam Telephone Authority Standards, Government of Guam - GTA

EXECUTION OF THE WORK

Install equipment and materials in neat and workmanlike manner and align, level and adjust for proper operation. Install equipment so that all parts are easily accessible for inspection, operation, maintenance, and repair.

Where damage, marring or disfigurement has occurred, replace or refinish the damaged surfaces as directed, and to the satisfaction of the Contracting Officer.

Provide the design, fabrication, and erection of all supplementary structural framing required for attachment of hangers or other devices supporting electrical equipment. Submit design/shop drawing to the Contracting Officer for approval.

Outlet Location:

Position of outlets: Center all outlets with regard to panelling, furring and trim. Symmetrically arrange outlets in the room. Satisfactorily correct outlets improperly located or installed. Repair or replace damaged finishes. Set outlets plumb and extend to the finished surface of the wall, ceiling or floor without projecting beyond same.

Install all receptacles, switches, and outlets shown on the wood trim, cases or office fixtures symmetrically, and where necessary, set the long dimension of the plate horizontal, or ganged in tandem.

SPECIAL CONSIDERATION

Cutting, Patching and Piercing: Obtain written permission from the Contracting Officer before cutting or piercing structural members.

Use craftsmen skilled in their respective trades for cutting, fitting, repairing, patching of plaster and finishing of materials including carpentry work, metal work or concrete work required for by Division 16. Do not weaken walls, partitions or floor by cutting. Holes required to be cut in floors must be drilled or cored without breaking or spalling around the holes. Do all necessary patching and/or refinishing as instructed by the Contracting Officer.

Sleeves through floors and walls to be galvanized rigid steel flush with walls, ceiling or finished floors; size to accommodate the raceway.

Use care in piercing waterproofing. After the part piercing waterproofing has been set in place, seal opening and make absolutely watertight.

Provide baked white enamel painted spring-clipped escutcheon plates where exposed pipe passes through walls, floors, or ceilings. Cover sleeves and entire opening made for the pipe with escutcheon plates. Field applied paint finish shall match color of surrounding finish. Seal all conduit openings through floor slabs, masonry walls, and continuous partitions to make air and watertight. Tightly caulk space between conduit and abutting materials with fiberglass insulation and nonflammable sealant.

Seal equipment or components exposed to the weather and make watertight and insect-proof. Protect equipment outlets and conduit openings with temporary plugs or caps at all times that work is not in progress.

Equipment Identification: Identify each piece of equipment including disconnect switches and motor starters, with plastic laminate nameplates, black face with white core letters, having proper and complete identification. Clearly identify on the equipment served, and spell out the full name of the equipment, such as "Air Handling Unit AHU-1" and "Hot Water Cir. Pump P-1". Do not use abbreviated plan references such as "AHU-1" or "P-1".

Equipment Access: Locate starters, switches, receptacles, and pull boxes to allow easy access for operation, repair and maintenance, and if concealed, provide access doors.

Equipment Bases: Provide equipment bases on all floor-mounted equipment furnished under this Contract.

Protection of apparatus, materials and equipment: Take all necessary precautions to properly protect all apparatus, fixtures, appliances, material, equipment and installations from damage of any kind. The Contracting Officer may reject any particular piece or pieces of material, apparatus, or equipment which has scratches, dents or otherwise damaged.

Operation and Maintenance Manuals: During the time of the Contract and before final acceptance of the electrical installation, submit to the Contracting Officer three copies of all descriptive literature, maintenance recommendations from the equipment manufacturer, data of initial operation, wiring diagrams and parts list of each item of electrical equipment installed under the Contract; submit all manufacturer's guarantees and warranties. Submittal shall include: switchboards, motor control centers, generators, and fire alarm system.

Refer to Division 1 for additional requirements.

Painting Preparation: Prepare all exposed fittings, boxes, supports and panelboards for painting; remove traces of oil, grease and dirt. Employ all necessary precautionary methods to prevent scratching or defacing of all electrical apparatus and devices.

Painting: Exposed conduit, boxes installed after room has been painted, shall be painted to match room finish by this contractor.

Corrosion Control: All corrosive metal surfaces, conduits/fittings, pipelines and structures shall be provided with corrosion inhibiting primer before installation. Appropriate surface preparation shall be made before application of primer.

Rust Prevention: Provide hot dip galvanized finish for all ferrous materials. In addition, outdoor installations shall be field painted with two coats of epoxy paint.

Tests: Provide all tests as outlined hereinafter, and other tests necessary to establish the adequacy, quality, safety, completed status, and suitable operation of each system. Tests shall be conducted in the presence of the Contracting Officer.

Ground Rod Test: Immediately after installation, test driven grounds with direct-reading single-test megger, utilizing the AC fall-of potential method and two reference electrodes. Orient the ground to be tested and two reference electrodes in a straight line spaced 50 feet apart. Drive the reference electrodes 5 feet deep. Disconnect the ground rod to be tested from other ground systems at the time of testing. Ground resistance for the electrical service shall be 25 ohms or less. Ground resistance for communication system shall meet manufacturer's minimum requirements. Submit the results, date of test, and soil conditions, to the Contracting Officer in writing, immediately after testing.

Insulation resistance of conductors.

Seismic Consideration: Installation shall meet Seismic Zone 4 requirements.

Windload Consideration: Installation exposed to outdoors shall be designed to withstand 155 MPH sustained wind load.

QUALITY ASSURANCE

Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Division.

Without additional cost to the Owner, provide such other labor and materials as are required to complete the work of this Division in accordance with the requirements of governmental agencies having jurisdiction, regardless of whether such materials and associated labor are called for elsewhere in these Contract Documents.

PROTECTIVE DEVICES COORDINATION STUDIES

Contractor shall provide the services of a qualified relay coordination engineer to perform a complete relay coordination study of the entire electrical distribution system. The studies shall include a complete single-line diagram of the power system covered by this specification, time-current characteristic curves, current transformer ratios, and relay device numbers and settings; fully coordinated composite time-current characteristic curves including recommended ratings and settings of all protective devices in tabulated form. Provide associated calculations to demonstrate that the power system protection will be selectively coordinated by the use of devices or equipment supplied. These studies shall be certified by a registered Professional Electrical Engineer. Final copy of the report shall be incorporated in the electrical O & M Manual. Perform testing and calibration of power relays by a certified relay technician.

ELECTRICAL SERVICE

Electrical service to the building is as indicated on the drawings.

Make all necessary arrangements with the serving utilities, and pay all costs and fees, assessed to the project by the serving utilities. All work shall be in accordance with serving utilities standards and subject to their approval. Coordinate the installation of service entrance equipment with GPA prior to start of construction.

Application for power service must be submitted to GPA eight months before service connection to allow for timely delivery of transformers.

PRODUCT HANDLING

Comply with pertinent provisions of Division 1.

WARRANTY

Provide one year warranty on all labor and materials.

YEAR 2000 (Y2K) COMPLIANCE WARRANTY

For each product, component and system specified in this project as a "computer controlled component" provide a statement of Y2K compliance warranty for the specific equipment. The contractor warrants that each hardware, software, and firmware product delivered under this contract shall be able to accurately process date and time data (including, but not limited to, calculating, comparing, and sequencing) from, into, and between the twentieth and twenty-first centuries, and the years 1999 and 2000 and leap year calculations to the extent that other computer controlled components, used in combination with the computer controlled component being acquired, properly exchange date and time data with it. If the contract requires that specific listed products must perform as a system in accordance with the foregoing warranty, then that warranty shall apply to those listed products as a system. The duration of this warranty and the remedies available to the Owner for breach of this warranty shall be as defined in, and subject to, the terms and limitations of the contractor's standard commercial warranty or warranties contained in this contract, provided that, notwithstanding any provision to the contrary, in such commercial warranty or warranties, the remedies available to the Owner under this warranty shall include repair or replacement of any listed product whose non-compliance is discovered and made known to the contractor in writing within one year (365 days) after acceptance. Nothing in this warranty shall be construed to limit any rights or remedies the Owner may otherwise have under this contract, with respect to defects other than Year 2000 performance.

AS-BUILT DRAWINGS

The Contractor shall maintain at the site one copy of all Drawings, Specifications, Addenda, approved Shop Drawings, Change Orders, and other modifications, in good order and marked to record all changes made during construction. These shall be made available to the Contracting Officer.

At the conclusion of the work, the Contractor will be furnished by the Contracting Officer, at the Contractor's expense, a set of reproduces made from original contract plans. The Contractor shall then incorporate all changes made, as recorded, into the set of reproduces in a clear, legible and reproducible manner. All feeders, main alarm and communication lines, service entrance, and stub-outs shall be dimensionally located within the building structure. As a condition for acceptance of work, "as-built" reproduces shall be signed by Contractor attesting that all changes have been incorporated, dated and delivered to the Contracting Officer.

SPARE PARTS AND MAINTENANCE PRODUCTS

Provide spare parts, maintenance, and extra Products in quantities specified in individual specification sections.

Deliver to Contracting Officer; obtain receipt prior to final payment.

END OF SECTION 16050

SECTION 16110

RACEWAYS

PART 1 GENERAL

1.1 DESCRIPTION

- A. This section covers raceways and fittings, complete.
- B. Submit shop drawings for approval.

PART 2 PRODUCTS

2.1. RACEWAYS

- A. Rigid conduit shall be zinc-coated heavy wall as manufactured by Republic, Triangle, or approved equal.
- B. Electrical metallic tubing (EMT) shall be zinc-coated thin wall as manufactured by Republic, Triangle, or approved equal.
- C. Flexible metallic conduit shall be galvanized steel tape formed into an industry standard interlocking coil as manufactured by Republic, Triangle, or approved equal.
- D. Liquid - Tight Flexible Metal conduit shall be constructed of single strip, interlocked, and double-wrapped steel, galvanized inside and outside, coated with liquid - tight jacket of flexible polyvinyl chloride (PVC) as manufactured by Carlon, AFC, Sealtite, or approved equal.
- E. Rigid polyvinyl chloride conduit (PVC) shall be heavy wall schedule 40 as manufactured by Carlon Electrical, Visqueen, or approved equal.
- F. Intermediate Metallic Tubing (IMC) shall be zinc-coated as manufactured by Republic, Triangle, or approved equal. BX is not permitted.
- G. Thin wall nonmetallic conduit, schedule A PVC shall be EB 120 type as manufactured by Carlon Electrical, for use as communications duct or approved equal.
- H. Wireways shall be sheet steel with cover, provided with a corrosion resistant phosphatizing primer and epoxy finish. All hardware shall be plated to prevent corrosion. All screws installed towards the inside shall be protected by spring nuts or

otherwise guarded to prevent wire insulation damage. Interior parts shall be smooth and free of sharp edges and burrs. Wireways shall be as manufactured by Square D, Hoffman or approved equal.

2.2 CONDUIT FITTINGS

- A. Rigid metal conduit fittings for heavy wall conduit shall be of the threaded type. Double locknuts and insulating bushings shall be used on all rigid conduit runs. Where necessary "Ericson" fittings or threaded split couplings will be accepted. Running threads will not be accepted.
- B. EMT fittings shall be of the set screw or compression, concrete-tight or raintight type as required by location. Indenter type fittings not acceptable. No set screw type fittings permitted on conduits imbedded in the floor slab.
- C. Flexible metallic conduit fittings shall be specifically designed for use with same and shall have smooth rounded ends for wire protection.
- D. Liquid - Tight Flexible Metal Conduit fittings shall be specifically designed for use with same, shall provide positive liquidtight seal, have insulated throat, and be corrosion resistant, as manufactured by O-Z/Gedney, Sealtite, Carlon or approved equal.
- E. PVC conduit fittings shall be recommended by the company whose conduit is used. Utilize solvent cement joints for all fittings and make all joints water-tight. Provide adapters for connections to metal components.
- F. Special fittings shall be as listed or approved equal
 1. Sealing Gland Assembly OZ, Type FSK
 2. Expansion Joints OZ, Type AX or TX
with bonding jumpers
and clamps
 3. Expansion and Deflection Fittings OZ, Type DX
 4. Cast Metal Conduit Fittings Crouse-Hinds,
Condulets

2.3 APPLICATION

- A. Rigid heavywall galvanized conduit and IMC shall be used for:
 1. All exterior (outside of building), exposed requirements. (Rigid heavywall aluminum conduit may be substituted for exterior exposed installations.)

2. Interior primary service or distribution. (Rigid heavywall aluminum conduit may be substituted for interior primary installations above grade and not in contact with concrete or cement mortar.)
 3. Concealed within slabs on grade.
- B. Galvanized steel thinwall conduit (EMT) shall be used:
1. For branch circuits:
 - Concealed within hung or furred ceilings or soffits.
 - Concealed within floor slabs other than slabs on grade.
 - Concealed within concrete walls.
 - Exposed on concrete walls where not exposed to damage.
 - Concealed within block partitions, plasterboard partitions, and within wall furring.
 2. For above grade, interior, feeders, subfeeders and distribution, below 600 volts, concealed or exposed as delineated above for branch circuits.
 3. For interlock or control wiring, 120 volts or above:
 - Concealed in hung ceiling areas or partitions.
 - Exposed in mechanical equipment rooms.
- C. Heavywall nonmetallic conduit, Schedule 40 PVC, shall be used for:
1. Concealed within floor slabs and slabs on grade or within concrete or block walls.
- D. Thinwall nonmetallic conduit, Schedule A PVC, may be used for:
1. Below grade secondary (below 600 volt) service.
 2. Below grade feeders, subfeeders and distribution.
- E. Flexible metallic conduit (Greenfield) shall be used for:
1. Three foot connections to the terminal boxes of motors and vibrating equipment located four feet or more above the floor.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

2. Six foot tails between recessed accessible lighting fixture outlet box and recessed fluorescent lighting fixtures.
- F. Weatherproof flexible conduit (Sealtite Type UA) shall be used for connection to the terminal boxes of motors and vibrating equipment located within four feet of the floor or in potentially wet locations.
- G. Outdoor grade weatherproof flexible conduit (Sealtite Type HC) shall be used for:
 1. Connections to motor terminal boxes and vibrating equipment outdoors, on roofs, etc.
 2. Where required for connection to outdoor lighting fixtures.

PART 3 EXECUTION

3.1 INSTALLATION

- A. No conduit shall be less than 1/2" trade size, except for homeruns which shall not be less than 3/4".
- B. No conduit shall be larger than 4" trade size.
- C. All conduits to run concealed, except as follows:
 1. Mechanical and Electrical Equipment Rooms.
 2. Unfinished spaces.
 3. Where indicated on the contract drawings.
- D. Utilize factory manufactured elbows 1-1/4" trade size and larger.
- E. Make all cuts square with no reduction in trade size and ream out all burrs.
- F. Make all joints tight, electrically continuous. No running threads are accepted. If necessary, use ERICKSON type couplings.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

- G. Provide locknut and bushing for termination. Bushing shall be insulated 1-1/4" trade size and above.
- H. Provide expansion fittings for conduits crossing building expansion lines.
- I. Cap all conduits with proper fittings until wires are pulled in.
- J. All conduits exposed to mechanical injury shall be rigid or IMC.
- K. All conduits installed in hollow metal, stud and wallboard, any movable or semi-permanent partition shall originate from ceiling plane or stub-up from floor slabs.
- L. All conduits concealed in inaccessible spaces shall be minimum 3/4" trade size.
- M. Conduits in or under grade slab shall be rigid hot-dip galvanized steel, Schedule 40 PVC or Schedule A PVC (refer to Section 16450, "Grounding").
- N. Seal off all conduits with appropriate fittings penetrating:
 - 1. Foundation Walls.
 - 2. Roof Seal.
 - 3. Waterproof Deck and/or Wall.
- O. Conduits in concrete shall conform to the following.
 - 1. They shall not displace structural steel.
 - 2. They shall be routed not to cause structural weakness.
 - 3. Single conduits shall be supported and tied down and multiple conduits shall be spaced, supported and tied down with manufactured spacers equal to McGraw Edison WUS Series.
 - 4. They shall have a minimum of 1" separation from any surface of the concrete.
 - 5. They shall be routed in accordance with field instructions issued for extenuating conditions by others.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

6. No conduit shall be permitted in unreinforced concrete slabs on grade. Conduit in these locations shall be placed in gravel base beneath such slabs.
- P. Exposed conduit shall run straight at right angles and parallel with building lines.
- Q. Stub-ups or sleeves through concrete slab shall be 12" high rigid steel.
- R. All equipment requiring motion or noise separation to be terminated with flexible metallic conduit.
- S. Steel conduits installed in wet areas or underground shall be coated with bituminous paint.
- T. Support all conduits with straps, hangers and clamps to provide a rigid installation. All supports to be independent from other equipment and in a manner not to impede the ready removal of other pipes.
- U. Provide all empty conduits with appropriate pulling cord or wire.
- V. All conduits shall be installed with acceptable workmanship, pleasing in appearance and practical in application.
- W. No conduits may be run on the floor surface or in such a manner as to be hazardous to traffic.
- X. Provide 2-1" empty conduits from each flush mounted lighting and receptacle panel to the hung ceiling above, terminating in elbows.
- Y. Conduits above a hung ceiling shall be metallic only. Conduits shall be supported from the structure above, not from the ceiling grid system hanger wires, T-bars and cross T-members. Penetration of roof deck is not permitted for hangers, clamps, etc.
- Z. All flexible metallic conduit installed exposed to weather, moist or humid atmosphere or subjected to dripping oil, grease or water shall be liquid-tight type.
- AA. Owner shall be contacted prior to pouring of concrete to allow time for inspection of all underground electrical work.
- BB. Steel or die cast set screw or compression type fittings shall be used for all EMT RACEWAYS

GUAM HOUSING & URBAN RENEWAL AUTHORITY

couplings and connectors.

CC. EMT connectors in sizes 1-1/4" and above shall have plastic nylon bushings.

DD. Where schedule 40 PVC conduit is turned out of concrete slabs, rigid steel elbows shall be utilized. No PVC shall be exposed unless specifically called for on the contract drawings.

EE. Seal all conduits serving roof mounted equipment with approved sealant. Do not run conduits exposed on the roof unless approval is obtained prior to installation.

FF. Flexible Metallic Conduit shall be used only for:

1. Three foot connections to the terminal boxes of vibrating equipment located four feet A.F.F.
2. Three foot connections to primary and secondary conduits of dry type transformers.
3. Six foot connections between accessible outlet boxes and recessed lighting fixtures.

GG. Conduit penetration from dry to wet environments shall be sealed to prevent moisture migration. Conduit shall be sealed internally at all connections to exterior equipment.

HH. All Schedule A PVC conduit shall be encased in a concrete envelope affording a minimum of 2" cover all around and 3" between parallel runs.

II. Do not place conduits in close proximity to equipment, systems and service lines, such as hot water supply and return lines, which could be detrimental to the conduit and its contents. Maintain a minimum 3" separation, except in crossing, which shall be a minimum 1".

END OF SECTION 16110

SECTION 16120

CONDUCTORS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This section covers all conductors.
- B. Submit shop drawings for approval.

PART 2 PRODUCTS

2.1 MATERIALS

- A. All conductors shall be 98% minimum conductivity soft, properly refined copper. #10 AWG and smaller shall be solid, #8 AWG and larger shall be stranded.
- B. Minimum size conductor for power and light circuiting shall be #12 AWG.
- C. Maximum size conductor for feeders and power circuiting shall be 500 kcmil copper.
- D. Minimum size conductor for control wiring shall be #14 AWG.
- E. Wires and cables shall be as manufactured by Advance Wire and Cable, Rome Cable Corp., Southwire Company or approved equal.
- F. Connectors shall be as manufactured by Burndy Corp., O-Z/Gedney Co., Panduit Corp., T & B Co. or approved equal.

2.2 INSULATION

- A. All conductor insulation shall be rated for 600 volt, unless otherwise noted.
- B. Utilization of insulation shall be as follows:
 - 1. Lighting and appliance branch circuit conductors shall be THHN (dry or damp locations), THWN (wet locations). THW may be substituted if conductor and

GUAM HOUSING & URBAN RENEWAL AUTHORITY

conduit sizes are upgraded accordingly.

2. Mains, Feeder and Subfeeder conductors shall be XHHW or THHN/THWN. THW may be substituted if conductor and conduit sizes are upgraded accordingly.
3. Fixture wires shall be TFN, TFFN, SF, RHH, or THHN.
4. Direct burial or underground shall be RHW-USE, UF or RR.

Wet locations are defined as in-conduit installations underground or in concrete slabs or masonry in direct contact with the earth, and locations subject to saturation with water or other liquids, and locations exposed to weather and unprotected.

- C. Exterior of wires shall be color coded. Color coding shall be as follows:

120/208 Volt Systems:

Phase A Black
Phase B Red
Phase C Blue
Neutral White or Grey

All ground wires shall be green.

- D. In sizes and insulation types where factory applied colors are not available, colored plastic tape in overlapping turns shall be applied at all terminal points and in all points of splicing. Tape shall be applied at a minimum of 6" along the wires and cables.

2.3 SPLICING AND TERMINATING

- A. Maintain all splices and joints in accessible enclosures, where easy inspection is available.
- B. Join solid conductors with expandable type insulated coiled steel spring connections (wire nut).
- C. Terminate solid conductor by means of a neat and fast application directly to the binding screw or post of the equipment.
- D. Join, tap and terminate stranded conductors #6 AWG and larger by means of bolted saddle type or pressure indent type connectors, taps and lugs. Exclude connectors and lugs of the

GUAM HOUSING & URBAN RENEWAL AUTHORITY

types which apply set screws directly to conductors. Apply pressure indent type

connectors, taps and lugs utilizing tools manufactured specifically for the purpose and having features preventing their release until the full pressure has been exerted on the lug or connector. Connectors for conductors 250 kcmil and larger shall have two clamping elements or compression indents. Terminals for bus connections shall have minimum two bolt holes.

- E. Except where wire nuts are used, build up insulation over conductor joint to a value, equal both in thickness and dielectric strength, to that of the factory applied conductor insulation. Insulation of conductor taps and joints shall be by means of half-lapped layers of rubber tape, with an outer layer of friction tape; by means of half-lapped layers of approved plastic electric insulating tape; or (in the case of bolted type connector joints) by means of split insulating casings molded specifically to insulate the particular connector and conductor, and fastened with stainless steel or non-metallic snaps or clips.
- F. Exclude splicing procedures for neutral conductors in lighting and appliance branch circuitry which utilize device terminals as the splicing point.
- G. Exclude joints or terminations utilizing solder in any conductors used for grounding or bonding purposes.
- H. Exclude all but pressure indent type joints in conductors used for signalling or communication purposes.

PART 3 EXECUTION

3.1 INSTALLATION

- A. All conductors shall be continuous from outlet to outlet. Avoid unnecessary splicing except where lengths are greater than standard manufacture.
- B. Leave sufficient slack on all runs to permit secure connection of equipment.
- C. Provide recently manufactured wires and cables and submit evidence that they are new.
- D. All conductors shall be installed simultaneously in a single raceway. Delay pulling until the project progresses to a point where conductors shall not be exposed to injury and moisture. Wire shall not be installed prior to distribution equipment being in place.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

- E. Use only specifically manufactured lubricant for wire pulling purposes.
- F. Dress and lace wires and cables in all cabinets and pull boxes and use necessary insulated support to prevent shifting.
- G. Identify feeders at each pull box and cabinets with permanent non-metallic band or tag.

3.3 VOLTAGE DROP

- A. Home run wiring (from panel to first active outlet) for home runs greater than 50 feet in lengths shall be a minimum of #10 AWG.

END OF SECTION 16120

GUAM HOUSING & URBAN RENEWAL AUTHORITY

SECTION 16130

BOXES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This section covers junction, pull and outlet boxes.
- B. Submit shop drawings for approval.

PART 2 PRODUCTS

2.1 MATERIAL

- A. All boxes shall be manufactured from galvanized industry standard gage steel, cast iron or cast aluminum, Steel City Electric Company, Appleton Electric Company, HUBBELL or approved equal.
- B. Provide deep, round, fully adjustable before and after concrete pour, floor boxes where indicated on the contract drawings. Floor boxes shall have carpet flanges and/or other devices as required.

All floor boxes shall have covers of brass or bronze only. Boxes installed in slab on grade shall be cast iron as HUBBELL B-2536 or equal.

PART 3 EXECUTION

3.1 INSTALLATION

- A. All boxes shall be installed in accessible areas with removable covers.
- B. All boxes shall be firmly supported from the building structure.
- C. All outlet boxes shall be set flush with the surface of the wall, floor or ceiling in concealed installation.
- D. All boxes installed shall conform to the criteria governing the displacement and bending radius of wires and cables contained within them.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

- E. Provide segregated boxes or proper barriers where different services or systems are following the same routing.
- F. Include all boxes required for a complete system regardless of indication on the contract drawings.
- G. Provide pull or junction boxes to limit conduit runs to the equivalent of 360 degree bends and to facilitate wire pulling.
- H. Close up all unused openings in boxes with approved fittings.
- I. Provide an outlet box for each individual wiring device, lighting fixture, and communication component, unless otherwise noted.
- J. Multiple devices indicated at a single location shall utilize gang mounted under common cover where possible. Lexan or aluminum covers are not permitted.
- K. Provide each outlet box with the appropriate extension ring to suit wall thickness.
- L. Provide weatherproof outlet boxes, corrosion-resistant cast-metal with threaded conduit hubs where exposed to moisture, with or next to water connection and where indicated as weatherproof on drawings. Provide cast-metal face plates with spring-hinged waterproof caps suitably configured for each application, including plate gaskets and corrosion resistant fasteners.
- M. A receptacle installed outdoors where exposed to weather or in other wet locations and intended for use with plug left connected to it indefinitely, shall be in a weatherproof enclosure, the integrity of which is not affected when the receptacle is in use.
- N. Provide support racks for boxes with multiple sets of conductors so conductors do not rest on any metal work inside box.

END OF SECTION 16130

SECTION 16134

PANELBOARDS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This section covers lighting and power panels.
- B. Submit shop drawings for approval.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Panels shall consist of complete dead-front assemblies including the following.

- 1. Back Pan.
- 2. Bus Bars.
- 3. Sheet Metal Cabinet.
- 4. Switching and Over-Current Units.
- 5. Trim and Door for Lighting and Miscellaneous Power panels.

- B. Sheet metal cabinets shall be minimum 20" wide for lighting panels fabricated from industry standard gauge galvanized sheet steel with corners lapped and fastened by approved methods.

- C. Trims and doors shall be suitable for the required mounting. When installed the whole assembly shall present a smooth flush appearance. Provide combination catch and lock with 2 sets of keys. All panels within same facility shall be keyed alike. Mount a clear plastic cover and metal frame with a typewritten directory --identifying each circuit--inside of panel door. Trims shall be fastened with adjustable screw clamps and self-supporting on cabinets if screws are removed. Overlap flush cabinets at least 1/2" all around. Paint the inside and outside of trims and doors with factory applied rustproofing and one finished coat to which field applied paint will adhere.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

- D. Switching and overcurrent units shall be bolted circuit breakers as specified in the appropriate section of these specifications.
- E. Bus bars for panels shall have current capacities as indicated and sized for such capacities in accordance with Underwriters' Laboratories standards.

The bussing shall be braced throughout to conform to industry standard practice. Phase bussing shall be full height and tap for sequence phasing of the branch circuit devices. Unless otherwise noted, ground bus and full size neutral bus bar shall be included. Provide correct number, size and type of lugs or connectors for each phase bus, neutral bus, ground bus, main device and branch circuit. All panels shall be fully bussed.

- F. Panelboard shall be provided with the following bus design.
 - 1. Lighting and power panels bussing shall be copper or tin-plated aluminum.
 - 2. All bussing to be bolted.
- G. The voltage, number of phases and wires, short circuit rating, size of main lugs or main device (ampacity), number of branch circuits and their rating, and the number of spares and spaces as noted on the contract drawings.
- H. Panelboards shall be:
 - 120/208 volt - Type NQOD
 - As manufactured by Square D or equal
 - as listed below.
- I. Provide micata laminated identification plate for each panelboard. Provide temporary identification as panels are installed.
- J. Provide bussing behind all spaces.
- K. All elements (load and line side) of a series rated system shall have marking according to NEC-90, Sec. 110-22 and 240-88(c), L.C. with phrase "Identical Component Replacement Required" added to it.

2.2 MANUFACTURERS

PANELBOARDS
16134-2

- A. Accepted manufacturers are General Electric, ITE, Square "D" Company, and Westinghouse.

PART 3 INSTALLATION

3.1 INSTALLATION

- A. Install panels with adequate support independent of the connecting raceways.
- B. Mount all panels level and plumb. Flush panels not to extend beyond the face of the wall. All trim around panels shall be furnished and installed by Electrical Contractor. Handle of top circuit breaker or switch shall not be higher than 6'-6" from finished floor.
- C. Protect panels during construction with adequate covering.
- D. Insulate panels mounted flush on outside walls with 1/2" solid Fiberglass insulation to prevent condensation.
- E. Complete all directory cards and submit a reproducible copy to the Owner.
- F. Panelboard shall not be used as a raceway for any conductors not terminating therein.
- G. Clean panelboard interior and remove foreign matter prior to installing cover trim.
- H. Provide permanent blanking plates over unused circuit breaker positions and hole plugs over unused knockouts and conduit openings.

END OF SECTION 16134

GUAM HOUSING & URBAN RENEWAL AUTHORITY

SECTION 16140

WIRING DEVICES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This section covers line voltage wiring devices.
- B. Submit shop drawings for approval.

PART 2 PRODUCTS

2.1 MATERIALS

- A. All devices shall be specification grade, heavy duty, standard as per indication for the purpose of application.
- B. Switches for local control shall be toggle, quiet type, with screw type terminals.
 - 1. Rating: 120-277 volts, 20 AMPS, AC only.
 - 2. Color: ivory.
 - 3. They shall be rated to handle 50,000 cycles of operation without deterioration, regardless of whether inductive or resistive (including tungsten) loads are controlled.
 - 4. Non-standard switches shall incorporate applicable requirements for the standard type and shall be as indicated.
 - 5. Key switches where indicated shall be as follows.
 - a. Flush, lock type, momentary contact with positive "off" center as Arrow-Hart #4354-LA. Electrical Contractor to furnish six (6) keys.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

C. Receptacles for convenience outlets shall be specification grade, heavy duty, and as specified below:

1. Rated 125 VOLTS, 20 AMPS NEMA 5-20R.
2. Colored to match wall treatment as determined by the Architect.
3. Self-grounding type, 3 or more wires, single or duplex, as indicated, with NEMA standard face slot configuration.
4. With screw type terminals only.
5. Non-standard type outlets and special purpose power supply receptacles shall incorporate applicable requirements for standard type and shall be as indicated.
6. For each non-standard receptacle or power supply outlets installed, furnish one matching attachment plug and connect same to the cord of the associated equipment at no additional compensation.
7. Provide definitive grounding method for all special outlets and power supply receptacles.

D. Plates for all devices shall be selected as follows.

1. Of the same color as their associated devices, with correct shape opening. Screw heads shall have color to match plate.
2. Phenolic plastic ivory in finished areas.
3. For recessed outlet boxes or raised surface covers for exposed outlet boxes in all unfinished areas use .030 brushed stainless steel.

E. Dimming equipment for incandescent switching shall be provided as follows.

1. Select the dimmer to match the total load served.
2. Derate dimmers if they are ganged in common enclosure.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

3. Use only solid state electronic type dimmers in 600W, 1000W, 1500W, or 2000W rating, as manufactured by General Electric, Lutron or approved equal.
 4. Use only slide type dimmers.
- F. Floor outlets shall be as depicted in the following.
1. Flush cap combination cover as Hubbell S-2525.
 2. Flush duplex screw type cover as Hubbell S-3725 with standard duplex receptacle.

2.2 MANUFACTURERS

- A. Acceptable manufacturers are Arrow-Hart, General Electric, Hubbell, Pass & Seymour or Slater. Provide all devices by same manufacturer.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install all devices indicated complete with cover plates.
- B. Where necessary, set the long dimension of the plate horizontal.
- C. All devices in common enclosure shall be gang-mounted under common cover (tandem).
- D. All receptacles shall maintain a consistent orientation for neutral connection; use the silvered terminal if supplied with device.
- E. All plates shall have full contact with the wall and boxes.

3.2 MOUNTING HEIGHTS

- A. Mounting heights of devices shall be as follows unless noted otherwise on contract drawings.
1. Receptacles - 15" to centerline above floor.
 2. Switches - 48" to centerline above floor.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

4. Telephone outlets - 15" to centerline above floor.

END OF SECTION 16140

WIRING DEVICES
16140-4

SECTION 16170

DISCONNECTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This section covers individually mounted switching and over-current devices.
- B. Submit shop drawings for approval.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Fused disconnect switches shall be heavy duty, horse-power rated with quick-make, quick-break (QMQB) mechanism.

1. Enclosures shall be of a NEMA type as required and/or noted on the contract drawings with nameplates with a permanent record of type, size, and horse-power ratings.
2. Disconnect switches shall have operating handles with definite "OFF" indications and defeatable door interlocks in the "ON" position.
3. Provide switch assembly, where the operating handle is an integral part of the enclosure base.
4. Provide reinforced rejection type fuse clips for both standard and time delay fuses. Clips to accept Class R or L fuses only.
5. Provide multi-padlock capability for the operating handle.
6. Provide six-pole disconnects where 2 speed motors are used.
7. Provide equipment ground kit in all disconnect switches.
8. Provide neutral assemblies where required.

- B. Non-fused disconnect switches shall have the same features and characteristics as the fused disconnect, except no fuse clips.

2.2 MANUFACTURERS

- A. General Electric, ITE, Square D, Westinghouse.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install fused or non-fused disconnect switches where indicated on the contract drawings or required by the latest issue of NEC.
- B. Disconnect switches shall be installed with adequate hand access to the handle and clearance for operation and fuse replacement.
- C. Seal all conduit penetrations with approved sealant where switches are installed outdoors.
- D. All connections to fans shall be made thru back of switch.
- E. Install disconnect switches used with motor-driven appliances, motors and controllers within sight of controller, motor, and motor driven machinery location.
- F. Where manufacturer's warranty of HVAC equipment requires fuses, install disconnect switches fused as required in the warranty.
- G. Unless otherwise indicated, disconnect switches shall be mounted with top of the handle while in "ON" position not higher than 6'-6" above finished floor, properly aligned and adequately supported independently of the connecting raceways. All steel shapes, etc., necessary for the support of the disconnect shall be furnished and installed where the building structure is not suitable for mounting the equipment directly thereon.
- H. Disconnect switch shall not be used as a raceway or a junction box for any conductors not terminating therein.

END OF SECTION 16170

DISCONNECTS
16170-2

SECTION 16180

PROTECTING DEVICES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This section covers circuit breakers, fuses and all over-current protecting devices.
- B. Submit shop drawings for approval.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Circuit breakers shall be molded case, completely enclosed bolted connection devices, with the following features:
 - 1. Quick-break, trip free, trim indicating one-, 2- or 3-pole switching units.
 - 2. All multi-pole breakers shall have common trip handles and all poles shall close, open or trip simultaneously. Multiple handles with clips or pins shall not be acceptable.
 - 3. Inverse time delay overload with instantaneous short circuit protection by means of a thermal-magnetic element.
 - 4. Rated to withstand the available short circuit current at the line side of connection.
 - 5. With non-welding contact surfaces and arc chutes.
 - 6. All single pole circuit breakers rated 15A and 20A shall be listed for switching duty.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install current limiting fuses in accordance with drawings and diagrams.
- B. Install fuses of proper type, and voltage rating for all fusible devices, including equipment furnished by others. When selecting fuses, follow the recommendation of the protected

GUAM HOUSING & URBAN RENEWAL AUTHORITY

equipment manufacturer. Coordinate selectivity with other equipment and over-current devices on line.

- C. Fasten circuit breakers without mechanical stresses, twisting or misalignment being exerted by clamps, supports or cables.

END OF SECTION 16180

SECTION 16450

GROUNDING

PART 1 GENERAL

1.1 GENERAL

- A. All electrical systems shall be grounded in accordance with the National Electrical Code, Local Codes, these specifications and the contract drawings.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Use green colored and coded insulated copper conductors.
- B. Use approved ground clamps manufactured for such purpose.

PART 3.0 EXECUTION

3.1 INSTALLATION

- A. Ground all systems and equipment with the best applicable industry practice.
- B. Thoroughly clean all contact surfaces before making any grounding connections.
- C. Install metallic raceways mechanically and electrically secure at all joints and at all boxes, cabinets, fittings and equipment. Bond all boxes as specified for equipment.
- D. Provide separate green equipment ground conductor in all electrical raceways, to effectively ground all fixtures, panels, controls, motors, disconnect switches, exterior lighting standards, and non-current carrying metallic enclosures. Use bonding jumpers, grounding bushings, lugs, busses, etc., for this purpose. Connect the equipment ground to the building system ground. Use the same size equipment ground conductors as phase conductors, up through No. 10 AWG. Use NEC Table 250-95 for conductor size with phase conductors No. 8 and larger, if not shown on the contract drawings.
- E. Permanently connect the green ground conductor to each receptacle junction box (self-tapping screw).

GUAM HOUSING & URBAN RENEWAL AUTHORITY

- F. Connect the ground conductor to the conduit with an approved grounding bushing, and to the metal frame with a bolted solderless lug. Bolts, screws and washers shall be bronze or cadmium-plated steel. Ground conduits to metal frame with double locknuts or grounding bushings.
- G. Ground rods shall be installed by first drilling a 2" diameter hole deep enough to accomodate the ground rod. After the rod is installed, the area around the rod shall be filled with Bentonite. Ground rods shall not be driven.

END OF SECTION 16450

GUAM HOUSING & URBAN RENEWAL AUTHORITY

3. See fixture schedule for lamp types.
4. Only the self-extinguishing lamps shall be used when metal halide lamps are specified in open type lighting fixtures.

D. Sockets:

1. Provide sockets in fluorescent fixtures of high strength plastic construction, with heavy gage spring brass contacts.
2. Enclose screw-shell sockets for fixtures in one piece high density porcelain insulation, with corrosion resistant metal contact surfaces for corrosion resistance and low electrical resistance. Provide center contact of spring material, or supported by a spring material, to maintain good contact.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Provide fixture wiring suitable for the temperature rating of the fixture. Where a junction box is required to change from branch circuit to fixture wiring the Contractor may use approved feed pre-wired fixtures or install a separate junction box at his option. Provide fully accessible junction box after installation of covering materials. Where flexible conduit or portable cord is used, install a grounding jumper; ground all fixtures.
- B. Suspend lighting fixtures from structural members or from ceiling structural members, by minimum 1-1/2 inch channels, by standard bar hangers, or other approved means. Under no circumstances will they be suspended from the ceiling. Coordinate fixture locations with ceiling patterns. Refer to architectural room finish schedule for ceiling construction details and mounting heights. Coordinate all recessed fixtures for specific conditions encountered.
- C. Provide structural steel necessary to support the fixtures under this section. Provide plaster frames as required. Where lighting fixtures located in plaster ceilings have a square or rectangular pattern, provide necessary corner plaster frames for a complete system.

GUAM HOUSING & URBAN RENEWAL AUTHORITY

- D. The lighting fixture schedule shown on the contract document indicates the type of fixture required but contractor shall provide the proper fixture for the ceiling type as indicated in the architectural finish schedule.

END OF SECTION 16500

LIGHTING
16500-4

IFB# GHURA-06-16-2022-CDBG

**Specification
for the
Construction of MTM Community Recreational Facility**

**OWNER
Guam Housing and Urban Renewal Authority**

BY: _____
Elizabeth F. Napoli, Acting EXECUTIVE DIRECTOR

Contractor: _____

By: _____
Signature and Title

Date: _____

END OF SPECIFICATION