

# PROJECT MANUAL

**FOUNDATION REPAIR ON RUSSELL HOUSE #2  
WEST CAMP RAPID  
CFMO# 467063**

Prepared By:

**Department of the Military**

2823 West Main Street  
Rapid City, South Dakota 57702  
(605) 737-6637

**August 2023**

OWNER:

**State of South Dakota**



This Project Manual provides for liquidated delay damages in the amount of **\$425.00** per calendar day for the Contractor's delay in completion of the work.  
See the Bid Form and Article 10 of the General Conditions for details.

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**FOR**  
**STATE SPECIFICATION**  
**HEAD SECTIONS, GENERAL CONDITIONS,**  
**SPECIAL CONDITIONS, TECHNICAL SPECIFICATIONS**  
**AND PLANS**

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## INVITATION TO BID

Sealed bids will be received by the South Dakota Department of the Military at Joint Force Headquarters, Building 420, Attn: Engineering Manager, 2823 W. Main Street, Rapid City, South Dakota, 57702 until 2:00 p.m. MT, **Tuesday, September 26, 2023**, for the Foundation Repair on Russell House #2, (PN467063) project.

There will be an on-site pre-bid meeting on September 20, 20XX at 1:00 PM MT. All bidders may meet at National Guard Road and Red Dale Drive intersection to be escorted out to the site. This pre-bid meeting is not mandatory for any bidders to submit for the project and is the only opportunity to review the site. All individuals attending the pre-bid meeting must have an active form of identification to access the site.

Copies of the Plans and Specifications may be obtained at the office of SD Department of the Military, 2823 W. Main Street, Rapid City, SD 57702, 605-737-6273. Anyone requesting, reviewing, or copying Plans and Specifications for this project agrees that they are doing so for the sole purpose of submitting a bid on the project. Bidder further agrees the Plans and Specifications are the sole property of the State.

Each bid in excess of \$100,000.00 must either pre-mail a certified check, cashier's check, or draft in the amount of 5% of the base bid and all add alternates and drawn on a State or National Bank to the SD Dept. of the Military, 2823 W. Main Street, Rapid City, SD 57702, or upload a copy of their 10% bid bond to their electronic bid issued by a surety authorized to do business in the State of South Dakota and made payable to the South Dakota Department of the Military. The SD Dept. of the Military reserves the right to reject any or all bids and to waive any irregularities therein.

Published twice at the total approximate cost of\_\_\_\_\_.

To Be Advertised In The:

Rapid City Journal on September 19, 2023 and September 23, 2023.

cc: Construction Industry Center, [cic@constructionindustrycenter.com](mailto:cic@constructionindustrycenter.com)

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## BIDDER'S CHECKLIST

The following items need to be submitted along with your bid. All bids and any modifications to bids must be in the hands of the Engineering Manager or the Engineering Manager's representative on or before the time set for opening bids in the Invitation for Bids.

- ☐ All blanks on the Bid Form are filled in.
- ☐ Receipt of all addenda is noted on the Bid Form.
- ☐ Bid Form is signed by an officer of the corporation or, if not a corporation, a proprietor or partner.
- ☐ For bids of \$100,000.00 or higher, a bid bond or security is submitted with the bid.
- ☐ If a foreign contractor, a fully executed "Non-Resident Bidder Affidavit" is submitted with the bid.
- ☐ The bid, bid bond or security, and "Non-Resident Bidder Affidavit" are placed in a sealed envelope labeled in accordance with Paragraph 2 of the "Instructions to Bidders."

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# ASBESTOS STATEMENT

## **ASBESTOS CONTAINING MATERIALS CAUTION:**

It is brought to the contractor's attention that asbestos containing materials (greater than 1%) may be present outside the project requirements yet within the building or area. The contractor shall take the necessary precautions so as not to disturb this material. If asbestos containing materials are disturbed, the contractor shall follow and comply with the state rules promulgated under SDCL 34-44 pertaining to asbestos, and 29 CFR 1926.58, 40 CFR Part 61, 40 CFR Part 763 as in effect and the United States Environmental Protection Agency publication entitled "Guidance for Controlling Asbestos Containing Materials in Buildings" (EPA 560/5-85-024, June 1985).

## **ASBESTOS CONTAINING MATERIALS STATEMENT:**

In accordance with the provisions of SDCL 34-44-8, all bidders and contractors are hereby notified that to the best knowledge of the owner or those representing him in any capacity, this project **does not** involve asbestos containing materials (greater than 1%). Bidders are further instructed that no asbestos containing materials are to be installed in this project.

The contractor is cautioned that hidden materials unknown to the owner and inaccessible for testing may be found during the demolition work of this project which may be asbestos containing materials. Proper procedures shall be followed upon discovery of these materials. The owner or those representing the owner in any capacity shall not be held responsible or liable for any injury or cost to any person resulting from handling of or proximity to such materials.

## **ASBESTOS LIABILITY STATEMENT**

In accordance with amended SDCL 34-44, neither the owner, employees, or agents of the owner, nor any other person may have any claim, right or action against the prime contractor for any asbestos related injury or damage arising from the activities of a certified asbestos abatement subcontractor. Unless exempt under applicable state and federal law, no asbestos abatement work may be performed except by a certified asbestos contractor. A certified asbestos abatement subcontractor shall hold the owner and general contractor harmless from any liability arising from such subcontractor's activities on the project. A certified asbestos abatement contractor shall cause the owner and, if acting as a subcontractor, the general contractor to be named as additional insureds and provide sufficient proof of insurance for purposes of this section.

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# INSTRUCTIONS TO BIDDERS

## 1. Examination of Plans, Specifications and Site.

Bidders should carefully examine the site of the proposed work, subsurface conditions, the Plans and Specifications, and the bid and contract documents governing the project. The submission of bids is conclusive evidence that the bidder has investigated and is satisfied as to the conditions to be encountered; the character, quality, and scope of the proposed work; the quality and quantity of the materials to be furnished; and the requirements of the bid, the Plans and Specifications, and the other Contract Documents.

The Plans and Specifications are to be used only with respect to this project and are not to be used for any other project or purposes other than preparing a bid for this project; the Plans and Specifications will not be disseminated to any person or entity for purposes other than obtaining pricing information without the express written approval of the state; all information contained in the Plans and Specifications is confidential; and should the bidder disseminate the Plans and Specifications to an individual or entity for purposes of obtaining pricing information, the bidder will require that individual or entity to adhere to the terms set forth herein. The bidder, however, assumes no liability for the misuse of the Plans and Specifications by such third party or such third party's failure to comply with the provisions contained herein.

Any copies of the Plans and Specifications obtained directly from the State will be returned to the office of the Architect/Engineer immediately after the State provides notice that bidder will not be awarded a contract, or thirty (30) days after the bid opening for the project, whichever occurs first. Any copies of the Plans and Specifications made by the bidder will be destroyed immediately after the State provides notice that bidder will not be awarded a contract, or thirty (30) days after the bid opening for the project, whichever occurs first. If bidder does not submit a bid, bidder will fulfill the requirements previously outlined on or before the date of the bid opening. Should bidder be awarded a contract for construction of the project, bidder does not need to return or destroy Plans and Specifications until after completion of the project.

## 2. Submission of Bids.

Each bid must:

- a. Be submitted on the prescribed form (Exhibit "A"); all blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures;
- b. Include any addenda issued during the time of advertising for bids the same as though it had been included in the original Plans and Specifications; and
- c. Be submitted in a sealed opaque envelope bearing on the outside the name of the bidder, his/her address, and the name of the project for which the bid is submitted. See Exhibit "B" attached hereto for Sample Format for envelope. If forwarded by mail, Federal Express, or other commercial courier, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified on the bid form.

All bids and any modifications to bids must be in the hands of the Engineering Manager or the Engineering Manager's representative on or before the time set for opening bids in the Invitation for Bids. Bids that are not properly marked may be disregarded. Bids will not be received after the time for bid opening.

## 3. Modification of Bids.

- a. Bids may be modified by mail or email received at the place designated in the Invitation to Bid, not later than the time set for the opening of bids. A modification shall not reveal the bid price, but shall provide the addition or subtraction or the modification so that the final prices or terms will not be known to the public corporation until the sealed bid is opened (see Exhibit "A-1", Modification To Bid Form). A modification may not be withdrawn after the time set for the opening of bids. No bid made shall be changed or altered by telephone. No oral changes, alterations or conditions will be accepted under any circumstance.
- b. An email modification must be submitted on Exhibit "A-1", Modification To Bid Form to the email address [cullen.jorgensen@state.sd.us](mailto:cullen.jorgensen@state.sd.us). Pursuant to the requirements of SDCL §5-18A-5(6), Department of the Military will not accept any email modification received in its offices after the time set for the opening of bids.

## 4. Contractor's Qualification Statement.

For bids of \$100,000.00 or more, the low bidder, upon request, must submit to the Department of the Military, within 48 hours of said request, Contractor's Statement of Skills and Capabilities (Exhibit "F") with their bids. The Contractor's Qualification Statement (AIA Document A305) or the AGC's Contractor Qualification Statement may

be used provided it includes all the information required by the Department of the Military document, minus the financial statement.

**5. Bid Security.**

Each bid over \$100,000.00 must be accompanied by a bid security as follows:

- a. Certified Check, Cashier's Check or Draft. A certified check, cashier's check or draft for five percent (5%) of the amount of the bid, including all add alternates, such check to be certified or issued by either a State or National Bank and payable to said public corporation or officer.
- b. Bid Bond. In lieu of a certified check as a bid guarantee, a bid bond of ten percent (10%) of the total amount of the bid, including all add alternates, may be furnished by the Contractor. See Exhibit "C" for Bid Bond form. Such bond to be issued by a surety authorized to do business in the State of South Dakota. Such bond shall be payable to said public corporation or officer as guaranty that such bidder will enter into a contract with said public corporation, its Board or officers thereof, in accordance with the terms of such letting and bid in case such bidder be awarded the contract.

No bidder shall be required to leave his/her certified check or other guaranty or bid bond posted for a longer period than thirty (30) days if the bid is not accepted. The certified check or other guaranty of the successful bidder shall be returned to him forthwith upon the execution of the contract and surety herein provided for.

**6. Withdrawal of Bids.**

Any bid may be withdrawn by letter, email, or in person before the time specified in the advertisement therefor. Withdrawal of a bid does not prejudice a bidder's right to submit a new bid within the time designated for the submission of bids. No bids may be withdrawn after the time designated in the Invitation to Bid for the opening of bids. The email address for withdrawing a bid is [cullen.jorgensen@state.sd.us](mailto:cullen.jorgensen@state.sd.us).

**7. Request for Interpretation.**

Any person who plans to bid on the project may submit to the Owner a written request for an interpretation of any part of the Plans and Specifications or Contract Documents. Requests for interpretations shall be made not less than ten (10) days prior to the opening of bids. Any interpretation will be in writing and furnished to each person receiving Plans and Specifications for bidding. The Owner will not be responsible for any other explanation or interpretation.

**8. Or Equal Clause.**

Whenever a material, article, or piece of equipment is identified on the Plans or in the Specifications by reference to manufacturers' or vendors' names, trade names, catalogue numbers, etc., it is intended merely to establish a standard; and any materials, article, or equipment of other manufacturers and vendors which will perform adequately the duties imposed by the general design will be considered equally acceptable provided the requirements of Article 6.3.4 of the General Conditions are met and the material, article, or equipment so proposed is, in the opinion of the Architect and Engineering Manager, of equal substance and functions.

**9. Preference for South Dakota Products, Labor and Materials.**

By virtue of statutory authority in SDCL § 5-18A-6(10) et seq. preference will be given to South Dakota products, labor and materials as provided by law.

**10. Opening of Bids.**

Bids will be received until the time for opening designated in the Invitation to Bid. All bids received within the designated time will be opened and read aloud at the time and place designated in the Invitation to Bid. Bidders and their authorized agents are invited to attend.

**11. Relief from Mistake in Bid.**

A bidder claiming a mistake in a bid must give the State written notice of the alleged mistake within five calendar days after the bids are opened, specifying in detail how the mistake occurred. Relief will only be granted for clerical or mathematical mistakes which can be documented to the satisfaction of the Engineering Manager.

**12. Rejection of Bids.**

Bids may be rejected if they show any alteration of form, additions not called for, conditional bids, incomplete bids, unexplained erasures, or irregularities of any kind. The State may waive any informality in the bids received.



When bids are signed by an agent other than an authorized corporate officer or member of a partnership, a power of attorney must be filed with the bid. Otherwise, the bid will be rejected as irregular and unauthorized. If there is reason to believe that collusion among the bidders exists, any or all bids may be rejected. The State reserves the right to reject all bids if in the judgment of the Engineering Manager it is in the best interest of the State.

**13. Award of Contract.**

If the contract is awarded, it will be awarded to the responsible bidder submitting the lowest bid, subject to paragraph 17 below, which complies with the Invitation to Bid and with these instructions. The successful bidder will be notified within thirty (30) calendar days of the date bids are opened. Subsequent to notice of award, the successful bidder will be presented with a contract agreement. The contract will require the completion of work according to the Plans and Specifications and the Contract Documents. Conditional bids will not be accepted.

**14. Responsibility.**

The Owner may make such investigations as he/she deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein.

**15. Nonresident Bids.**

SDCL § 5-18A-26, provides that the Contract shall be let to the lowest responsible bidder; provided, however, a resident bidder may be allowed a preference on any such contract as against the bid of any bidder from any other State or foreign province which enforces or has a preference for resident bidders. The amount of the preference given to the resident bidder shall be equal to the preference in the other state.

**16. Subcontractor Certification.**

SDCL § 5-18B-6, provides that prior to execution of a public improvement project a successful bidder shall certify on the prescribed form (Exhibit "G"):

- (1) That no more than twenty-percent of the cost of labor included in the contract is being provided by nonresident subcontractors; or
- (2) That more than twenty percent of the cost of labor included in the contract is being provided by nonresident subcontractors because resident contractors are not available and at competitive prices.

**17. Method of Award.**

- a. Bidding procedure involving only a base bid: If the base bid is within the amount of funds available to finance the construction contract, then contract award will be made to that responsible bidder submitting the low base bid. If the low bid exceeds the funds available to finance the construction, the State may negotiate with the low bidder to produce a bid amount within the availability of funds.
- b. Bidding procedure involving a base bid and alternate bids: If the base bid is within the amount of funds available to finance the construction contract and the Owner wishes to accept alternate bids, then contract award will be made to that responsible bidder submitting the low combined bid, consisting of the base bid and any combination of add or deduct alternative bids found to be most advantageous to the Owner. Under this procedure, if the Owner wishes to make award on low base bid only, then contract award will be made to that responsible bidder submitting the low base bid. If the low bid exceeds the funds available to finance the construction, the State may negotiate with the low bidder to produce a bid amount within the availability of funds.

**18. Execution of Agreement.**

Within ten (10) calendar days after the proposed contract agreement is presented to the successful bidder for execution, the successful bidder must execute the contract documents and, *if the Contract is for more than \$100,000.00*, provide a performance and labor and material payment bond.

**19. Performance & Labor and Material Payment Bond.**

If the Contract is for more than \$100,000.00, provide a performance and labor and material payment bond produced by a South Dakota licensed insurance producer (agent) and issued by a South Dakota licensed surety in an amount not less than the amount of the awarded contract. The performance and labor and material payment bond Surety or Sureties shall meet all requirements of South Dakota Law.

This bond is to secure the faithful performance of the contract and the payment of those to whom the bidder may become legally indebted for labor, materials, tools, equipment, or services of any kind used or employed by the bidder in performing the work. The surety bond shall be on the form attached hereto as Exhibit "D". *(Failure on the part of the bidder to furnish such bond in the time stated shall be cause for consideration by the State of awarding the Contract to the second low bidder and the retention of the bid deposit.)*

**20. Power of Attorney.**

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

**21. Default.**

The failure to execute the contract documents or to furnish bonds required by these instructions within ten (10) calendar days after the proposed contract agreement is presented for execution constitutes a default. In the event of a default, the State may award the contract to the next lowest bidder or may re-advertise for bids. The State may charge against the defaulting bidder the difference between the amount of the bid and the amount for which a contract for the work is subsequently executed plus the State's additional administrative cost necessitated by the bidder's failure to execute the Contract Documents, irrespective of whether the amount thus due exceeds the amount of the bid bond. If a more favorable bid is received by re-advertising, the defaulting bidder shall have no claim against the State for a refund.

**22. Commencement of Work/Time of Completion.**

The contractor for the general construction shall commence work under the contract within ten (10) consecutive calendar days after issuance of written Notice to Proceed and shall substantially complete all work under the contract within the timeframe specified in the Bid Form.

**23. Liquidated Damages.**

See Article 10.3.4 of the General Conditions.

**24. Applicable Laws and Regulations.**

The bidder's attention is directed to the fact that all applicable South Dakota laws, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout and they will be deemed to be included in the contract the same as though herein written out in full.

**25. South Dakota Tax Information for Public Contracts.**

Contractors performing public contracts in South Dakota may become responsible for two types of taxes: the excise tax upon realty improvement contracts and the sales/use tax upon materials.

All contractors must secure a license from the Department of Revenue before engaging in the construction activities in this State. Detailed information on tax requirements may be obtained from the Department of Revenue, Anderson Building, Pierre, South Dakota 57501. Telephone 605.773.3311.

**26. Applicable Standards.**

In addition to codes, Standards and Regulations referenced for compliance in the various sections of the Specifications, the work shall be in compliance with the following:

ANSI Z53.1 - 1971, and as revised  
Safety color code for marking physical hazards.

ANSI A13.1 - 1975, and as revised  
Scheme for the identification of piping systems.

ANSI C2, and as revised  
National Electrical Safety Code.

**27. Affirmative Action Plan.**

The State of South Dakota requires that all contractors, vendors, and suppliers, employing fifty or more persons, doing business with any State Agency, Department, or Institution, place on file a statement of Affirmative Action that said contractor, vendor, or supplier does not discriminate in its employment practices with regard to race, color, religion, sex or national origin.

No award of any contract with the State of South Dakota shall be executed or awarded and approved by the State for any service, supply, or commodity unless the successful bidder submits such statement.

Above statement may be submitted to the Engineering Manager with the contractor's bid, or prior to award of contract.

**28. Procurement Law.**

This project is subject to the provisions of SDCL § 5-18A and 5-18B et seq.

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**EXHIBIT "A"**  
**BID FORM**

**Foundation Repair on Russell House #2 – West Camp Rapid**  
**CFMO# 467063**

**To:** Engineering Manager  
Joint Force Headquarters Building  
2823 West Main Street  
Rapid City, South Dakota 57701

Date: September 26, 2023

Phone: 605-737-6637

The undersigned, being familiar with the local conditions affecting the work, and with the Contract Documents, including the Invitation to Bid, Instructions to Bidders, Bid Form, Explanation of Alternates, Modification to Bid Form, Bid Bond Form, Performance and Payment Bond, Acknowledgment of Surety, Sample Certification of Surety, Non-Resident Bidder Affidavit, Form of Agreement for Construction, General Conditions, Special Conditions, Technical Specifications, Plans and Addenda which govern the purchase of material and labor and the awarding of contracts hereby proposes to do all the work and provide all the material and equipment which pertains to Foundation Repair on Russell House #2 – West Camp Rapid CFMO# 467063 as provided for in the Plan and accompanying Specifications dated August 2023 for the following base bid and alternates:

**BASE BID** \_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_)

The above bid includes all applicable State and Municipal Sales and Use Taxes on materials, and State and Municipal Excise Taxes and all other State and Federal Taxes that would affect the amount of the bid. (See Instructions to Bidders-SD Sales and Use Tax Information for Public Contracts.)

In addition, any material furnished by the State for use in this project is subject to Use Tax and Excise Tax. The total taxable value of materials furnished by the State for this project is \$ 0.00.

*A Performance and Payment Bond as required by General Conditions will not be required on contracts which do not exceed One Hundred Thousand Dollars (\$100,000). (See SDCL 5-21-1.1 as amended).*

*If discrepancies remain at the time of substantial completion, a value will be assigned to each of the discrepancies and two (2) times their estimated value will be retained from payment to the Contractor until completed and accepted. (See SDCL 5-18-13 as amended).*

**Within ten (10) days after Contractor's receipt of the Agreement for Construction, the Contractor shall submit to the Department of the Military, the executed Agreement for Construction, Performance and Payment Bond, Certificates of Insurance and Affirmative Action Plan (if applicable).**

**Work shall be commenced within ten (10) consecutive calendar days after written Notice to Proceed by the South Dakota Department of the Military Engineering Manager and shall be substantially completed within 60 calendar days from the date of the Notice to Proceed.**

The undersigned acknowledges receipt of the following addenda to the drawings and/or specifications (give number and date of each): Addenda Nos. \_\_\_\_\_ dated \_\_\_\_\_ respectively.

The undersigned acknowledges that they have read and understand the Asbestos-Containing Materials Statement contained in the project manual.

Accompanying this proposal is a certified check, cashier's check or draft in the amount of 5% of the base bid and all add alternates, and drawn on a State or National Bank in the amount of \$ \_\_\_\_\_ or a 10% bid bond issued by a surety authorized to do business in the State of South Dakota, in the amount of \$ \_\_\_\_\_. (Not applicable if Bid is under \$100,000.)

In submitting this bid, it is understood that the right is reserved by the Owner to reject any and all bids and to waive any irregularities. It is further understood by the Bidder that he may not withdraw his Bid within 30 days after the actual opening thereof.

In submitting this bid, bidder asserts it has reviewed all provisions of the General Conditions including the provision for assessment of liquidated delay damages found in Article 10 of the General Conditions. Bidder agrees that the damages anticipated by the Owner in the event of delay in completion of the project are uncertain in amount and difficult to prove; the amount stipulated in Article III of the Agreement for Construction is a reasonable amount in light of the anticipated loss and injury; and the Owner's actual damages in the event of delay would be impracticable or extremely difficult to fix. Bidder agrees to be bound by the liquidated damages set forth in Article III of the Agreement for Construction. Bidder further agrees that the liquidated amount stipulated in Article III of the Agreement for Construction is not a penalty.

For contractors, vendors, suppliers, or subcontractors with five (5) or more employees who enter into a contract with the State of South Dakota that involves the expenditure of one hundred thousand dollars (\$100,000) or more, by submitting a response to this solicitation or agreeing to contract with the State, the bidder or offeror certifies and agrees that the following information is correct:

The bidder or offeror, in preparing its response or offer or in considering proposals submitted from qualified, potential vendors, suppliers, and subcontractors, or in the solicitation, selection, or commercial treatment of any vendor, supplier, or subcontractor, has not refused to transact business activities, has not terminated business activities, and has not taken other similar actions intended to limit its commercial relations, related to the subject matter of the bid or offer, with a person or entity on the basis of Israeli national origin, or residence or incorporation in Israel or its territories, with the specific intent to accomplish a boycott or divestment of Israel in a discriminatory manner. It is understood and agreed that, if this certification is false, such false certification will constitute grounds for the State to reject the bid or response submitted by the bidder or offeror on this project and terminate any contract awarded based on the bid or response. The successful bidder or offeror further agrees to provide immediate written notice to the contracting executive branch agency if during the term of the contract it no longer complies with this certification and agrees such noncompliance may be grounds for contract termination.

The bidder or offeror, in preparing its response or offer or in considering proposals submitted from qualified, potential vendors, suppliers, and subcontractors, or in the solicitation, selection, or commercial treatment of any vendor, supplier, or subcontractor, is not an entity, regardless of its principal place of business, that is ultimately owned or controlled, directly or indirectly, by a foreign national, a foreign parent entity, or foreign government from China, Iran, North Korea, Russia, Cuba, or Venezuela, as defined by South Dakota Executive Order 2023-02. It is understood and agreed that, if this certification is false, such false certification will constitute grounds for the State to reject the bid or response submitted by the bidder or offeror on this project and terminate any contract awarded based on the bid or response. The successful bidder or offeror further agrees to provide immediate written notice to the contracting executive branch agency if during the term of the contract it no longer complies with this certification and agrees such noncompliance may be grounds for contract termination.

The undersigned further acknowledges that they have read, understand, and agree to the information stated in the Instructions to Bidders.

BIDDER: \_\_\_\_\_  
(Type Name of Firm)

BY: \_\_\_\_\_  
(Signature of Firm's Representative)

\_\_\_\_\_  
(Type Name and Title of Firm's Representative)

TELEPHONE NO. \_\_\_\_\_

E-MAIL ADDRESS \_\_\_\_\_

BUSINESS ADDRESS \_\_\_\_\_  
\_\_\_\_\_

STATE OF INCORPORATION \_\_\_\_\_

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**EXHIBIT "A-1"**  
**MODIFICATION TO BID FORM**

**Foundation Repair on Russell House #2 – West Camp Rapid**  
**CFMO# 467063**

**To:** Engineering Manager  
Joint Force Headquarters Building  
2823 West Main Street  
Rapid City, South Dakota 57702

Date: September 26, 2023

Phone: 605-737-6637

Email: [cullen.jorgensen@state.sd.us](mailto:cullen.jorgensen@state.sd.us)

Please make the following modifications to our bid on the referenced project. This modification is per the Instructions to Bidders Item #3 included in the original bid documents and modifies our sealed bid.

*Note To Bidder: Please circle the appropriate ADD/DEDUCT and "X" out the undesired action.*

**Modification to Base Bid - ADD / DEDUCT to our Base Bid the Sum of**

\_\_\_\_\_ DOLLARS (\$\_\_\_\_\_)

The undersigned acknowledges receipt of the following addenda to the drawings and/or specifications (give number and date of each): Addenda Nos. \_\_\_\_\_ dated \_\_\_\_\_ respectively.

In submitting this modification to bid, it is understood that the right is reserved by the Owner to reject any and all bids and to waive any irregularities. It is further understood by the Bidder that he may not withdraw his Bid within 30 days after the actual opening thereof.

|                        |  |
|------------------------|--|
| BIDDER:                | _____  |
|                        | (Type Name of Firm)                            |
| BY:                    | _____  |
|                        | (Signature of Firm's Representative)           |
|                        | _____  |
|                        | (Type Name and Title of Firm's Representative) |
| TELEPHONE NO.          | _____  |
| E-MAIL ADDRESS         | _____  |
| BUSINESS ADDRESS       | _____  |
|                        | _____  |
| STATE OF INCORPORATION | _____  |



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**EXHIBIT "B"**  
**SAMPLE OF SEALED ENVELOPE**

Return Address  
John Smith, Contractor  
Box 1  
Anytown, USA

TO:   Engineering Manager  
          SD Dept. of the Military  
          Joint Force Headquarters Building  
          2823 West Main Street  
          Rapid City, South Dakota 57702

Bid For:       Foundation Repaid on Russell House #2 – West Camp Rapid  
                  Rapid City  
                  CFMO# 467063

To Be Opened:       2:00 PM MT September 26, 2023

Addenda Received:   Nos. \_\_\_\_\_

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**EXHIBIT "C"**  
**BID BOND**

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, \_\_\_\_\_  
\_\_\_\_\_

as Principal, and \_\_\_\_\_

as Surety, are hereby held and firmly bound unto \_\_\_\_\_

as owner for the penal sum of \_\_\_\_\_ of which, well and truly to be made, we  
hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

The condition of the above obligation is such that whereas the Principal has submitted to  
\_\_\_\_\_ a certain Bid, attached hereto and hereby made a part hereof to  
enter into a contract in writing for the \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- NOW, THEREFORE,
- (a) If said Bid shall be rejected, or in the alternate
  - (b) If said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract, attached hereto (properly completed in accordance with said bid) and shall furnish a bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid.

Then this obligation shall be void, otherwise the same shall remain in force and effect: it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extensions of the time within which the Owner may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

SEAL

By: \_\_\_\_\_

\_\_\_\_\_  
Principal

\_\_\_\_\_  
Surety

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## **EXHIBIT “D”**

### **PERFORMANCE AND PAYMENT BOND**

Contractors shall utilize the Performance and Payment Bond found on the South Dakota Bureau of Administration, Office of the State Engineer website. <https://boa.sd.gov/state-engineer/forms.aspx>

Contractors shall follow the Performance and Payment Bond Instructions to complete the Performance and Payment Bond.

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**EXHIBIT "E"**  
**NON-RESIDENT BIDDER AFFIDAVIT**

Country of \_\_\_\_\_ )  
 ) ss  
State or Province of \_\_\_\_\_ )

Business Name: \_\_\_\_\_

Business Address: \_\_\_\_\_

Affiant's Name and Title: \_\_\_\_\_

Project Name and Location: \_\_\_\_\_

CFMO Project Number: \_\_\_\_\_

**AFFIDAVIT WHEN NO PREFERENCE IS GIVEN**

I do hereby affirm that \_\_\_\_\_ resides in the country of \_\_\_\_\_  
\_\_\_\_\_ in the state or province of \_\_\_\_\_ and that said country and/or state or  
province does not grant a preference to resident bidders for work on behalf of said country, state or province.

Dated: \_\_\_\_\_

Signed \_\_\_\_\_

**AFFIDAVIT WHEN PREFERENCE IS GIVEN**

I do hereby affirm that \_\_\_\_\_ resides in the country of \_\_\_\_\_  
in the state or province of \_\_\_\_\_ and that said country and/or state or province does grant a preference to  
resident bidders for work on behalf of said country, state, or province, the nature and extent of such preference being \_\_\_\_\_  
\_\_\_\_\_.

Dated: \_\_\_\_\_

Signed \_\_\_\_\_

**ACKNOWLEDGEMENT OF AFFIANT**

Country of \_\_\_\_\_ )  
 ) ss  
State or Province of \_\_\_\_\_ )

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, before me personally appeared \_\_\_\_\_  
\_\_\_\_\_, known to me to be the affiant who, being duly sworn, declares all statements made in  
this affidavit to be true and correct to the best of his or her knowledge.

\_\_\_\_\_  
Notary Public

My commission expires the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.



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**EXHIBIT "F"**  
**STATE OF SOUTH DAKOTA**  
**CONTRACTOR'S STATEMENT OF SKILLS AND CAPABILITIES**

Send Completed Form to: South Dakota Department of the Military  
Attn: Engineering Manager  
2823 West Main Street, Bldg. 420  
Rapid City, South Dakota 57702

Project Name: Foundation Repair on Russell House #2 – West Camp Rapid

Location: Rapid City, SD

CFMO # 467063

**CONTRACTOR INFORMATION**

**A. Business Structure**

**Submitted By:**

1. Current Business Name and Address.

Business Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

email: \_\_\_\_\_

2. How many years has your company been in business under the name listed above?

3. Has your company been in business under any other business name(s)?

If so, list previous business name(s) and the years your company operated under each name:

4. If a corporation, provide the:

Date and State of incorporation:

Type of corporation:

Names of Officers

President:

Vice-president(s):

Secretary:

Treasurer:

5. If a partnership, provide the:

State of Organization:

Partnership type:

Date of organization:

Names of partners:

6. If individual, provide:

Date of organization:

Name of owner:

7. Use this space to describe your company's business structure if it differs from those listed above:
8. List the states and trades in which you may legally do business where applicable. Provide registration or license number(s).
9. If your company is organized under the laws of another state, has it registered with the Secretary of State for the State of South Dakota and/or the Department of Revenue?

**B. Background and History**

1. What types of Work does your company perform with its own forces?
2. Has your company ever failed to complete Work it had contracted to perform? Provide details if the answer is "yes."
3. Within the last five years, has any officer or principal of your company been an officer or principal of another company that failed to complete Work that the latter company contracted to perform? Provide details if "yes."
4. List any and all judgments, claims, suits at law, or arbitration proceedings pending or outstanding against your company or its officers regarding any construction contracts:
5. Within the last five years, has your company filed law suits or requested arbitration regarding any construction contracts?
6. On separate paper, provide a list of major construction projects your company is currently working on. For purposes of this document "major construction projects" shall be considered anything of average size or greater for your company. Provide name of owner, location, architect, contract amount, and scheduled completion.
7. On separate paper, list the major construction projects your company has completed in the last five years. For purposes of this document "major construction projects" shall be considered anything of average size or greater for your company. Provide name of owner, project, location, architect, contract amount, and scheduled completion.
8. On separate paper, list the construction background/experience of the key personnel in your company.
9. What is the average annual value of all construction work your company performed within the last five years?

**C. References**

1. List your company's Business/Industry References:
2. List your company's Financial References:
3. Provide the name and address of your company's Surety, as well as the name and address of the Agent:

**SIGNATURE AND NOTARIZATION**

Date \_\_\_\_\_

Typed Name: \_\_\_\_\_

Title: \_\_\_\_\_

\_\_\_\_\_  
Signature

Business Name: \_\_\_\_\_

(Affix Seal)

Address: \_\_\_\_\_

\_\_\_\_\_

On this \_day of \_\_\_\_\_, 20 \_\_\_\_\_, before me personally appeared  
\_\_\_\_\_, who, being duly sworn, declares all statements made in this  
Qualification Statement to be true and correct to the best of his or her knowledge.

\_\_\_\_\_  
Notary Public

My commission expires the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

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**EXHIBIT "G"**  
**RESIDENT AND NON-RESIDENT**  
**SUBCONTRACTOR BREAKOUT**

Company: \_\_\_\_\_ Contract Amount: \_\_\_\_\_

Date: \_\_\_\_\_

Re:     Project Name: Foundation Repair on Russell House #2 – West Camp Rapid  
         Project Location: Rapid City  
         CFMO # 467063

**Resident Contractors**

| Company | Location | Labor Cost | % Value of Contract |
|---------|----------|------------|---------------------|
|         |          |            |                     |
|         |          |            |                     |
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|         |          |            |                     |
|         |          |            |                     |
|         |          |            |                     |
|         |          |            |                     |
| Total:  |          |            |                     |

Non- Resident Contractors

| Company | Location | Labor Cost | % Value of Contract |
|---------|----------|------------|---------------------|
|         |          |            |                     |
|         |          |            |                     |
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|         |          |            |                     |
|         |          |            |                     |
| Total:  |          |            |                     |

As defined in 5-18A:

(26) "Resident," any person, partnership, association, limited liability company, foreign limited liability company, corporation, or foreign corporation licensed to do business within this state that has maintained a substantial and bona fide place of business and has conducted business from within this state for at least one year prior to the date on which a contract was awarded. The members of the partnership or association shall have been bona fide residents of the state for one year or more immediately prior to bidding upon the contract. A foreign corporation licensed pursuant to §§ 47-1A-1501 to 47-1A-1532, inclusive, is not a resident as defined by this section if the state or country in which it is organized enforces or has a preference for resident bidders;

If more than 20% of the labor cost included in the contract is being provided by nonresident subcontractors, please explain:

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**EXHIBIT "H"**  
**CONTRACTOR'S EXCISE TAX LICENSE**

**CERTIFICATION**

Effective July 1, 2003, no public corporation may award any contract for the construction of any public improvement unless the contractor has a contractors' excise tax license. (SDCL 5-18B-17) In addition, all contractors that contract for construction services or realty improvement work in South Dakota must have a contractor's excise tax license. (SDCL 10-46A and 10-46B)

To be awarded a contract with the State of South Dakota, or to be considered for future contracts, your business must have a South Dakota contractors' excise tax permit. If you do not have a contractor's excise tax permit, you may apply for a permit with the South Dakota Department of Revenue. You may obtain an application from the Department of Revenue's web-site at [www.state.sd.us/drr](http://www.state.sd.us/drr) or by calling 1-800-TAX-9188.

Please complete the following and return this form to this office with your bid/contract. This information will be verified with the Department of Revenue.

1. Owner Name: \_\_\_\_\_
2. Business Name: \_\_\_\_\_
3. South Dakota Contractor's Excise Tax Permit Number: \_\_\_\_\_
4. If you applied for a contractors' excise tax license but have not received the license yet, please list your federal identification number and the date you applied for a license:  
  
Federal ID # \_\_\_\_\_ Application Date: \_\_\_\_\_

Failure to provide documentation that your business is licensed will result in your removal from contracts with the State of South Dakota.

I certify that, to the best of my knowledge, the above information is accurate and complete.

|                    |                       |
|--------------------|-----------------------|
| _____<br>Signature | _____,20_____<br>Date |
|--------------------|-----------------------|



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**STATE OF SOUTH DAKOTA**  
**AGREEMENT FOR CONSTRUCTION**  
PRIME CONTRACT FOR

**FOUNDATION REPAIRS ON RUSSELL HOUSE #2 – WEST CAMP RAPID**  
Rapid City, South Dakota  
CFMO# 467063

THIS Agreement is made the **xxth day of Month, 20xx** by and between **Name of Contractor** (the "Contractor") and the **South Dakota Department of the Military** represented by its legal officers (the "Owner").

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

**ARTICLE I – CONTRACT DOCUMENTS:**

The following documents and any other documents incorporated in them by reference constitute the contract documents:

1. This Agreement
2. The Project Manual dated **August 2023**
3. The Project Drawings dated **August 2023**
4. Addenda issued prior to execution of this Agreement dated **Month Year, Month Year, and Month Year.**
5. Contractor's Performance and Labor and Material Payment Bond
6. Value Engineering Letter dated **Month Year**

These documents constitute the entire and integrated agreement between the parties hereto and supersede prior negotiations, representations, or agreements, either written or oral. The Index for items 2 and 3 is attached hereto as Exhibit "A."

**ARTICLE II – STATEMENT OF WORK:**

To the extent not otherwise provided in the contract documents, contractor shall furnish and pay for all labor, tools, equipment, supplies, materials, appurtenances, utilities, charges, fees, permits, and all other construction accessories and services required to complete the work specified in the contract documents in strict compliance with the contract documents.

A background check will be completed on all superintendents by the SDARNG. The project superintendents will need to be on site AT ALL TIMES that work is being completed as an escort to those without background checks. Any additional background checks required will be done at the contractor's expense. When necessary, a contractor's badge will be issued to the prime contractor superintendent. This badge must be turned in to the Project Manager upon successful completion of the project.

Upon successful completion of the project, the contractor must provide, in addition to the operation and maintenance manuals, a digital copy of all of the warranties listed in Microsoft Excel format. The tables should include at a minimum: the item with a warranty, the length of the warranty, and contact information of who services the warranty.

**ARTICLE III – DATE OF COMMENCEMENT AND COMPLETION:**

- A. The work shall be commenced within ten (10) consecutive calendar days after the date of issuance of the Notice to Proceed by the Owner.
- B. The project shall be substantially completed not later than **60 calendar days from the effective date of the Notice to Proceed**, subject to adjustments of the contract time as provided in the contract documents.
- C. Should the Contractor fail to substantially complete the work within the time set forth herein, or within such extra time as may have been allowed by increases in the contract, or by formally approved extensions granted by the Owner, the Contractor and the Contractor's surety shall be liable for and shall pay the Owner **\$425.00 per calendar day as liquidated damages** for each calendar day of delay until the work is substantially complete.
- D. The project shall be completed and ready for final inspection/acceptance no later than **74 calendar days from the effective date of the Notice to Proceed**, subject to adjustments of the contract time as provided in the contract documents.

- E. After Substantial Completion, if the Contractor shall neglect, refuse, or fail to complete the remaining Work as outlined in the approved punch list, subject to adjustments of the contract time as provided in the contract documents, the Contractor shall be liable for and shall pay the Owner **\$425.00 per calendar day as liquidated damages** for each calendar day of delay until the Work is completed and ready for final inspection/acceptance.

#### **ARTICLE IV – CONTRACT SUM:**

- A. For the performance of the work specified in the Contract Documents, Owner will pay Contractor and Contractor will accept as full compensation the sum of **\$(AMOUNT)**, subject to additions or deductions as provided in the contract documents;
- B. Contract sum includes the following alternates, if any, which are described in the Contract Documents and are hereby, accepted by the Owner: **N/A or List Alternates by Number, Name and Price**
- C. Unit Prices, if any, are as follows:  
Where the quantities originally contemplated are so changed that application of the agreed unit price to the quantity of work performed is shown to create a hardship to the Owner or the Contractor, there shall be an equitable adjustment of the contract to prevent such hardship.
- D. Contract sum includes the following value engineering items, if any, which are described in the Contract Documents and are hereby, accepted by the Owner: **N/A or List Value Engineered Items by Number, Description and Mod. Price**

#### **ARTICLE V – PROGRESS PAYMENTS:**

The Owner shall make progress payments on a monthly basis for work accomplished in accordance with General Conditions, Article 11.

#### **ARTICLE VI – ACCEPTANCE AND FINAL PAYMENT:**

- A. Final payment less amounts withheld to cover the cost of nonconforming work, shall be made by the Owner in accordance with General Conditions Sub-Article 11.8.
- B. Prior to issuing final payment, the Contractor shall provide all submittals required within the project manual, specifically those listed in specification section 00 65 00 – Closeout Forms.

#### **ARTICLE VII – NOTICE:**

All notices, demands and other communications required by the Contract Documents shall be in writing and shall be deemed to have been duly given if personally delivered, mailed first class (postage prepaid), or e-mailed:

1) **If to Contractor:**

**FIRM NAME**  
Attn: **NAME, TITLE**  
**ADDRESS LINE 1**  
**ADDRESS LINE 2**  
Phone: **###.###.####**  
Email: **EMAIL ADDRESS**

2) **If to the State:**

Department of the Military  
Attn: Kelly Eitreim  
2823 West Main St., Bldg 420  
Rapid City, South Dakota 57702-8170  
Phone: 605.737.6637  
Email: [kelly.eitreim@state.sd.us](mailto:kelly.eitreim@state.sd.us)

Either party may change the addresses set forth for notice herein upon written notice thereof to the other.

**ARTICLE VIII – CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY, AND VOLUNTARY EXCLUSION:**

- A. Contractor certifies, by signing this Agreement, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation, by any Federal department or agency, from transactions involving the use of Federal funds.
- B. Pursuant **Executive Order 2020-01**, for contractors, vendors, suppliers, or subcontractors with five (5) or more employees who enter into a contract with the State of South Dakota that involves the expenditure of one hundred thousand dollars (\$100,000) or more, by signing this contract the Contractor certifies and agrees that it has not refused to transact business activities, have not terminated business activities, and have not taken other similar actions intended to limit its commercial relations, related to the subject matter of the contract, with a person or entity that is either the State of Israel, or a company doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel to do business, or doing business in the State of Israel, with the specific intent to accomplish a boycott or divestment of Israel in a discriminatory manner. It is understood and agreed that, if this certification is false, such false certification will constitute grounds for the State to terminate this contract. The Contractor further agrees to provide immediate written notice to the State if during the term of the contract it no longer complies with this certification, and agrees such noncompliance may be grounds for contract termination.”
- C. **COMPLIANCE WITH EXECUTIVE ORDER 2023-02:**

Contractor certifies and agrees that the following information is correct:

In preparing its response or offer or in considering proposals submitted from qualified, potential subconsultants, vendors, suppliers, and subcontractors, or in the solicitation, selection, or commercial treatment of any subconsultant, vendor, supplier, or subcontractor, Contractor is not an entity, regardless of its principal place of business, that is ultimately owned or controlled, directly or indirectly, by a foreign national, a foreign parent entity, or foreign government from China, Iran, North Korea, Russia, Cuba, or Venezuela, as defined by South Dakota Executive Order 2023-02.

Contractor further agrees that, if this certification is false, such false certification will constitute grounds for the State to terminate this Agreement. Contractor further agrees to provide immediate written notice to the State if during the term of this Agreement it no longer complies with this certification and agrees such noncompliance may be grounds for termination of this Agreement.

IN WITNESS WHEREOF, THE parties hereto have caused this instrument to be executed in one original counterpart the day and year above first written:

CONTRACTOR:

CONTRACTOR NAME: \_\_\_\_\_

(Affix Corporate Seal if Available)

SIGNATURE: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_

TITLE: \_\_\_\_\_

DATE: \_\_\_\_\_

RECOMMENDED BY  
DEPARTMENT OF THE MILITARY

STATE OF SOUTH DAKOTA  
DEPARTMENT OF THE MILITARY

\_\_\_\_\_  
CULLEN B. JORGENSEN (Date)  
Engineering Manager

\_\_\_\_\_  
MARK R. MORRELL, Maj Gen (SD), SDNG (Date)  
The Adjutant General

**Exhibit "A"**  
**AGREEMENT FOR CONSTRUCTION**  
**Enumeration of Contract Documents**

1. This agreement
2. The General and Special Conditions contained in the Project Manual dated **AUGUST 2023**
3. The Invitation for Bids and Instruction to Bidders contained in the Project Manual dated **AUGUST 2023**
4. The Specifications are those contained in the Project Manual dated **AUGUST 2023** and are as follows:

| <u>Section</u> | <u>Title</u>                                      |
|----------------|---|
| 00 00 01       | Index   |
| 00 00 02       | Invitation to Bid                                 |
| 00 00 03       | Bidder's Checklist                                |
| 00 00 04       | Asbestos Statement                                |
| 00 00 05       | Instruction to Bidders                            |
| 00 00 05A      | Bid Form  |
| 00 00 05-A1    | Modification to Bid Form                          |
| 00 00 05-B     | Format for Sealed Envelope                        |
| 00 00 05-C     | Bid Bond  |
| 00 00 05-D     | Performance and Payment Bond                      |
| 00 00 05-E     | Non-Resident Bidder Affidavit                     |
| 00 00 05-F     | Contractor's Statement of Skills and Capabilities |
| 00 00 05-G     | Subcontractor Certification                       |
| 00 00 05-H     | Contractor's Excise Tax License                   |
| 00 00 06       | Agreement for Construction                        |
| 00 00 07       | General Conditions                                |
| 00 01 00       | Technical Specifications Index                    |
| 00 01 15       | List of Drawings Sheets                           |

5. The drawings are as follows:

| <u>Number</u> | <u>Title</u>    |
|---------------|-----------------|
| G-001         | Cover Sheet     |
| A-001         | Foundation Plan |
| A-002         | Main Floor Plan |
| A-101         | West Elevation  |
| A-102         | East Elevation  |
| A-201         | Details         |
| A-202         | Details         |

6. The addenda, if any, are as follows:

| <u>Number</u> | <u>Date</u> |
|---------------|-------------|
|---------------|-------------|

7. Value Engineering Letter dated: **Date or N/A**

8. The Performance and Labor and Material Payment Bond dated \_\_\_\_\_  
Issued by \_\_\_\_\_. Bond # \_\_\_\_\_.

9. Other documents forming a part of the Contract Documents are:       None

**GENERAL CONDITIONS  
TO  
AGREEMENT FOR CONSTRUCTION**

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## **Article 1**

### **Definitions**

- 1.1 **Owner:** The owner is the State of South Dakota acting through the legally appointed commissioner for the Bureau of Administration and his representative, the Office of the State Engineer.
- 1.2 **Architect/Engineer:** The term “architect/engineer” (hereinafter A/E) means the person or entity identified as such on the cover sheet to the drawings or plans and his/her authorized representative including his/her consulting engineer(s).
- 1.3 **Contractor:** The term "contractor" means the person or entity identified as such in the Agreement for Construction and his authorized representatives.
- 1.4 **Subcontractor:** Any individual, firm or corporation to whom the Contractor sublets any part of the contract for supplying materials and labor, or only labor, at the site of the project.
- 1.5 **The Contract Documents:** The documents identified as the Contract Documents in the Agreement for Construction.
- 1.6 **The Contract:** The Contract Documents form the contract. The contract may be amended or modified only in writing in the manner set forth in Article 14. Nothing contained in the Contract Documents shall create any contractual relationship between the owner and any subcontractor, sub-subcontractor or supplier.
- 1.7 **The Work:** The completed construction required by the Contract Documents, and every part thereof, and includes all labor necessary to produce such construction, and all materials and equipment incorporated or to be incorporated into such construction.
- 1.8 **The Project:** The total construction of which the work performed under the Contract Documents may be the whole or a part.
- 1.9 **The Drawings or Plans:** The graphic and pictorial portions of the Contract Documents showing the design, dimensions and layout of the work including, but not limited to, plan views, elevation views, details, sections, schedules, and diagrams.
- 1.10 **The Specifications:** The written requirements in the Contract Documents for materials, equipment, construction systems, standards and workmanship.
- 1.11 **The Project Manual:** The manual compiled for the work containing the Invitation for Bid, Instructions to Bidders, blank form of Bid Bond, blank form of Agreement for Construction, blank form of Performance and Labor and Material Payment Bond, sample forms, General Conditions, and Special Conditions.

## **Article 2**

### **Execution, Correlation and Intent**

- 2.1 By executing the contract, the contractor represents he has examined the plans, specifications, site of the proposed Work and Contract Documents in accordance with the requirements of the Instructions to Bidders.
- 2.2 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work. The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all. Work not covered in the Contract Documents will not be required unless it is consistent therewith and is reasonably inferable therefrom as being necessary to produce the intended results. Words and abbreviations which have well-known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings. All work mentioned or indicated in the Contract Documents shall be performed by the Contractor as part of this Contract unless it is specifically indicated in the Contract Documents that such work is to be done by others. Should the Drawings or the Specifications disagree in themselves or with each other, the Contractor shall provide the better quality or greater quantity of work and/or materials unless otherwise directed by written change.



- 2.3 The organization of the Specifications into Divisions, Sections and Articles, and the arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of work to be performed by any trade.
- 2.4 Neither the Owner nor the A/E assumes any liability arising out of jurisdictional issues raised or claims advanced by trade organizations or other interested parties based on the arrangement or manner of subdivision of the content of the Specifications and Drawings.
- 2.5 The Contractor and all Subcontractors shall refer to all of the Drawings, including those showing primarily the work of the mechanical, electrical, and other specialized trades, and to all of the Sections of the Specifications, and shall perform all work reasonably inferable therefrom as being necessary to produce the indicated results. The Contractor shall promptly report any discrepancy or omission which it observes in the Construction Documents and any need for clarification or interpretation to the Owner and the A/E. The Contractor's failure to do so will cause any additional cost incurred by the Contractor to be its sole responsibility. The Contractor shall number Requests for Information in consecutive order. The Contractor shall maintain a log of each Request for Information indicating the date it was issued, the date or dates of any correspondence and/or discussions on the Request for Information, and the date a final answer is received.
- 2.6 The General Conditions and the Special Conditions are a part of each Section of the Specifications. The Special Conditions for Mechanical and Electrical Trades, if any, are part of each Section of the Specifications referenced therein, and apply to the work of the trades affected thereby.
- 2.7 A typical or representative detail indicated on the Drawings shall constitute the standard for workmanship and material throughout corresponding parts of the Work. Where necessary, and where reasonably inferable from the Construction Documents, the Contractor shall adapt such representative detail for application to such corresponding parts of the Work. The details of such adaptation shall be subject to prior approval by the A/E. Repetitive features shown in outline on the drawings shall be in exact accordance with corresponding features completely shown.
- 2.8 The layout of mechanical and electrical systems, equipment, fixtures, piping, ductwork, conduit, specialty items, and accessories indicated on the Drawings is diagrammatic, and all variations in alignment, elevation, and detail required to avoid interferences and satisfy architectural and structural limitations are not necessarily shown. Actual layout of the Work shall be carried out without affecting the architectural, engineering and structural integrity and limitations of the Work and shall be performed in such sequence and manner as to avoid conflicts, provide clear access to all control points, including valves, strainers, control devices, and specialty items of every nature related to such systems and equipment, obtain maximum headroom, and provide adequate clearances as required for operation and maintenance.
- 2.9 The Drawings shall not be scaled for dimensions. If figured dimensions are not given on the Drawings, the Contractor shall request same from the A/E giving reasonable advance notice.
- 2.10 All indications or notations which apply to one of a number of similar situations, materials or processes shall be deemed to apply to all such situations, materials or processes wherever they appear in the Work, except where a contrary result is clearly indicated by the Contract Documents.
- 2.11 Where codes, standards, requirements and publications or public and private trade associations or other bodies are referred to in the Specifications, references shall be understood to be in the latest revision prior to the date of receiving bids, except where otherwise indicated.
- 2.12 Where no explicit quality or standards for materials or workmanship are established for work, such work is to be of good quality for the intended use and consistent with the quality of the surrounding work, of the construction of the Project generally, and industry standards.
- 2.13 All manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the manufacturer's written or printed directions and instructions unless otherwise indicated in the Contract Documents. A copy of the manufacturer's written or printed directions shall be provided to the Owner upon completion of the project.

**Article 3**  
**Ownership, Use of Documents, Confidentiality of Documents.**

**3.1 Ownership of Work Product**

Any plans, specifications, engineering calculations, technical data, reports, miscellaneous drawings, and all information contained therein provided by the State, its consultants, employees, contractors and agents to the contractor for the contractor's performance of its obligations under this agreement are the property of the State. They are to be used only with respect to this Project and are not to be used for any other project. The contractor may not disseminate these materials to any person or entity nor may the contractor use these materials for purposes other than work for the state, without the express written approval of the state. The state shall not unreasonably withhold such approval for dissemination of these materials as necessary to subcontractors and suppliers.

**3.2 Confidentiality of Documents**

All reports, plans, specifications, engineering calculations, technical data, miscellaneous drawings, and information contained therein provided to or prepared by the contractor, its owners, officers, employees, agents, consultants, suppliers, and subcontractors in connection with the contractor's performance under this Agreement are confidential and the contractor, its owners, officers, employees, agents, consultants, suppliers, and subcontractors shall not disclose this information to any person, individual, or entity without the express written permission of the state.

**3.3 Return of Documents**

All documents covered by Article 3 shall be delivered to the A/E at the completion of the work. The contractor may not retain any such documents for its own use without the express written permission of the state and any documents that are retained, with or without state permission, shall be subject to all of the requirements of Article 3.

**3.4 Terms to be Included in Subcontracts**

The contractor shall include the requirements of Article 3 in any contract it enters into with any consultants, subcontractors, suppliers, persons, individuals, or entities for the performance of any of the contractor's obligations under this agreement.

**Article 4**  
**A/E'S RESPONSIBILITIES**

- 4.1 The A/E, under the direction of the State Engineer, will provide administration of the Contract as hereinafter described. The A/E will represent the Owner during construction. The A/E will advise and consult with the Owner. The Owner's instructions to the Contractor may be forwarded through the A/E. The A/E will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified by written instrument in accordance with Sub-Article 4.15.
- 4.2 The Contractor shall accept instructions only from the A/E or State Engineer, and not the A/E's consulting engineers, except as the A/E and State Engineer shall authorize in writing.
- 4.3 The A/E will visit the construction site at intervals appropriate to the stage of construction to keep generally familiar with the progress and quality of the work completed and to determine in general if the Project is being constructed in a manner such that when completed it would be in conformance with the plans and specifications and other Contract Documents. The A/E will not, however, be required to make exhaustive or continuous on-site inspections to check the quality or quantity of work. On the basis of such observations or inspections, the A/E shall keep the Owner informed of the progress and quality of the work on the Project and endeavor to guard the Owner against defects and deficiencies in the work of the Contractor. The A/E will maintain written reports of all site visits.
- 4.4 The A/E shall not have control over or charge of and shall not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Project, since these are solely the Contractor's responsibilities under the Agreement for Construction. The A/E shall not be responsible for the Contractor's schedules or failure to carry out the Project in accordance with the Contract Documents. The A/E shall not have control over or charge of acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons performing portions of the Project, except to the extent that the A/E may formally notify the Contractor of the unacceptability of various portions of the Project or failure to carry out the Work on the Project in accordance with the Contract Documents.

- 4.5 The A/E will inform the Contractor on behalf of and in consultation with the Owner to cease work on the Project or portions thereof affected by those items that are unacceptable and remain uncorrected until such time as corrections are made.
- 4.6 The A/E shall at all times have access to the Work wherever it is in preparation and progress. The Contractor shall provide facilities for such access so the A/E may perform his functions under the Contract Documents.
- 4.7 Except as may otherwise be provided in the Contract Documents or when direct communications have been approved by the A/E, the Owner and its representatives and the Contractor shall communicate through the A/E. Communications by and with the A/E's consultants shall be through the A/E.
- 4.8 The A/E will determine the amounts owing to the Contractor based on inspections and observations at the site, and on evaluations of the Contractor's Monthly Applications for Payment, and shall issue Certificates of Payment for amounts due on forms provided by the State Engineer. A Certificate of Payment constitutes a representation by the A/E to the Owner, based upon the inspections and the information provided by the Contractor in the Application, that the Project has progressed to the point indicated; that to the best of the A/E's knowledge, information and belief, the quality of the work on the Project is in accordance with the Contract Documents; and that the Contractor is entitled to payment in the amount certified.
- 4.9 The A/E shall have authority to reject work on the Project which does not conform to the Contract Documents. Whenever the A/E considers it necessary or advisable for implementation of the intent of the Contract Documents, the A/E will have authority to recommend to the Owner additional inspection or testing of the Work in accordance with the provisions of the Contract Documents, whether or not such work is fabricated, installed or completed. However, neither this authority of the A/E nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the A/E to any Construction Contractor, Subcontractors, material and equipment suppliers, their agents or employees or other persons performing portions of the work on the Project.
- 4.10 The A/E shall review and approve or take other appropriate action on Shop Drawings, Product Data and Samples submitted by Construction Contractors to determine if they conform with the design concept for the Project and with the information provided in the Contract Documents, and submit these documents or information to the Owner indicating the A/E's approval or comments with reasonable promptness so as to cause no delay to the prosecution of the Project.
- Approval or acceptance of a specific item shall not necessarily indicate the A/E's approval of an assembly of which the item is a component. When professional certification of equipment is required by the Contract Documents, the A/E will be entitled to rely upon that certification to determine that the materials, systems, or equipment will meet the performance criteria required in the Contract Documents.
- 4.11 The A/E will conduct, at the time and place approved by the Owner, with representatives of the State agencies involved in the Project and the Contractor, inspections to establish dates of Project acceptance and completion. The A/E shall have other A/Es, Structural, Mechanical, or Electrical Engineers, or other consultants in their employ in attendance at this and at various progress inspections as may be necessary to evaluate whether the work completed on the Project is in conformance with the Contract Documents. The A/E will receive and forward to the Owner, with comments on completeness or acceptability, those warranties, operation manuals, and other documents required by the Contract Documents and assembled by the Contractor.
- 4.12 The A/E will review the final estimate for final payment to the Contractor and provide a Certificate of Final Payment to the Owner.
- 4.13 The A/E will provide to the Owner or the Contractor, upon written request in the form of a Request for Information, interpretations and decisions in writing, or in the form of drawings, on matters concerning performance under the Contract Documents, and execution or performance of the Work on the Project. Response to such requests shall be made with reasonable promptness and within any time limits agreed upon. The final decision on all such questions shall be made by the State Engineer.

- 4.14 The A/E will prepare Change Orders in accordance with Article 14, and will have authority to order minor changes in the Work as provided in Sub-Article 14.6.
- 4.15 The duties, responsibilities and limitations of authority of the A/E as the Owner's representative during construction as set forth in the Contract Documents will not be modified or extended without written consent of the Owner, the Contractor and the A/E.
- 4.16 In case of the termination of the employment of the A/E, the Owner shall appoint a replacement A/E whose status under the Contract Documents shall be that of the former A/E.

## **Article 5**

### **OWNER'S RIGHTS AND RESPONSIBILITIES**

- 5.1 Information and Services Required of the Owner.
- 5.1.1 The Owner shall furnish a survey describing the legal limitations and utility locations for the site of the project.
- 5.1.2 The Owner shall secure and pay for necessary easements, and other property rights required for the construction of the Project.
- 5.1.3 Information under the Owner's control shall be furnished by the Owner with reasonable promptness after receipt from the Contractor of a written request for such information.
- 5.1.4 Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, 2 sets of paper prints of Drawings and 3 sets of Specifications necessary for the execution of the Work.
- 5.1.5 The Owner may forward instructions to the Contractor through the A/E or give instructions through the State Engineer.
- 5.1.6 The foregoing are in addition to other duties and responsibilities of the Owner enumerated herein and especially those in respect to Work by the Owner or by separate contractors, Payments and Completion, and insurance in Articles 8, 10, 11 and 13.
- 5.2 Owner's Right to Stop the Work: If the Contractor fails to correct defective Work as required by Article 15 or fails to carry out the Work in accordance with the Contract Documents in any material respect, the Owner, in addition to its other remedies, by a written order signed by the State Engineer or by the State Engineer's designated representative may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the Owner to stop the Work shall not give rise to any duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.
- 5.3 Owner's Right to Carry Out the Work: If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents in any material respect and fails within three working days after receipt of written notice from the Owner or in such time as may be established in written notice from Owner to commence and continue correction of such default or neglect with diligence and promptness, or if the Work is not being performed properly or in accordance with the scheduling provisions of the Contract Documents in any material respect, whether or not the Contractor is in default, the Owner may, after the expiration of such notice period and without prejudice to any other remedy he may have, make good such deficiencies. In such case an appropriate Change Order shall be issued deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the A/E's and State Engineer's additional services made necessary by such default, neglect or failure. If the payments then or thereafter due the contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner upon demand. If, in the sole judgment of the Owner, an emergency exists as a result of the Contractor's default, neglect or failure to correct defective work, which in the Owner's opinion, requires more immediate corrective action than the Contractor is able to provide, then the Owner may, without notice to the Contractor, perform such corrective work or cause it to be performed by others. The Owner shall also have the right to carry out the Work, or any part thereof, during the period of any work stoppage without terminating the Contract. If the Owner wishes to exercise this right it will give the Contractor three days notice of its intent to do so. In any such case, an appropriate deductive Change Order shall be issued in accordance with Article 14,

the amount of which shall not exceed an amount which equals the estimated direct cost, including the State Engineer's fees, of performing the work which the Owner elects to perform and the proportionate amount of the Contractor's fee associated therewith.

- 5.4 Owner's Right to Access for Observation or Other Work: The Owner reserves the right of access to any part of the Work, at any time, for the purpose of observation, or testing, or to install other work, either with its own forces or with separate contractors. Such access is not to be construed to mean partial occupancy by Owner, and no claim for additional compensation by the Contractor because of such access or installation of work will be considered. Contractor shall cooperate with Owner during Owner's access or performance of work.

## **ARTICLE 6**

### **CONTRACTOR'S RESPONSIBILITIES**

- 6.1 Review of Contract Documents: The Contractor shall carefully study and compare the Contract Documents and shall at once report to the Owner and the A/E any error, inconsistency or omission he may discover. The Contractor shall not be liable to the Owner or the A/E for any damage resulting from any such errors, inconsistency or omission he may discover and report, nor for any damage resulting from any such errors, inconsistencies or omissions which he could not reasonably have discovered. The Contractor shall perform no portion of the work at any time without Construction Documents or, where required, Shop Drawings, Product Data or Samples for such portions of the Work bearing the A/E's appropriate action stamp.
- 6.2 Supervision and Construction Procedures.
- 6.2.1 The Contractor shall supervise and direct the Work, using the skill and attention necessary to complete the Work in a workmanlike manner. The Contractor shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the contract. Neither the Owner nor the A/E shall have control over, or responsibility for, any such matters.
- 6.2.2 Nothing contained in the Contract Documents shall be interpreted by implication or otherwise as a direction by the A/E or the Owner to the Contractor as to construction means, methods, techniques, sequences and procedures. If there is express reference to such means, methods, techniques, sequences and procedures, it is solely for the purpose of insuring that the Work will be produced in accordance with the desired objectives as set forth in the Construction Documents but such express reference shall in no way relieve the Contractor of his responsibilities in connection therewith. If the Contractor does not wish to accept the responsibility for any means, techniques, sequences or procedures which are expressly set forth in the Construction Documents, then the contractor shall notify the A/E in writing of the actual means, methods, techniques, sequences and procedures which he will employ on the Work if these differ from those expressly referred to in the Construction Documents. All loss, damage or liability or cost of correcting defective Work arising from the employment of any construction means, methods, techniques, sequences or procedures shall be borne by the Contractor notwithstanding that any of the same shall have been referred to expressly in the Construction Documents.
- 6.2.3 The Contractor shall be responsible to the Owner for the acts and omissions of his employees, Subcontractors, Sub-subcontractors, materialmen and suppliers and their agents and employees, and other persons performing any of the Work.
- 6.2.4 The Contractor shall not be relieved from his obligations to perform the Work in accordance with the Contract Documents either by the activities or duties of the A/E in his administration of the Contract, by the use or occupancy of part of the Work by the Owner as provided in Sub-Article 5.4, by the performance of work related to the Project by others as provided in Sub-Article 8.1, or by inspections, tests or approvals required or performed under Sub-Article 9.7 by persons other than the Contractor.
- 6.2.5 The Contractor shall retain a competent Registered Professional Engineer or Registered Land Surveyor, acceptable to the Owner and A/E, who shall establish the exterior lines and required elevations of all buildings and structures to be erected on the site and shall establish sufficient lines and grades for the construction of associated work such as, but not limited to, roads, utilities and site grading. The Engineer or Land Surveyor shall certify as to the actual location of the constructed facilities in relation to property lines, building lines, easements, and other restrictive boundaries.

- 6.2.6 The Contractor shall establish the building grades, lines, levels, column, wall and partition lines required by the various Subcontractors in laying out their work.
- 6.2.7 The Contractor shall coordinate and supervise the work performed by Subcontractors to the end that the work is carried out without conflict between trades or jurisdictional disputes and so that no Subcontractor, at any time, causes delay to the general progress of the Work. The Contractor and all Subcontractors shall at all times afford each other Subcontractor, any separate contractor, and the Owner, every reasonable opportunity for the installation of work and the storage of materials, and shall provide access to and the use of necessary loading dock and hoist facilities, adequate storage room and necessary utilities and other services.
- 6.2.8 Wherever the work of a Subcontractor is dependent upon the work of other Subcontractors, or the Contractor, the Contractor shall require the Subcontractor to:
- 6.2.8.1 Coordinate his work with the dependent work;
  - 6.2.8.2 Provide necessary dependent data and requirements;
  - 6.2.8.3 Supply and/or install items to be built into dependent work of others;
  - 6.2.8.4 Make provisions for dependent work of others;
  - 6.2.8.5 Examine dependent drawings and specifications;
  - 6.2.8.6 Examine previously placed dependent work;
  - 6.2.8.7 Check and verify dependent dimensions of previously placed work;
  - 6.2.8.8 Notify Contractor of previously placed dependent work or dependent dimensions which are unsatisfactory or will prevent a satisfactory installation of his work; and
  - 6.2.8.9 Not proceed with his work until the unsatisfactory dependent conditions have been corrected.

Installation of Work by a Subcontractor in any given area shall constitute acceptance by the Subcontractor and Contractor of the previously placed dependent work.

6.3 Labor and Materials.

- 6.3.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work. The word "provide" shall mean furnish and install complete, including connections, unless otherwise specified. All connection charges, assessments or inspection fees which may be imposed by any public agency or utility company are included in the Contract Sum and shall be the Contractor's responsibility, except the final water and sewer connection charges which shall be paid by the Owner.
- 6.3.2 The Contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the Work any unfit person or anyone not skilled in the task assigned to him. The Contractor shall be responsible to maintain and observe, and to require his Subcontractors to maintain and observe, sound labor practices, and shall require each Subcontractor to take all steps reasonably necessary to avoid labor disputes or stoppages.
- 6.3.3 Except in the event of emergency, no substantial field operations shall be performed outside of regular working hours without the prior notification of the A/E and the Owner. The Contractor will not be entitled to additional compensation for work performed outside of regular working hours except as otherwise expressly agreed in writing by the Owner prior to the performance of such overtime work. Additional compensation for such authorized overtime shall be limited to the direct cost of the premium portion only of such authorized overtime. No additional indirect cost or fee shall be included.
- 6.3.4 Substitutions
- 6.3.4.1 The products, materials and equipment of manufacturers referred to in the Specifications and on the Drawings are intended to establish the standard of quality and design required by the A/E; however, products, materials and equipment manufacturers, other than those specified, may be used, if equivalent and approved in writing by the A/E.

- 6.3.4.2 It is deemed that the term 'or approved equal' is included after all products, materials and equipment referred to in the Specifications or on the Drawings.
- 6.3.4.3 The Owner in consultation with the A/E will be the sole judge of equivalency of proposed substitute products, materials, and equipment. The A/E will make written recommendation of acceptance or rejection to the Owner. The Owner will then authorize the A/E to issue to the Contractor written approval or rejection of the substitution.
- 6.3.4.4 If the Contractor desires to use a substitute item, he shall make application to the A/E in writing in sufficient time (having regard to the progress of the Work, the period of delivery of the goods concerned and adequate time for the Owner's and A/E's review) stating and fully identifying the proposed substitute, cost changes (if any), and submitting substantiating data, sample, brochures, etc. of item proposed. It is the Contractor's responsibility to provide sufficient evidence by tests or other means to support any request for approval of substitution.
- 6.3.4.5 Prior to proposing any substitute item, the Contractor shall satisfy himself that the item he proposes is, in fact, equal to that specified, that it will fit into the space allocated, that it affords comparable ease of operation, maintenance and service, that its appearance, longevity and suitability for the climate and use are comparable to that specified, and that the substitution is in the Owner's best interest.
- 6.3.4.6 The burden of proof that a proposed substitution is equal to a specified item shall be upon the Contractor, who shall support his request with sufficient test data and other means to permit the State Engineer and A/E to make a fair and equitable decision on the merits of the proposal. Any item by a manufacturer other than those cited in the Contract Documents, or of brand name or model number or of generic species other than those cited in the Contract Documents will be considered a substitution.
- 6.3.4.7 Materials and methods proposed as substitutions for specified items shall be supported by certification of their acceptance for use by an authority, person or persons having jurisdiction over the use of the specified material or method.
- 6.3.4.8 Acceptance of substitutions shall not relieve the Contractor from responsibility for compliance with all the requirements of the Construction Documents. The Contractor shall be responsible at his own expense for any changes in other parts of the work of his Contract or the work of other contractors caused by his substitutions, including cost of all design and redesign services related thereto incurred by the A/E and his consultants.
- 6.3.4.9 The Contract completion time shall not be extended by any circumstances resulting from a proposed substitution, nor shall the Contractor be entitled to any compensation for any delay caused thereby or related thereto.
- 6.3.4.10 All costs for the evaluation of proposed substitutions, whether approved or not, shall be borne by the Contractor.
- 6.3.5 All materials and equipment shall be delivered, handled, stored, installed and protected to prevent damage in accordance with best current practice in the industry, in accordance with manufacturers' specifications and recommendations, and in accordance with Contract Document requirements. The Contractor will store packaged materials and equipment in their original and sealed containers, marked with the brand and manufacturer's name, until ready for use, and deliver materials and equipment in ample time to facilitate inspections and tests prior to installation. The term 'delivery' in reference to any item specified or indicated, means the unloading and storing with proper protection at the project site. Damaged materials or equipment will be rejected and removed from the site by the Contractor.
- 6.3.6 Before ordering materials, equipment, or performing Work, the Contractor shall verify indicated dimensions. If a discrepancy exists, the Contractor shall notify the A/E of same immediately. The A/E will then clarify the intended design. The Contractor shall take field measurements required for the proper fabrication and installation of the Work. Upon commencement of any item of Work, the Contractor shall be

responsible for dimensions related to such item of Work.

6.4 Guarantees/Warranty.

- 6.4.1 The Contractor guarantees and warrants to the Owner that all materials and equipment furnished under this Contract will be new unless otherwise specified, and that all Work will be of good quality, free from faults and defects and in conformance with the Contract Documents. All Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by the A/E or Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This guarantee/warranty is not limited by the provisions of Sub-Article 15.2.
- 6.4.2 The Contractor will indemnify the Owner against loss, including loss of use and lost revenues resulting from a breach of the Contractor's guaranty and warranty under Sub-Article 6.4.1, whether the loss arises before or after the Owner's acceptance of the Project.
- 6.4.3 Where the contract documents provide for equipment and material warranties in addition to the Contractor's guarantees' and warranty contained in Sub-Article 6.4.1, such warranties shall at a minimum:
- 6.4.3.1 Provide that the term of the warranty shall start on the date of substantial completion of the project or the date the Owner takes beneficial occupancy of any portion of the project that requires the use or start-up of the warranted equipment or material, whichever date occurs first.
- 6.4.3.2 Provide for complete repair or replacement of defective equipment or material;
- 6.4.3.3 Provide all materials, shipping, and labor necessary to repair or replace defective equipment or material at no expense to the Owner;
- 6.4.3.4 Provide that any replacement parts used in repairing or replacing defective equipment or material shall be new or in a like-new condition.
- 6.4.3.5 Provide for the complete repair or replacement of defective equipment or material within two weeks after receiving written notice of the defect, provided however, that the Owner can, at its sole discretion, grant an extension of time for good cause shown; and
- 6.4.3.6 Provide for no limitation of liability should the Contractor and/or manufacturer fail to repair or replace defective equipment or material within the time specified in Sub-Article 6.4.3.4 or should the remedy of repair or replacement otherwise fail.
- 6.4.3.7 Be construed under South Dakota law.
- 6.4.3.8 Provide that any legal action brought on the warranty shall be brought only in a South Dakota court.

- 6.5 Taxes: The Contractor shall pay all sales, consumer, use, excise, and other similar taxes for the Work or portions thereof which are to be provided by the Contractor which are legally enacted at the time bids are received, whether or not yet effective.

6.6 Permits, Fees and Notices.

- 6.6.1 The Contractor shall secure and pay for all permits and governmental fees, licenses and inspections necessary for the proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required at the time the bids are received. The State does not require that inspection and license fees be paid to a municipality for work performed on State property.
- 6.6.2 The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the Work and shall indemnify the Owner and the A/E against all costs, fines and damages, and all actions, claims and proceedings, due to its failure to do so.



- 6.6.3 The Contractor and its Subcontractors shall acquaint themselves with all codes governing their work and shall complete the work in conformance with all codes governing their work.
- 6.6.4 It is not the responsibility of the Contractor to make certain that the Contract Documents are in accordance with applicable laws, statutes, building codes and regulations. If the Contractor observes that any of the Contract Documents are at variance therewith in any respect, he shall promptly notify the Owner and the A/E in writing, and any necessary changes shall be accomplished by appropriate modification.
- 6.6.5 If the Contractor performs any Work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Owner and the A/E, he shall assume full responsibility therefor and shall bear all costs attributable thereto.
- 6.7 Superintendent: The Contractor shall employ a competent superintendent and necessary assistants all of whom are acceptable to the Owner and who shall be in attendance at the Project site during the progress of the Work. The Superintendent shall represent the Contractor and all communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be so confirmed on written request in each case. The Superintendent shall not be changed without the Owner's consent.
- 6.8 Construction Progress Schedule.
- 6.8.1 The Contractor shall, within 5 days, or within such time as determined by the A/E, after date of Notice to Proceed, prepare and submit to the A/E for approval a reasonable schedule showing the critical path, order in which the Contractor proposes to carry on the work and, the date on which he will start the several salient features (including procurement of materials, plant and equipment). The progress schedule shall indicate appropriately the percentage of work scheduled for completion at any time. If at any time the sequence of work is modified, the Construction Progress Schedule shall be updated.
- 6.8.2 The Construction Progress Schedule shall reflect the time required for the preparation and processing of shop drawings and submittals and the lead time required in connection with the procurement of manufactured or processed materials and equipment.
- 6.8.3 The Contractor shall furnish sufficient forces, construction plant, and equipment, and shall work such hours, including night shifts, overtime operations, and Sunday and holiday work, as may be necessary to insure the prosecution of the work in accordance with the approved progress schedule.
- 6.8.4 Whenever major portions of the Work fall behind the planned schedule, the Owner and A/E shall be notified and advised of action being taken to return the project to its original schedule and such action shall be indicated on the Construction Progress Schedule which shall then be reissued. If, in the opinion of the A/E and Owner, the Contractor is not taking adequate steps to improve or maintain the progress of the work, the A/E and Owner may require him to increase the number of shifts, and/or overtime operations, days of work, and/or the amount of construction plant, all without additional cost to the Owner.
- 6.9 Documents and Samples at the Site: The Contractor shall maintain at the site for the Owner one record copy of all Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to record all changes made during construction, and approved Shop Drawings, Product Data and Samples. These shall be available to the A/E and Owner and shall be delivered to A/E for the Owner upon completion of the Work.
- 6.10 Shop Drawings, Product Data and Samples.
- 6.10.1 Shop Drawings are drawings, diagrams, schedules or other data specially prepared for the Work by the Contractor or any Subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.
- 6.10.2 Product Data are illustrations, standard schedules, performance charts, instructions brochures, diagrams and other information furnished by the Contractor to illustrate a material, product or system for some portion of the Work.
- 6.10.3 Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

- 6.10.4 The Contractor shall submit a schedule for submittal of Shop Drawings, Product Data and Samples to the A/E for review. The Contractor shall review, approve and submit to the A/E, with reasonable promptness and in such sequence as to cause no delay in the Work or in the work of the A/E or any separate contractor, all Shop Drawings, Product Data and Samples required by the Contract Documents, in accordance with the schedule reviewed by the A/E.
- 6.10.4.1 The A/E reserves the right to review Shop Drawings, Product Data, Samples and submittals in a sequence consistent with the sequence of erection, installation and assembly of the various elements of the Work.
- 6.10.4.2 The Contractor's identification of Shop Drawings, Product Data and Samples shall include verification of information required in Sub-Articles 6.10.9.2 and 6.10.10.2.
- 6.10.4.3 No extension of time will be granted, nor will any consideration be given to claims arising out of the Contractor's failure to submit any Shop Drawing, Product Data, Samples or related submittals according to the schedule or otherwise in a manner which does not allow adequate lead time for A/E's review, or does not allow ample time for revision, resubmission and subsequent review by the A/E as required.
- 6.10.4.4 Composite Drawing: In the interest of coordination and expediting the work in critical areas, i.e. exterior wall components, mechanical/electrical systems, and other areas so requested by the A/E, the Contractor shall prepare and submit, to the A/E for review, Composite Drawings embodying the Work of the various trades and/or Subcontractors involved. After review, the Contractor shall distribute prints or reviewed Composite Drawings to affected trades and/or Subcontractors. The Contractor shall require that the involved trades and/or Subcontractors cooperate in preparation of the Composite Drawings to assure proper coordination between trades and/or Subcontractors. The participating trades and/or Subcontractors shall indicate their approval on these drawings.
- 6.10.5 By approving and submitting Shop Drawings, Product Data and Samples, the Contractor represents that he has determined and verified all materials, field measurement, and field construction criteria related thereto, checked the Shop Drawings, Product Data, and Samples for complete dimensional accuracy; that he has checked to insure that work contiguous with and having bearing on the work shown on the Shop Drawings is accurately and clearly shown, that he has checked the Shop Drawings against the Composite Drawings prepared by the Contractor, that the Work has been coordinated and that the equipment will fit into the assigned spaces, and that he has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Construction Documents.
- 6.10.5.1 Any Shop Drawing, Product Data or Sample submitted without Contractor's approval will not be processed for review by the A/E, but will be returned to the Contractor for his compliance with the above procedures, in which event it will be deemed that the Contractor has not complied with the provisions herein specified and the Contractor shall bear the risk of all delays as if no Shop Drawing, Product Data and Sample had been submitted.
- 6.10.5.2 Shop Drawings shall bear a coordination and approval stamp signed by the Contractor and each contiguous Subcontractor, which shall confirm the representations set forth in Sub-Article 6.10.5. Shop Drawings shall bear the seal of a registered professional engineer or A/E when required by the Specifications or State Law.
- 6.10.6 The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Construction Documents by the A/E's approval of Shop Drawings, Product Data or Samples under Sub-Articles 4.10 and 6.10.9 unless the Contractor has specifically informed the A/E in writing of such deviation at the time of submission and the A/E has given written approval to the specific deviation. The Contractor shall not be relieved from responsibility for errors or omissions in the Shop Drawings, Product Data or Samples by the A/E's approval thereof. Any deviation shall also be indicated on such Shop Drawing, Product Data, Sample, or related submittal by circling or other approved means.

- 6.10.7 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data or Samples, to revisions other than those requested by the A/E on previous submittals. Unless such written notice has been given, the A/E's Action on a resubmitted Shop Drawing, Product Data, or Sample shall not constitute Review and Action of any changes not requested on the prior submittal.
- 6.10.8 No portion of the Work requiring submission of a Shop Drawing, Product Data or Sample shall be commenced until the submittal has been approved by the A/E as provided in Sub-Article 6.10.9. All such portions of the Work shall be in accordance with approved submittals.
- 6.10.8.1 No Shop Drawing, Product Data or Sample shall be issued to the field without the A/E's Action Stamp affixed thereto.
- 6.10.9 Shop Drawing & Product Data Procedures
- 6.10.9.1 Shop Drawing Requirements: Shop Drawings shall show design, materials (kind, thickness and finish), dimensions, connections, rough openings, routing details, and other details necessary to insure that they accurately interpret Contract Drawings and Specifications and also show adjoining work in such detail as required to provide proper connection with same. Shop Drawings shall be numbered consecutively and insofar as possible shall be uniform in size.
- 6.10.9.2 Identification: All Shop Drawings and Product Data shall be identified with the name of the Project, Project Number, building or buildings for which the Shop Drawings and Product Data are being submitted, and shall contain the A/E's name, Contractor's name, Subcontractor's name, date of submittal, drawing number, revision, if any, as well as the Specification Section under which the Work is to be performed and the Drawing and detail numbers that relate to the Shop Drawings and Product Data.
- 6.10.9.3 Transmittals: All Shop Drawings and Product Data shall be accompanied by a letter of transmittal from the Contractor setting forth the same identification information as required above under Sub-Article 6.10.9.2. Contractor shall number transmittals consecutively in sequence with the sample transmittals and shall indicate the Submittal Procedure number being followed. Transmittal shall also indicate if Shop Drawing is resubmittal and note A/E's file number for original submittal.
- 6.10.9.4 Submittal Procedures: The Contractor shall submit copies of Shop Drawings and Product Data to the A/E in accordance with the Submittal Procedures listed below.
- 6.10.9.4.1 Shop Drawings and Product Data shall be sent by the Contractor to the Architect/Engineering team.
- 6.10.9.4.2 Shop Drawings and Product Data can be sent via an electronic method (email or other electronic platform) or via original paper copy. Contract, Architect/Engineer, and Owner shall agree on submittal method (email, other electronic platform, original paper copy, etc.).
- 6.10.9.4.3 Shop Drawings and Product Data shall be clearly legible and physical product samples shall be provided whenever necessary.
- 6.10.9.5 A/E's Distribution & Stamp: Following the A/E's review of each Shop Drawing and Product Data submission, the A/E will retain a copy of the submittal for their records as well as return a copy to the Contractor and Owner with the A/E's stamp and signature affixed thereto, annotated as follows:
- 6.10.9.5.1 "A Action": "A Action" means the submission is in general conformance with the design concept. Construction, fabrication and/or manufacture can proceed subject to the provision that the Work shall be in accordance with the requirements of the Construction Documents. Final acceptance of the Work shall be contingent upon such compliance.
- 6.10.9.5.2 "B Action": "B Action" means the submission is in general conformance with the design concept subject to notations by the A/E on the returned Shop Drawings. Construction, fabrication and/or manufacture can proceed subject to the provision

that the Work shall be carried out in compliance with all annotations and/or corrections indicated on the returned Shop Drawings and Product Data and in accordance with the requirements of the Construction Documents. Final acceptance of the Work shall be contingent upon such compliance.

6.10.9.5.3 "C Action": "C Action" means that the Contractor shall revise and resubmit the Shop Drawings and Product Data in accordance with all annotations and/or corrections indicated therein. Construction, fabrication and/or manufacture cannot proceed. Shop Drawings and Product Data bearing "C Action" stamp shall not be permitted on the Project Site.

6.10.9.5.4 "D Action": "D Action" means that the submission is rejected for nonconformance with the design concept and the Contractor shall make a new submittal which shall comply with the requirements of the Construction Documents. Construction, fabrication and/or manufacture cannot proceed. Shop Drawings and Product Data bearing "D Action" stamp shall not be permitted on the Project Site.

6.10.9.6 Contractor's Distribution: When transparencies are returned "A Action" or "B Action", the Contractor shall obtain and provide such number of prints to the Subcontractor as may be required by the Subcontractor for his distribution. The Contractor shall have copies of all "A Action" or "B Action" Shop Drawings and Product Data at the Project Site at all times and shall make them available to the A/E's representatives.

6.10.9.7 Cost of Submittal and Distribution: All charges in connection with the delivery of Shop Drawings and Product Data to the A/E shall be paid by the Contractor. All charges in connection with the distribution of Shop Drawings and Product Data to the Contractor shall be paid by the Contractor.

#### 6.10.10 Samples Procedures

6.10.10.1 Sample Requirements: Where possible, all samples required for a particular Specification Section shall be submitted together.

6.10.10.1.1 Samples shall be submitted from the same source which will supply the actual job. Samples shall be of adequate size to show quality, type, color, range, finish, texture and other specified characteristics.

6.10.10.1.2 Samples of materials or products which are normally furnished in containers or packages, which bear descriptive labels and/or application or installation instructions, shall be submitted with such labels and/or instructions.

6.10.10.2 Identification: All Samples shall be labeled, tagged, or otherwise clearly identified. Labels or tags shall set forth the name of the Project, the project number, buildings for which the Sample is being submitted, A/E, Contractor, Subcontractor, and/or supplier, the name of the manufacturer, fabricator, or processor, the trade designation, grade and quality of the material or product, the date of submittal, and specific identification of each sample and a precise reference to the Specification Article and Sub Article wherein the material, product, or element of the Work is specified. Each label or tag shall have sufficient clear space to permit the application of the approval stamp of the Contractor, and the action stamp of the A/E.

6.10.10.3 Transmittals: All samples shall be accompanied by a letter of transmittal from the Contractor setting forth the same identification information as required above under Sub-Article 6.10.4.2.

Contractor shall number transmittals consecutively in sequence with the Shop Drawings and Product Data transmittals. Where appropriate, test data and/or manufacturers' certificates shall be referenced in and forwarded with the letter of transmittal. Samples without accompanying certificates or test data will be returned without action.

6.10.10.4 Submittal Procedure: The Contractor shall submit the number of samples as indicated below:

6.10.10.4.1 In the event that a range of variations in texture, graining, color or other characteristics may be anticipated in furnished materials, assemblies, or elements of the Work, a sufficient number of samples of such materials or products shall be submitted to indicate the full range of characteristics which will be present in the materials or products proposed for the Work. Any such materials or products delivered or erected prior to approval of full range samples shall be subject to rejection.

6.10.10.4.2 All Samples shall be submitted in triplicate to the A/E's home office, or where directed by the A/E, except as otherwise set forth in other Sections of the Contract Documents.

6.10.10.5 A/E's Distribution & Stamp: Following the A/E's review of each Sample submission, the A/E will return one set of each submission to the Contractor with the A/E's stamp and signature affixed thereto and annotated in a manner conforming to the convention established in Sub- Article 6.10.9.5.

6.10.10.6 Contractor's Distribution: When Samples are returned 'Action A' or 'Action B', the Contractor shall retain such Samples in a suitable place at the Project Site for use by the Contractor, his Subcontractors, the A/E and his authorized representatives to insure that all work is being installed in accordance with these Samples. The remaining Samples will be retained by the A/E.

6.10.10.7 Cost of Submittal and Distribution: All charges in connection with the delivery of Samples to the A/E's home office or where directed by A/E (and all charges in connection with the subsequent distribution thereof by the A/E) shall be paid by the Contractor.

#### 6.11 Use of Site.

6.11.1 The Contractor shall confine operations at the Site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the Site with any unnecessary or surplus materials or equipment or debris.

6.11.2 Notwithstanding the designation of construction limits or the indication of temporary fences or barricades, the provisions of the Contract Documents governing certain portions or phases of the Work may require that certain operations be carried out beyond such designated limits. Trenching, utility work, site development, landscaping and all other work, if required beyond such designated limits, shall be scheduled in such a manner as to cause or occasion a minimum of inconvenience or disturbance or interference with the normal operation of the Owner, abutters, and the public. The Contractor shall obtain the Owner's prior approval for such operations, prosecute such operations expeditiously and restore the affected area and other areas needed for access to their original condition immediately upon completion of such operations, unless otherwise specified herein.

6.11.3 All operations, including pumping, draining and control of surface and ground water shall be carried out so as to avoid endangering the Work of any adjacent facility or property, or interrupting, restricting or otherwise infringing or interfering with the use thereof.

6.11.4 The Contractor shall confine operations at the site to work related activities. The Contractor shall not use the site for lodging or as a personal residence.

#### 6.12 Cutting and Patching of Work.

6.12.1 The Contractor shall be responsible for all cutting, fitting or patching that may be required to complete the Work or to make its several parts fit together properly.

6.12.2 The Contractor shall not damage or endanger any portion of the Work or the work of the Owner or any separate contractors or adjacent facilities by cutting, patching or otherwise altering any work, or by excavation. The Contractor shall not cut or otherwise alter the work of the Owner or any separate contractor except with the written consent of the Owner and of such separate contractor. The Contractor shall not unreasonably withhold from the Owner or any separate contractor his consent to cutting or otherwise altering the Work.

- 6.12.3 Structural elements of the Work shall not be cut, patched or otherwise altered or repaired without prior written authorization by the A/E.
- 6.12.4 Authorization to proceed with remedial operations for any damaged or defective element or portion of the Work shall not constitute a limitation or a waiver of the A/E's right to require the removal and replacement of any work which fails to fulfill the requirements of the Contract Documents.
- 6.13 Cleaning Up.
- 6.13.1 The Contractor at all times shall keep the Site and related streets free from accumulation of waste materials or rubbish caused by his operations. At the completion of the Work he shall remove all his waste materials and rubbish from and about the Project as well as his tools, construction equipment, machinery and surplus materials. All waste and rubbish shall be removed from the Site at least weekly and more often if necessary.
- 6.13.2 If the Contractor fails to maintain a clean and safe Project and/or fails to clean up at the completion of the Work, the Owner may do so as provided in Sub-Article 5.3 and the cost thereof shall be charged to the Contractor.
- 6.14 Communications: Except where otherwise directed by the A/E or otherwise provided in the Contract Documents, the Contractor shall forward all communications to the Owner through the A/E.
- 6.15 Royalties and Patents: The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Owner harmless from loss on account thereof, except that the Owner shall be responsible for all such loss when a particular manufacturer or manufacturers is specified, but if the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the A/E and Owner in writing.
- 6.16 Indemnification.
- 6.16.1 To the fullest extent permitted by law, the Contractor shall indemnify, defend and hold harmless the Owner, the A/E and its consulting engineers, and their respective successors, agents and employees from and against all claims, damages, liabilities, losses and expenses, including but not limited to attorney's fees, arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (including the Work itself) including the loss of use resulting therefrom, and (2) is caused in whole or in part by any tortious act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder. Such obligations shall not be construed to negate, abridge or otherwise reduce any other right or obligation or indemnity which would otherwise exist as to any party or person described in this Sub-Article 6.16.
- 6.16.2 In any and all claims against the Owner, the A/E or any of its consultants, and their respective successors, agents or employees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this Article 6.16 shall not be limited in any way by any limitation on the amount or type of damages, compensations or benefits payable by or for the Contractor or any Subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.
- 6.16.3 The obligations of the Contractor under this Sub-Article 6.16 shall not extend to indemnification of the A/E or other design consultants employed by him, his consultant, agents or employees for damages, claims, losses or expenses arising out of: (a) the preparation or approval by the A/E or his design consultants of maps, drawings, opinions, reports, Change Orders, designs or specifications, or (b) the giving of or the failure to give directions or instructions by the A/E or his design consultants provided such giving or failure to give is the primary cause of the damage, claim, loss or expense.
- 6.16.4 The Contractor agrees to defend, indemnify and save the Owner, and A/E, or any of its consulting engineers, and their respective successors, agents or employees harmless from all costs, liabilities, damages or expenses, including reasonable attorneys' fees, incurred by them, by virtue of any claim or

claims whatsoever filed by any Subcontractor, Sub-subcontractor, mechanic, laborer or materialman making claims arising from the Work by, through, or under the Contractor. The Contractor also hereby agrees to defend, indemnify and hold harmless, protect, and defend the Owner, the A/E and its consulting engineers, and their respective successors, agents or employees from and against any liability, claim, judgment, loss, damage, including but not limited to direct, indirect and incidental and consequential damages, attorneys fees, court costs and expense of collection, occasioned in whole or in part by the failure of the Contractor, its Subcontractor, or Sub-subcontractors to comply with any of the terms or provisions of the Contract Documents.

6.16.5 This article does not require the Contractor to indemnify the Owner, its officers, agents, or employees from claims or liability arising solely from the acts or omissions of the Owner, its officers, agents, or employees.

6.17 Default.

6.17.1 The Contractor shall be in default of the Contract if:

6.17.1.1 Contractor refuses or fails to prosecute the Work in accordance with the Contract Documents in any material respect;

6.17.1.2 Contractor fails to make proper payment to Subcontractors or for materials or labor (provided Owner shall have paid to Contractor any payments due from Owner in connection with such materials or labor);

6.17.1.3 Contractor disregards laws, ordinances, rules, building codes and regulations or orders of any public authority having jurisdiction;

6.17.1.4 Contractor fails to coordinate its work with other contractors and Subcontractors as required under Article 8 of these General Conditions;

6.17.1.5 Contractor fails to comply with the scheduling requirements of the Contract;

6.17.1.6 Contractor fails to promptly replace rejected material or correct rejected workmanship; or

6.17.1.7 Contractor fails in any material respect to observe any other terms, provisions, conditions, covenants and agreements in the Contract to be observed and performed on the part of the Contractor.

6.17.2 In the event of any default by Contractor under the Contract, Owner shall have the right to take such measures as it deems necessary to correct the default, at the Contractor's sole cost and expense and to deduct such costs, including but not limited to the State Engineer's and A/E's fees, as it may incur from amount otherwise owing to the Contractor, or to terminate the Contract in accordance with Sub-Article 16.2 of the General Conditions in addition to any and all other remedies that Owner may now or hereafter have. If the amounts owing to the Contractor are insufficient to cover the Owner's cost of corrections, the Contractor shall pay such amount promptly upon demand.

## **Article 7**

### **SUBCONTRACTORS**

7.1 Definitions.

7.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform any of the Work at the site. The term Subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Subcontractor or his authorized representative. The term Subcontractor does not include any separate contractor or his subcontractors.

7.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform any of the Work at the site. The term Sub-subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Sub- subcontractor or an authorized representative thereof.

7.2 Award of Subcontracts and Other Contracts for Portions of the Work. The Contractor shall conduct an investigation of each of its proposed Subcontractor's capabilities to assure each is responsible and has the requisite experience, skill, physical plant, and financial strength necessary to perform each Subcontractor's respective Work. The Contractor shall not contract with any Subcontractor that is not responsible or does not have the requisite experience, skill, physical plant, and financial strength necessary to perform its part of the Work.

- 7.3 Subcontractual Relations.
- 7.3.1 The Contractor shall not include any provisions in its Contracts with its Subcontractors which will in any way prejudice the rights of the Owner and the Architect/Engineer under the Contract between the Owner and the Contractor.
- 7.3.2 The Subcontract agreement shall require the Subcontractor to consent to any assignment of the Subcontract to the Owner in the event of a default by the Contractor hereunder.
- 7.3.3 Nothing in Article 7 shall be construed to create a privity of Contract between the Owner and any Subcontractor.

**Article 8**  
**WORK BY OWNER OR BY SEPARATE CONTRACTORS**

- 8.1 Owner's Right to Perform Work and to Award Separate Contracts.
- 8.1.1 The Owner reserves the right to perform work related to the Project with his own forces, and to award separate contracts in connection with such work. Such work may include Work assigned to the Contractor under the Contract Documents which Work is not being performed properly or in accordance with the scheduling provisions of the Contract Documents, whether or not the Contractor is in default under Sub-Article 6.17 and whether or not the Owner has terminated the Contract under Sub-Article 16.2. If the Owner elects to exercise this right it will do so upon reasonable notice to the Contractor. There shall be an appropriate adjustment in amounts payable to the Contractor to reflect the Work undertaken by the Owner, which the parties shall confirm by Change Order in accordance with Article 14. If the Contractor claims that delay is involved because of such action by the Owner, he shall make such claim as provided elsewhere in the Contract Documents.
- 8.1.2 When separate contracts are awarded for different portions of the Project or other work on the site, the term Contractor in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.
- 8.1.3 The Owner will provide for the coordination of the work, of his own forces and of each separate contractor with the Work of the Contractor, who shall cooperate therewith as provided in Sub-Article 8.2.
- 8.2 Mutual Responsibility.
- 8.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity and all required facilities for the introduction and storage of their materials and equipment and the execution of their work, and shall connect and coordinate his Work with theirs as required by the Contract Documents.
- 8.2.2 If any part of the Contractor's Work depends for proper execution or results upon the work of the Owner or any separate contractor, the Contractor shall, prior to proceeding with the Work, promptly report to the A/E any apparent discrepancies or defects in such other work that render it unsuitable for such proper execution and results. Failure of the Contractor to report shall constitute an acceptance of the Owner's or separate contractor's work as fit and proper to receive his Work, except as to defects which may subsequently become apparent in such work by others.
- 8.2.3 Any costs caused by defective or ill-timed work shall be borne by the party responsible therefor.
- 8.2.4 Should the Contractor wrongfully cause damage to the work or property of the Owner or of a separate Contractor, or to other work on the site, the Contractor shall promptly remedy such damage as provided in Sub-Article 12.2.5.
- 8.2.5 Should the Contractor wrongfully cause damage to the work or property of any separate contractor, the Contractor shall upon due notice promptly attempt to settle with such other contractor by agreement, or otherwise to resolve the dispute. If such separate contractor sues or initiates a litigation proceeding against the Owner on account of any damage alleged to have been caused by the Contractor, the Owner shall notify the Contractor who shall participate in the defense of such proceedings at the Contractor's expense, and if any judgment or award against the Owner arises therefrom the Contractor shall pay or satisfy it and shall reimburse the Owner for all attorneys' fees and court costs which the Owner has incurred.



- 8.3 Owner's Right to Clean Up: If a dispute arises between the Contractor and separate contractors as to their responsibility for cleaning up the Project, the Site and related streets and walks on a routine basis as required by Sub-Article 6.13, the Owner may clean up and charge the cost thereof to the contractors responsible therefore as the Owner shall determine to be just.

## **Article 9**

### **MISCELLANEOUS PROVISIONS**

- 9.1 Governing Law: The Contract shall be governed by South Dakota Law.
- 9.2 Successors and Assigns: The Owner and the Contractor each binds himself, his successors, assigns and legal representatives to the other party hereto and to the successors, assigns and legal representatives of such other party in respect to all covenants, agreements and obligations contained in the Contract Documents. The Contractor shall not assign the Contract or sublet it as a whole without the written consent of the Owner, nor shall the Contractor assign any money due or to become due to him hereunder, without the previous written consent of the Owner.
- 9.3 Written Notice: All notices, demands and other communications hereunder shall be in writing and shall be deemed to have been given if sent pursuant to Article VII of the Agreement for Construction.
- 9.4 Claims for Damages: Should either party to the Contract suffer injury or damage because of any act or omission of the other party or of any of his employees, agents or others for whose acts he is legally liable, claim shall be made in writing to such other party within 14 days after the first observance of such injury or damage.
- 9.5 Performance and Labor and Material Payment Bond: Before commencing the Work, the Contractor shall provide a Performance and Labor and Material Payment Bond in accordance with the requirements of the Instructions to Bidders.
- 9.6 Rights and Remedies.
- 9.6.1 The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law. This provision relates particularly to the Contractor's obligations under Sub-Article 15.2.2.
- 9.6.2 No action or failure to act by the Owner, A/E or Contractor shall constitute a waiver of any right or duty afforded any of them under the Contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.
- 9.7 Tests.
- 9.7.1 If the Construction Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any portion of the Work to be inspected, tested or approved, the Contractor shall give the A/E and Owner timely notice of its readiness so the A/E and Owner may observe such inspection, testing or approval. The Contractor shall perform and bear all costs of such inspections, tests and approvals, unless otherwise provided.
- 9.7.1.1 Where certain testing and inspection requirements are set forth in the various Sections of the Construction Documents to be performed at the expense of the Owner, the Owner will retain the services of testing laboratories, agencies, or consultants, to perform such tests or inspections and render such services as may be required to verify that the work fulfills the requirements and intent of the Construction Documents. Such services will be performed in a manner consistent with the requirements of the Owner and the various agencies having jurisdiction over the Work and in accordance with reasonable standards of architectural and engineering practice.
- 9.7.1.2 The Owner reserves the right to modify the scope of or to re-allocate any of the testing and inspection services specified in the various Sections of the Construction Documents to be performed by a testing laboratory, agency or consultant retained by the Owner in connection with the Work when it can be satisfactorily established that such adjustment in scope is consistent with

the intent of the Construction Documents. In the event that the Contractor shall not concur with such modification of scope or re-allocation of such services, he shall immediately notify the A/E and Owner in writing.

- 9.7.2 If the A/E determines that any Work requires special inspection, testing, or approval which Sub- Article 9.7.1 does not include, he will upon written authorization from the Owner, order the performance of such services by qualified independent testing laboratories, agencies or consultants as may reasonably be required or instruct the Contractor to order such special inspection, testing or approval, and the Contractor shall give notice as provided in Sub-Article 9.7.1. If such special inspection or testing reveals a failure of the Work to comply with the requirements of the Construction Documents, the Contractor shall bear all costs thereof, including the cost of the tests, correction of the Work, the cost of retesting, and compensation for the A/E's additional services made necessary by such failure; otherwise the Owner shall bear such costs, and an appropriate Change Order shall be issued.
- 9.7.2.1 If A/E's observation or any inspection or testing undertaken pursuant to Sub-Article 9.7 reveals a failure in any one of a number of identical or similar items or elements incorporated in the Work to comply with (1) the requirements of the Construction Documents or, (2) with respect to the Performance of the Work, with laws, ordinances, rules, regulations, building codes or orders of any public authority having jurisdiction, the A/E will have the authority to order inspection and/or testing of all such items or elements of the Work, or of a representative number of such items or elements of the Work, as he may in his reasonable opinion consider necessary or advisable, and the Contractor shall bear all costs thereof, including the cost of the tests, correction of the Work, the cost of retesting, and the A/E's additional services, if any are required, made necessary thereby. However, neither the A/E's authority to act under Sub-Article 9.7 nor any decision made by him in good faith either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the A/E to the Contractor, any Subcontractor, any of their agents or employees, or any other person performing any of the Work.
- 9.7.3 Required certificates of inspection, testing or approval shall be secured by the Contractor and promptly delivered by him to the A/E and the Owner.
- 9.7.3.1 The Contractor shall obtain and deliver promptly to the Owner any certificates of final inspection of any part of his Work or operating permits for any mechanical or electrical apparatus, such as elevators, escalators, boilers, air compressors, fire alarms, etc., which may be required by law to permit full use and occupancy of the premises by the Owner. Except as is otherwise provided in Sub-Article 10.1.3, receipt of such permits or certificates by the Owner shall be a condition precedent to Completion of the Work.
- 9.7.3.2 Copies of reports issued as a result of services performed at the expense of the Owner pursuant to the provisions of this Article will be distributed to all parties to the Contract.
- 9.7.4 If the A/E or owner is to observe the inspections, tests or approvals required by the Contract Documents, they will do so promptly and, where practicable, at the source of supply.
- 9.7.5 In connection with testing and inspection services performed at the expense of the Owner, the Contractor shall provide Samples of materials and/or elements of the Work required as test specimens and shall provide incidental labor and facilities at the site reasonably required in support of such services.
- 9.7.6 The cost of testing services required solely for the convenience of the Contractor in his scheduling and performance of the Work shall be borne by the Contractor.
- 9.7.7 The cost of testing services related to remedial operations performed to correct deficiencies in the Work shall be borne by the Contractor.
- 9.7.8 If, during the course of the performance of any testing, inspection, control, balancing, adjusting, or similar work by the Contractor or an agent of the Contractor, it is the opinion of the A/E that the Contractor or said agent has failed to perform such work in a satisfactory manner, the Contractor shall, at his own expense, retain the services of a service organization which is satisfactory to the A/E for the performance of such work.

9.8 Litigation.

- 9.8.1 Unless otherwise specifically provided in this Agreement, all claims, counter-claims, disputes or other matters in question between the Owner and the Contractor arising out of, or relating to this Agreement, or the breach thereof, will be decided by direct negotiations, by non-binding mediation if the parties mutually agree, or in a circuit court of competent jurisdiction within the State of South Dakota. Notice of a request for mediation shall be sent in writing to the other party to this Agreement within a reasonable time after the claim, dispute, or other matter in question has arisen. If the party receiving notice of request does not agree to mediation in writing within 10 calendar days, it will be deemed that the parties do not mutually agree to mediate the matter. If the parties agree to mediate, a mediator to hear the dispute will be agreed upon by the parties. If agreement on a mediator cannot be reached, the State shall select the mediator.
- 9.8.2 The Contractor shall carry on the Work and maintain its progress during any dispute or litigation proceedings, and the Owner shall continue to make payments to the Contractor to the extent required by the Contract Documents and South Dakota Law.

**Article 10**  
**TIME**

10.1 Definitions.

- 10.1.1 The Contract Time is the period of time allotted in the Construction Contract for Substantial Completion of the Work as defined in Sub-Article 10.1.3, including authorized adjustments thereto.
- 10.1.2 The date of commencement of the Work is the date established in the Notice to Proceed.
- 10.1.3 The date of Substantial Completion of the Work is the date certified by the A/E when construction is sufficiently completed in accordance with the Contract Documents so that the Owner can occupy and utilize the Project for the use for which it is intended, and such Work is fully completed in accordance with the Contract Documents except for minor items, adjustments or corrections which have no material effect upon the utilization, function or intrinsic values of the entire Project, including all of its mechanical, electrical and other systems and facilities.
- 10.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically designated.

10.2 Progress and Completion.

- 10.2.1 All time limits stated in the Contract Documents, including the Construction Completion Schedule, are of the essence of the Contract.
- 10.2.2 The Contractor shall begin the Work on the date of commencement as defined in Sub-Article 10.1.2. He shall carry the Work forward expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

10.3 Delays and Extensions of Time.

- 10.3.1 If the Contractor is delayed at any time in the progress of the Work by any act or neglect of the Owner or the A/E, or by any employee of either, or by changes in the Construction Completion Schedule required by the Owner, or by any separate contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes not caused by the labor practices of the Contractor or any Subcontractor in contravention of applicable labor practices, fire, unusual delay in transportation, severe and unusual weather conditions not reasonably anticipatable, unavoidable casualties, or any other causes beyond the Contractor's control and not occurring due to the fault or neglect of the Contractor, any Subcontractor or any other person for whose acts the Contractor is responsible, then the Contract Time shall be extended by Change Order for such reasonable time as the Owner shall determine, or the Owner may elect to require the Contractor to accelerate the Work, in which case the Contract Sum shall be increased by a Change Order in the amount of the direct cost to the Contractor (exclusive of overhead and profit of necessary over-time labor).

- 10.3.2 Any claim for extension of time shall be made in writing to the Owner with a copy to A/E not more than 10 days after the commencement of the delay; otherwise it shall be waived. In the case of continuing delay only one claim is necessary. The Contractor shall provide an estimate of the probable effect on such delay on the progress of the Work.
- 10.3.2.1 Such claims shall set forth in detail the nature of the circumstances which form the basis for each such claim, the date upon which each such alleged cause of delay began, or began to affect the timely prosecution of the Work, and ended, or ceased to have an adverse effect upon the timely prosecution of the Work, and the number of days extension of time requested as a consequence of each such alleged cause of delay. The Contractor shall provide such supporting documentation as the Owner may require, including, where appropriate, a revised Construction Completion Schedule indicating all of the activities affected by the circumstances which form the basis for the claim.
- 10.3.2.2 The Contractor shall not be entitled to a separate extension of time as a consequence of each one of a number of causes of delay which may have a concurrent or interrelated effect on the progress of the Work.
- 10.3.2.3 The Owner shall have the right to defer his decision or decisions with reference to any claim or claims for an extension of time made pursuant to the provisions of this Article until the facts or circumstances which form the basis for such claim or claims may be fully assessed to the Owner's reasonable satisfaction.
- 10.3.2.4 Notwithstanding the provisions of Sub-Article 10.3.2, claims for an extension of time arising out of authorized changes in the Work shall be made in writing prior to or concurrent with the submission of the Contractor's proposal pursuant to such change. No extension of time arising out of changes in the Work will be granted subsequent to the date upon which the Contractor is authorized to proceed with such change or changes in the Work unless specific provisions governing a subsequent determination of an extension of time have been incorporated in such authorization to proceed with such change or changes in the Work. No claim for damages or separate compensation for delay arising from such change in the Work shall be recognized or be deemed valid, it being understood that any additional cost to the Contractor arising from such change shall be included in the amended Contract Sum set forth in such Change Order.
- 10.3.2.5 Time extensions will not be granted for rain, wind, snow, or other natural phenomena of normal intensity for the locality where work is performed. Determinations of the extent of delay attributable to unusual weather phenomena shall be made by comparing the weather for the contract period involved with the average of the preceding five (5) year climactic range during the same period on the calendar. National Oceanic and Atmospheric Administration National Weather Service statistics for the locality or area where the work is performed shall be used to determine the five (5) year average weather conditions. Time extensions for weather delays do not entitle the Contractor to "extended overhead" recovery.
- 10.3.3 If no agreement is made stating the dates upon which interpretations as provided in Sub-Article 4.13 shall be furnished, then no claim for delay shall be allowed on account of failure to furnish such interpretations until 15 days after written request is made for them, and not then unless such claim is reasonable.
- 10.3.4 Should the contractor fail to substantially complete the work within the time agreed upon in the contract documents, or within such extra time as may have been allowed by increases in the contract or by formally approved extensions granted by the owner, the contractor and the contractor's surety shall be liable for and shall pay the owner the sums stipulated in the agreement for construction as liquidated damages for each calendar day of delay until the work is substantially complete. This sum is not a penalty but is liquidated damages due the owner from the contractor by reason of inconvenience to the public, added cost of engineering and supervision, and other items which have caused an expenditure of public funds resulting from the contractor's failure to complete the work within the time specified in the contract. In addition to liquidated damages, if any delay on the part of the contractor, any subcontractor or sub-subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable results in any claim by third parties against the owner or the A/E arising out of such

delay, the contractor shall pay, satisfy, and discharge all losses, damages and expenses arising out of such claims, including attorneys' fees, and shall indemnify and hold harmless the owner and the A/E and their agents and employees from and against all costs, fees, losses, damages, and expenses arising out of such claims enforced against the owner or the A/E.

10.3.5 No extension of time will be granted to the Contractor for any delay other than those described in Sub-Article 10.3.1.

10.3.5.1 Should the Contractor fail, refuse or neglect to supply a sufficiency of workmen or to deliver the materials with such promptness as to prevent delay in the progress of the Work, or fail in any material respect diligently to commence and prosecute the Work and to proceed in accordance with the approved construction schedule, or if the different parts thereof are not commenced, prosecuted, finished, delivered or installed in such manner as will insure substantial completion in accordance with the approved Construction Completion Schedule, or if the Contractor shall fail in the performance of any of his obligations under this Contract in any material respect, the Owner shall have the right to direct the Contractor, upon 3 days notice at the Contractor's cost and expense, to furnish such additional labor and to expedite deliveries of materials (or the Owner may furnish such labor and expedite such deliveries at the cost of the Contractor), which labor or expediting shall, in the Owner's opinion, be sufficient to speed up and complete the Work in accordance with the Construction Completion Schedule.

10.3.5.2 If such additional labor shall not be available, the Owner shall have the right to direct the Contractor at the latter's own cost and expense, to work overtime to such an extent as will be sufficient, in the Owner's opinion, to speed up and complete the Work as herein provided.

10.3.6 The Contractor's right to make a claim or claims for an extension of time, as provided in Sub-Article 10.3.1, shall not preclude the Contractor's right to make a claim for delay damages arising out of the Owner's significant interference, by action or inaction, with the Contractor's Work.

#### 10.4 Beneficial Occupancy.

10.4.1 The Owner shall have the privilege of Beneficial Occupancy and the use and benefit of designated areas, subdivisions or portions of the Project prior to completion and acceptance of the entire Project, provided that such Beneficial Occupancy shall not unduly interfere with the Contractor's operations nor unduly delay him in completing the entire Work. Such occupancy and use shall be further subject to the provisions set forth herein and the provisions of SDCL § 5-18B-13.

10.4.2 In the event that the Owner desires to exercise the privilege of Beneficial Occupancy, he shall give reasonable notice to the A/E and the Contractor. If the A/E determines that such proposed occupancy is reasonable and proper, the Contractor shall cooperate with the Owner in providing services and facilities reasonably required for the health, safety and comfort of the occupants and other parties lawfully present and/or entering or leaving the premises. Mutually acceptable arrangements shall be made between the Owner and the Contractor with regard to procedures, terms and conditions governing the operation and maintenance of such services and facilities as may be utilized for the benefit of the Owner. The Owner will assume proportionate and reasonable responsibility for operation of systems, equipment and/or utilities required to provide such services, in part or in total, including proportionate and reasonable expenses of operation incidental thereto. No such Beneficial Occupancy shall accelerate the commencement of any warranty period on any system but only on the particular components being utilized.

10.4.3 The Owner's Beneficial Occupancy or use of such designated areas, subdivisions, or portion of the Work shall not constitute acceptance of systems, materials, or elements of the Work which are not in accordance with the requirements of the Contract Documents; nor relieve the Contractor from his obligations to complete the Work; nor for responsibility for loss or damage due to or arising out of defects in, or malfunctioning of, systems, materials, equipment, or elements of the Work; nor from other unfulfilled obligations or responsibilities of the Contractor under the Contract. If, however, damage results solely from any act of the Owner, the Owner will assume its proportionate responsibility for such damage.

**Article 11**  
**PAYMENTS AND COMPLETION**

- 11.1 Contract Sum: The Contract Sum is stated in the Agreement for Construction.
- 11.2 Schedule of Values: Before the first Application for Payment, the Contractor shall submit to the Owner and A/E a schedule of values allocated to the various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Owner and A/E may require. The format and number of copies of such Applications for Payment shall be as directed by the Owner and the A/E. This schedule, unless objected to by the Owner, shall be used as a basis for the Contractor's Applications for Payment.
- 11.3 Monthly Application for Payment.
- 11.3.1 No later than the 5th day of each month the Contractor shall submit to the A/E his monthly itemized application for Payment. The Contractor shall not submit more than one pay application per month. The monthly Application for Payment shall be on AIA Document G702 and supported by such data substantiating the Contractor's right to partial payment as the Owner or A/E may require; including but not limited to receipts, releases, and waivers of liens.
- 11.3.1.1 In applying for payment, the Contractor shall submit his monthly payment estimate based upon the approved schedule of work for the project, itemized in such form and supported by such evidence as will show his right to the payment claimed. Claims made on account of materials delivered and suitably stored at the site, but not incorporated in the work, shall be conditioned upon submission by the Contractor of Bills of Sale or such other procedure as will establish the Owner's title to such material or otherwise adequately protect the Owner's interest.
- 11.3.1.2 If the Contractor chooses to apply for payment for materials which cannot be incorporated into the Work, and cannot be stored on the site, he may do so provided the following conditions are met:
- Unless otherwise agreed to by the Owner, the material shall be stored in a bonded or insured commercial warehouse within a geographic radius of 15 miles of the construction site, with the Owner being listed on the bond or insurance certificate as the sole beneficiary in the case of loss or damage to the stored materials. The Contractor shall be responsible for all storage, insurance or transportation costs associated with the materials. Conditions of insurance will apply to applicable portions of Sub-Article 11.3.1.2. Contractor shall provide the Owner with bills of sale or such other documents as will establish the ownership of the materials.
- 11.3.2 The Contractor warrants that title to all Work, materials and equipment covered by an Application for Payment will pass to the Owner either by incorporation in the construction or upon the receipt of payment by the Contractor, whichever occurs first, free and clear of all liens, claims, security interests or encumbrances, hereinafter referred to in this Article as "liens"; and that no Work, materials or equipment covered by an Application for Payment will have been acquired by the Contractor, or by any other person performing Work at the site or furnishing materials and equipment for the Project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person.
- 11.3.3 Monthly applications received after the 5th day of the month will be treated as if submitted on the 5th day of the following month.
- 11.4 Recommendation for Payment.
- 11.4.1 By the 15th of each month, the A/E will review the Contractor's Monthly Application for Payment and make his certification to the Owner with a copy to the Contractor, for such amount as the A/E believes is properly due, or notify the Contractor in writing his reasons for withholding a Certificate as provided in Sub-Article 11.6.1.
- 11.4.2 The issuance of a Certification for Payment will constitute a representation by the A/E to the Owner, based on his observations at the site as provided in Sub-Article 4.3 and the data comprising the Monthly Application for Payment, that the Work has progressed to the point indicated; that, to the best of his knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents

(subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to the result of any subsequent tests required by or performed under the Contract Documents, to minor deviations from the Contract Documents correctable prior to completion, and to any specific qualifications stated in his Certificate); and that the A/E believes that the Contractor is entitled to payment in the amount recommended. However, by issuing a Certification for Payment, the A/E shall not thereby be deemed to represent that he has made exhaustive or continuous on-site inspections to check the quality or quantity of the Work or that he has reviewed the construction means, methods, techniques, sequences or procedures, or that he has made any examination to ascertain how or for what purpose the Contractor has used the moneys previously paid on account of the Contract Sum. The Owner will not be bound by the amount stated in the A/E's Certification for Payment in making determinations of amounts properly payable to the Contractor.

11.5 Progress Payments.

11.5.1 Based upon his review of the Monthly Application for Payment, and the A/E's Certification, the Owner shall make progress payments to the Contractor in such amounts as the Owner reasonably determines are properly due less the aggregate of previous payments in each case. Payment of amounts determined to be due by the Owner under each Monthly Application for Payment shall be due to the Contractor 20 days after the 15th of each month. unless the A/E's certification was delayed by following the procedures of Article 11.6.1. In such case, payment shall be 25 days after the 15th of each month. The Owner shall at all times retain an amount sufficient to complete the Work pursuant to SDCL §§ 5-18B-11 and 5-18B-13. If the Owner retains any portion of a certified progress payment that is properly due and undisputed beyond the time for payment specified herein and for reasons other than those required by statute, the Owner shall owe and pay the Contractor four percent (4%) interest compounded annually on the retained amount starting from the date payment first becomes due under this article.

11.5.2 The Contractor shall promptly pay each Subcontractor, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's Work, the amount to which said Subcontractor is entitled reflecting any amounts actually withheld, if any, from payments to the Contractor on account of such Subcontractor's Work. The Contractor shall not withhold retainage from its Subcontractors unless retainage is withheld from the Contractor by the Owner. The Contractor shall, by an appropriate agreement with each Subcontractor, require each Subcontractor to make payments to his Sub-subcontractors in similar manner.

11.5.3 The Owner shall, on request, furnish to any Subcontractor, if practicable, information regarding the percentages of completion or the amounts applied for by the Contractor and the action taken thereon by the Owner on account of Work done by such Subcontractor.

11.5.4 Neither the Owner nor the A/E shall have any obligation to pay or to see to the payment of any moneys to any Subcontractor except as may otherwise be required by law.

11.5.5 No Certification for Payment, nor any progress payment, nor any partial or entire use or occupancy of the Project by the Owner, shall constitute acceptance or approval of any Work not in accordance with the Contract Documents.

11.6 Payments Withheld.

11.6.1 The A/E may decline to certify the full payment of the amount requested by the Contractor in his monthly application to the extent necessary to reasonably protect the Owner. If the A/E is unable to certify payment in the amount of the Application, he will, within 10 days after receipt of the monthly application, notify the Contractor in writing the reasons he cannot make such a certification. If the Contractor and the A/E cannot agree on a revised amount within five days of A/E sending written notice, the A/E will promptly issue a Certification for Payment for the amount for which he is able to certify to the Owner pursuant to Sub-Article 11.4.2. The A/E may also decline to certify payment because of subsequently discovered evidence or subsequent observations, he may nullify the whole or any part of any Certification for Payment previously issued, and the Owner may withhold payment of all or any part of an Application for Payment, to such extent as may be necessary to protect the Owner from loss because of:

11.6.1.1 Defective work not remedied;

11.6.1.2 Third party claims filed or reasonable evidence indicating probable filing of such claims;

11.6.1.3 Failure of the Contractor to make payments properly to subcontractors or for labor,

- materials or equipment;
- 11.6.1.4 Reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- 11.6.1.5 Damage to the Owner or another contractor;
- 11.6.1.6 Reasonable evidence that the Work will not be completed within the Contract Time;
- 11.6.1.7 Failure to carry out the Work in accordance with the Contract Documents;
- 11.6.1.8 A lien or attachment is filed and such lien is not discharged within 5 days of demand from the Owner;
- 11.6.1.9 Failure of the Contractor and/or of the Mechanical or Electrical Subcontractors to comply with the mandatory requirements for maintaining "up-to-date" Record Drawings;
- 11.6.1.10 Incomplete or otherwise inadequate Application for Payment; or
- 11.6.1.11 Reasonable evidence that the Contractor is in material breach of his obligations under the Contract.

11.6.2 When the above grounds in Sub Article 11.6.1 are removed, payment shall be made for amounts withheld because of them.

#### 11.7 Substantial Completion.

11.7.1 When the Contractor considers that the Work, or a designated portion thereof which is acceptable to the Owner, is Substantially Complete as defined in Sub Article 10.1.3 the Contractor shall prepare for submission to the A/E and Owner a list of items to be completed or corrected. The failure to include any item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. When the A/E and Owner on the basis of an inspection determines that the Work or designated portion thereof is Substantially Complete, the A/E will then prepare a Certificate of Substantial Completion which shall establish the Date of Substantial Completion, shall state the responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities and damage to the Work, and shall fix the time within which the Contractor shall complete the items listed therein. Warranties and Guarantees required by the Contract Documents shall commence on the Date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner and the Contractor for their written acceptance of the responsibilities assigned to them in such Certificate.

11.7.2 Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the A/E, the Owner shall make payment, reflecting adjustment for defective or incomplete work, if any, for such Work or portion thereof, as provided in the Contract Documents. Double the amount necessary to complete the Work shall be retained by the Owner pursuant to SDCL § 5-18B-13.

#### 11.8 Final Completion and Final Payment.

11.8.1 Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the A/E and Owner will promptly make such inspection and, when they find the Work acceptable under the Contract Documents and the Contract fully performed, the A/E will promptly issue a final Certificate for payment stating that to the best of his observations and inspections, the Work has been completed in accordance with the terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in said final Certificate, is due and payable. The A/E's Final Certificate for Payment will constitute a further representation that the conditions precedent to the Contractor's being entitled to final payment as set forth in Sub-Article 11.8.2 have been fulfilled.

11.8.2 The final payment shall not become due until the Contractor submits to the A/E and Owner (1) an affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or his property might in any way be responsible, have been paid or otherwise satisfied, (2) consent of surety to final payment, (3) if required by the Owner, other data establishing payment or satisfaction of all such obligation, such as receipts, releases and waivers of liens arising out of the Contract, to the extent and in such form as may be designated by the Owner, (4) an Unemployment Compensation Contribution Certificate from the South Dakota Department of Labor, and (5) a full and complete release of the Owner from all liability under the Contract and otherwise, except to the extent provided in Sub-



Article 11.8.4. If the Contractor fails to furnish such releases or waivers of liens as the Owner reasonably requires to determine that there are no outstanding liens, the Owner may require that Contractor, as a condition of final payment to furnish a bond satisfactory to the Owner to indemnify the Owner against any such liens. Cost of such bond shall be borne by the Contractor. If any such lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all moneys that the latter may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

- 11.8.3 Owner shall make final payment of all sums due to the Contractor 30 days after the completion and acceptance of the project by the Owner and Contractor's compliance with Article 11.8.2 above. If the Owner fails to make final payment to the Contractor within the time specified herein, the Owner shall pay the Contractor interest at the rate of four percent (4%) compounded annually on the amount retained starting from the date final payment first becomes due.
- 11.8.4 The acceptance of final payment by the Contractor shall constitute a complete and unconditional waiver and release of any and all claims by the Contractor of whatever nature, and regardless whether they are then known or unknown, and a complete and unconditional release of the Owner and every person for whom the Owner is responsible for any and all matters related to the Contract or otherwise, except those claims which have been made in writing and identified by the Contractor as not having been settled at that time.

## **Article 12**

### **PROTECTION OF PERSONS AND PROPERTY**

- 12.1 Safety Precautions and Programs: The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work, and for safeguarding all adjacent properties and facilities.
- 12.2 Safety of Persons and Property.
  - 12.2.1 The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:
    - 12.2.1.1 All employees on the Work and all other persons who may be affected thereby;
    - 12.2.1.2 All the Work and all materials and equipment to be incorporated therein, whether in storage or off the site, under the care, custody or control of the Contractor and any of his Subcontractors or Sub-subcontractors; and
    - 12.2.1.3 Other property at the site or adjacent thereto, including but not limited to, work of the Owner or of separate contractors, trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.
  - 12.2.2 The Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the safety of persons or property or their protection from damage, injury or loss, and shall indemnify the Owner and the A/E and save them harmless against all claims, penalties, actions and proceedings relating thereto or the Contractor's failure so to comply.
  - 12.2.3 The Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities.
  - 12.2.4 When the use or storage of any hazardous materials or equipment is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.
  - 12.2.5 The Contractor shall promptly remedy all damage or loss to any property referred to in Sub- Articles 12.2.1.2 and 12.2.1.3 caused in whole or in part by the Contractor, any Subcontractor, any Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable and for which the Contractor is responsible under Sub-Articles 12.2.1.2 and 12.2.1.3,

except damage or loss attributable to the acts or omissions of the Owner or A/E or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to his obligations under Sub-Article 6.16.

- 12.2.6 The Contractor shall designate a responsible member of his organization at the Site whose duty shall be the prevention of accidents. This person shall be qualified as a safety supervisor by experience, training, or education and shall have the responsibility to insure and enforce safety requirements on behalf of the Contractor and shall be designated by the Contractor in writing to the Owner and the A/E.
  - 12.2.7 The Contractor shall issue weekly safety reports to the Owner and the A/E attesting to conditions on the Site relating to safety and to actions taken.
  - 12.2.8 The Contractor shall not load or permit any part of the Work to be loaded so as to endanger its safety.
  - 12.2.9 The structure of the Project is designed to support the loads of the finished building. No provision is included for stresses or loads imposed by construction operations. If the Contractor desires to place such loads in excess of the design load shown on drawings, he shall submit drawings and calculations prepared by, and bearing the seal of a professional structural engineer of the proposed method for supporting such loads for the A/E's review and approval. No loading of any kind in excess of design loads shall be placed on any part of the building structure prior to the A/E's approval of submitted drawings and calculations. The costs of the A/E's review shall be borne by the Contractor.
  - 12.2.10 The Contractor shall prepare a written report setting forth the circumstances and details related to any accident or occurrences involving death, bodily injury, sickness, disease, personal injury, and/or loss or injury to or destruction of tangible property. Such reports shall be forwarded promptly to the insurance carriers, the A/E and the Owner.
- 12.3 Emergencies: In any emergency affecting the safety of persons or property, the Contractor shall act, at his discretion, to prevent threatened damage, injury or loss and shall as promptly as conditions permit notify the insurance carriers, Owner, and A/E of the nature of the emergency and circumstances related thereto. Immediately thereafter, the Contractor shall prepare a written report setting forth in detail the action taken and describing in detail all circumstance and conditions which are related to such action.

### Article 13 INSURANCE

- 13.1. At all times during the term of this Agreement, Contractor shall obtain and maintain in force insurance coverage of the types and with the limits as follows:
  - 13.1.1. Commercial General Liability Insurance:  
equivalent form of coverage **with a limit of not less than one million dollars (\$1,000,000) for each occurrence.** If such insurance contains a general aggregate limit it shall apply separately to this Agreement or be no less than two (2) times the occurrence limit. The insurance policy shall name the State of South Dakota, its officers and employees, as additional insureds, but liability coverage is limited to claims not barred by sovereign immunity. The State of South Dakota, its officers and employees do not hereby waive sovereign immunity for discretionary conduct as provided by law.
  - 13.1.2. Business Automobile Liability Insurance:  
Contractor shall maintain business automobile liability insurance or equivalent form **with a limit of not less than one million dollars (\$1,000,000) for each accident.** This insurance shall include coverage for owned, hired and non-owned vehicles.
  - 13.1.3. Worker's Compensation Insurance:  
Contractor shall procure and maintain workers' compensation and employers' liability insurance **as required by South Dakota or Federal law.**

13.1.4. Builder's Risk Insurance:

Contractor shall maintain builder's risk insurance **with a limit of not less than the full value of this Agreement** upon any building, structure, equipment and appliance in the process of construction or installation under state contract and upon all materials on site, until such time as the building, structure, equipment and appliances have been finally accepted by the Owner and the contract completed. This insurance shall include the interest of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Work and shall insure against loss by physical damage including, without duplication of coverage, fire, flood, extended coverage, theft, vandalism, malicious mischief, and collapse.

13.1.5. Installation Floater Insurance:

Contractor shall maintain installation floater insurance **with a limit of not less than the full value of Specialized Equipment and Material** upon specialized equipment and material not covered under the Builder's Risk Insurance in the process of construction or installation under state contract and upon all materials on site, until such time as the building, structure, equipment and appliances have been finally accepted by the Owner and the contract completed. This insurance shall include the interest of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Work and shall insure against loss by physical damage including, without duplication of coverage, fire, flood, extended coverage, theft, vandalism, malicious mischief, and collapse.

Before beginning work under this Agreement, Contractor shall submit insurance policies to the State Engineer for review and approval, and shall furnish the State with properly executed Certificates of Insurance which shall clearly evidence all insurance required in this Agreement including naming the State, its officers and employees, as additional insureds, as set forth above. In the event of a substantial change in insurance, issuance of a new policy, cancellation or nonrenewal of the policy, Contractor agrees to provide immediate notice to the State and provide a new certificate of insurance showing continuous coverage in the amounts required. Contractor shall furnish copies of any changed or new insurance policies if requested by the State.

## **Article 14**

### **CHANGES IN THE WORK**

- 14.1 Change Orders: A Change Order is a written order to the Contractor signed by the Owner, issued after execution of the Contract, authorizing a change in the Work or an adjustment in the Contract Sum or the Contract Time. The Contract Sum and the Contract Time may be changed only by Change Order. A Change Order signed by the Contractor indicates his agreement therewith, including the adjustment in the Contract Sum or the Contract Time.
- 14.2 The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and the Contract Time being adjusted accordingly. All such changes in the Work shall be authorized by Change Order, and shall be performed under the applicable conditions of the Contract Documents. No later than the 5th day of each month, the A/E will process a written change order to include all outstanding RFPs.
- 14.3 The cost or credit to the Owner resulting from a change in the Work shall be determined in one or more of the following ways:
- 14.3.1 By mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation. Such lump sum proposals shall be supported by a completely detailed analysis of the proposed change subdivided into the Work of the Contractor and/or the Work of each Subcontractor and/or Sub-subcontractors involved in the proposed change, as applicable, with each such subdivision further broken down into the following elements:
- 14.3.1.1 Number of man-hours of labor to be performed by each trade, craft or classification of employee involved in the proposed change.
- 14.3.1.2 The hourly rate for each such trade, craft or classification of employee, including the appropriate wage supplement for social security, old age and unemployment contributions, and such other employee benefits as may be established by statute or by written agreement negotiated by and between organizations representing such crafts or trades and representatives of their employers.

- 14.3.1.3 The estimated quantity of each item or element of material and/or equipment entering into the proposed change.
- 14.3.1.4 The unit cost of each such item or element of material and/or equipment.
- 14.3.1.5 Rental of items or units of construction plant and equipment with a schedule of the period or periods of use of such item or unit in connection with the proposed change.
- 14.3.1.6 Rental terms and rates for each such item or unit of construction plant and equipment. Rental for equipment shall be based on the following:
  - 14.3.1.6.1 Hourly rental rates shall be based on 80% of the applicable rates for equipment listed in the 'Green Book', latest edition, (published by the Associated Equipment Distributors, 615 West 22nd Street, Oakbrook, Illinois, 60523).
  - 14.3.1.6.2 Hourly rental rates for equipment not listed in the 'Green Book' shall be based on 100% of the applicable rates for equipment listed in the 'Blue Book', latest edition (published by Dataquest, 1290 Ridder Park Drive, San Jose, California, 95131).
  - 14.3.1.6.3 Hourly rental rates determined from the 'Green Book' or 'Blue Book' includes all items of cost and expense to the Contractor, including gas, oil, maintenance, repairs, insurance, and transportation to and from construction site.
- 14.3.1.7 Power and/or other utilities entering into the proposed change.
- 14.3.1.8 Rates and terms applicable to such power and/or other utilities.
- 14.3.1.9 Additional premiums, if applicable, for the extension of insurance and bond coverages as required herein to the proposed change.
- 14.3.1.10 Applicable federal, state and local taxes.
- 14.3.1.11 Indirect Cost and Fee computed as a percentage override applied to net cost in accordance with the provisions of this Article.
- 14.3.2 By unit prices stated in the Contract Documents or subsequently agreed upon;
- 14.3.3 By cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee;
- 14.3.4 By the method provided in Sub-Article 14.3.12.
- 14.3.5 The Contractor shall require that the itemized analysis of each portion of the proposed change to be performed by a Subcontractor and/or Sub-subcontractor be prepared by each such Subcontractor and/or Sub-subcontractor in accordance with the format established herein. Copies of all such itemized analysis shall be appended to the Contractor's itemized analysis of the proposed change in the Work.
- 14.3.6 For purposes of calculating Indirect Cost and Fee in relation to Change Orders, the net cost of a proposed change in the Work shall include, and unless otherwise agreed in writing prior to the performance of the proposed change, shall be limited to the fair and reasonable estimated cost of the total of all of the individual items, elements, or components involved in proposed change in the Work (including adds and deducts) as set forth in Sub-Articles 14.3.1.1 through 14.3.1.8.
- 14.3.7 For each portion of a proposed net additive change in the Work to be performed directly by the Contractor, the cost to Owner shall include an increment for the Indirect Cost and Fee of the Contractor associated with such portion of proposed change of 8% of the net cost of the Work.
- 14.3.8 For each portion of a proposed net additive change in the Work to be performed directly by a Subcontractor, in addition to an increment or increments for Subcontractor's Indirect Cost and profit

associated therewith of 8%, the cost to the Owner shall include a supplementary increment or increments for Contractor's Indirect Cost and Fee associated therewith of 6% of the net cost of the Work.

- 14.3.9 In computing Indirect Cost and Fee, the percentage for Indirect Cost and Fee shall be taken on basic wage only. No percentage override shall be taken on Social Security, Old Age and Unemployment contributions, contributions to Industry funds, education, and Training Funds and/or similar wage supplements, contributions or benefits.
- 14.3.10 Items, elements or components of changes in the Work or proposed changes which shall be classified as Indirect Cost and excluded from net cost shall include, but shall not necessarily be limited to:
- 14.3.10.1 All classifications of administrative, supervisory, and clerical personnel not engaged manually in the performance of the Work, including timekeepers, clerks, watchmen, and security personnel.
- 14.3.10.2 Miscellaneous expense, job burden, and/or other generalized categories of cost or expense.
- 14.3.10.3 Use of small tools and miscellaneous materials.
- 14.3.10.4 Insurance other than insurance coverage required herein.
- 14.3.11 In changes in the Work involving both additions to and deductions in the Work, or any portion or element thereof, or the relocation or rearrangement of items, portions or elements thereof, or the substitution of any items, portions or elements thereof, such additions and deductions shall be balanced, and the Contractor's Fee computed on the same basis for deductions as well as additions. If at the request of the A/E and/or the Owner a number of unrelated changes in the Work are set forth individually, summarized and totaled in a single Change Order for reasons of administrative convenience, the amount or amounts of individual deductive changes in the Work set forth therein shall, in any event, be balanced against the amount or amounts of individual additive changes in computing the Contractor's Fee for the purpose of adding and deducting.
- 14.3.12 If none of the methods set forth in Sub-Articles 14.3.1, .3.2 or .3.3 is agreed upon, the Contractor, provided he receives a written order signed by the Owner, shall promptly proceed with the Work involved. The cost of such Work shall then be determined by the Owner on the basis of the reasonable expenditures and savings of those performing the Work attributable to the change, including, in the case of an increase in the Contract Sum, a reasonable allowance for the Contractor's Fee. In such case, and also under Sub-Articles 14.3.3 and .3.4 above, the Contractor shall keep and present, in such form as the Owner may prescribe, an itemized accounting together with appropriate supporting data for inclusion in a Change Order, at the end of each day, and will submit to the Owner or his designated representative: (a) daily time slips showing the name of each workman employed on such work, the number of hours which he is employed thereon, the character of his duties, and the wages and benefits to be paid to him and on his behalf, and (b) a memorandum of the equipment used in the performance of such Work, together with the rental claimed therefor. Unless otherwise provided in the Contract Documents, cost shall be limited to the following: cost of materials, including sales tax and cost of delivery; cost of labor, including social security, old age and unemployment insurance, and fringe benefits required by agreement or custom; worker's or workmen's compensation insurance; bond premiums; rental value of equipment and machinery; and the additional costs of supervision and field office personnel directly attributable to the change. Pending final determination of cost to the Owner, payments on account shall be made on the basis of amounts reasonably estimated by the Owner. The amount of credit to be allowed by the Contractor to the Owner for any deletion or change which results in a net decrease in the Contract sum will be the amount of the actual net cost as confirmed by the A/E and agreed to by the Owner. When both additions and credits covering related Work or substitutions are involved in any one change, the allowance or credit for the Contractor's Fee shall be figured on the basis of the net increase, or decrease, if any, with respect to that change.
- 14.4 Differing Site Conditions
- 14.4.1 The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the A/E 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, 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.

14.4.2 The A/E shall investigate the site conditions promptly after receiving the notice. 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 Contract Sum shall be adjusted as provided in this Article, provided that the work has been ordered in writing by Owner and A/E as provided in Sub-Article 14.1 above. There shall be included in the adjustment to the Contract Sum under the preceding sentence a reasonable allowance for any extraordinary increase in Indirect Cost borne by the Contractor because of such additional work.

14.5 Claims for Additional Cost.

14.5.1 If the Contractor wishes to make a claim for an increase in the Contract Sum, he shall give the A/E and Owner a written notice thereof within 10 days after the occurrence of the event giving rise to such claim except where claim is made in connection with deviations in Shop Drawing or Sample submittals, in which case claim shall be made in writing to the A/E concurrently with such submittals. This notice shall be given by the Contractor before proceeding to execute the work, except in an emergency endangering life or property in which case the Contractor shall proceed in accordance with Sub-Article 12.3. No such claim shall be valid unless so made. Any change in the Contract Sum resulting from such claim shall be authorized by Change Order.

14.5.2 If the Contractor claims that additional cost is involved because of, but not limited to, (1) any written interpretation pursuant to Sub-Article 4.13, (2) any order by the Owner to stop the Work pursuant to Sub-Article 5.2 where the Contractor was not at fault, (3) any written order for a minor change in the Work issued pursuant to Sub-Article 14.6, or (4) any deviation in Shop Drawing or Sample submittals from the requirements of the Contract Documents, the Contractor shall make such claim as provided in Sub-Article 14.5.1.

14.6 Minor Changes in the Work: The A/E will have authority to order minor changes in the Work not involving an adjustment in the Contract Sum or an extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order, and shall be binding on the Owner and the Contractor. The Contractor shall carry out such written orders promptly.

## **Article 15**

### **UNCOVERING AND CORRECTION OF WORK**

15.1 Uncovering of Work.

15.1.1 If any portion of the Work should be covered contrary to the request of the A/E or the Owner, or the requirements specifically expressed in the Contract Documents, it must, if required in writing by the A/E or the Owner, be uncovered for his observation and shall be replaced at the Contractor's expense.

15.1.2 If any other portion of the Work has been covered which the A/E or the Owner has not specifically required to observe prior to being covered, the A/E or the Owner may request to see such Work and it shall be uncovered by the Contractor. If such work be found in accordance with the Construction Documents, the cost of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such work be found not in accordance with the Construction Documents, the Contractor shall pay such costs unless it be found that this condition was caused by the Owner or a separate contractor as provided in Article 8, in which event the Owner shall be responsible for the payment of such costs.

15.2 Correction of Work.

15.2.1 The Contractor shall promptly correct all Work rejected by the A/E as defective or as failing to conform to the Construction Documents whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear all costs of correcting such rejected Work, including compensation for the A/E's additional services and the Office of the State Engineer fees made necessary thereby.

15.2.2 If, at any time after the Owner's acceptance of the fully completed Project any of the Work is found not to have been provided in conformance with the Construction Documents, or, if within one year after such acceptance any of the Work is otherwise found to be faulty or defective, the Contractor shall correct it promptly after receipt of a written notice from the Owner to do so. The Contractor shall also repair or

replace any part of the Work which is damaged by the defective condition or the remedial Work. This obligation shall survive termination of the Contract, subject to the terms of any applicable statute of limitations. The Owner shall give such notice promptly after discovery of the condition.

- 15.2.3 The Contractor shall remove from the Site all portions of the Work which are defective or non-conforming and which have not been corrected under Sub-Articles 6.4.1, 15.2.1 and 15.2.2, unless removal is waived by the Owner.
  - 15.2.4 If the Contractor fails to correct defective or non-conforming Work as provided in Sub-Articles 6.4.1, 15.2.1 and 15.2.2, the Owner may correct it in accordance with Sub-Article 5.3.
  - 15.2.5 If the Contractor does not proceed with the correction of such defective or non-conforming Work within a reasonable time fixed by written notice from the A/E, the Owner may remove it and may store the materials or equipment at the expense of the Contractor. If the Contractor does not pay the cost of such removal and storage within 10 days thereafter, the Owner may upon 10 additional days written notice sell such Work at auction or a private sale and shall account for the net proceeds thereof, after deducting all the costs that should have been borne by the Contractor, including compensation for the A/E's additional services made necessary thereby. If such proceeds of sale do not cover all costs which the Contractor should have borne, the difference shall be charged to the Contractor and an appropriate Change Order shall be issued. If the payments then or thereafter due to the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner upon demand.
  - 15.2.6 The Contractor shall bear the cost of making good all work of the Owner or separate contractors destroyed or damaged by such correction removal.
  - 15.2.7 Nothing contained in this Article shall be construed to establish a period of limitation with respect to any other obligation which the Contractor might have under the Contract Documents, including Sub-Article 6.4 hereof. The establishment of any time period prescribed by the terms of any warranty required by the Contract Documents relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which his obligation to comply with the Contract Documents may be sought to be enforced, nor the time within which proceedings may be commenced to establish the Contractor liability with respect to his obligations other than specifically to correct the Work.
- 15.3 Acceptance of Defective or Non-Conforming Work: If the Owner prefers to accept defective or non-conforming Work, he may do so instead of requiring its removal and correction, in which case a Change Order will be issued to reflect a reduction in the Contract Sum where appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

## **Article 16**

### **TERMINATION OF THE CONTRACT**

- 16.1 Termination by the Contractor: If the Work is stopped for a period of 90 days under an order of any court or any public authority having jurisdiction, or as a result of an act of government, such as a declaration of a national emergency making materials unavailable, through no act or fault of the Contractor or Subcontractor or their agents or employees or any other persons performing any of the Work under a contract with the Contractor, then the Contractor may, upon 7 additional days written notice to the Owner and the A/E, terminate the Contract and recover from the Owner payment for all Work executed to the termination date, together with reasonable demobilization costs. The Contractor shall have no other right to terminate the Contract for any reason.
- 16.2 Termination by the Owner.
  - 16.2.1 If the Contractor is in default under the Contract Documents, the Owner may, without prejudice to any other right or remedy and upon written notice to the Contractor, terminate the contract.

Prior to termination of the Contract, the Owner shall give the Contractor and his surety 10 calendar days written notice, during which the Contractor and/or his surety may rectify the cause of the termination. If rectified to the satisfaction of the Owner within said 10 days, the Owner may rescind its notice of termination. If not rectified, the termination for cause shall become effective at the end of the 10 day

notice period. In the alternative, the Owner may postpone the effective date of the termination notice, at its sole discretion, if it should receive reassurances from the Contractor and its surety that the causes of termination will be remedied in a time and manner which the Owner finds acceptable. If at any time more than 10 days after the notice of termination, the Owner determines that the Contractor or its surety has not or is not likely to rectify the causes of termination in an acceptable manner or within the time allowed, then the Owner may immediately terminate the Contract for cause by giving written notice to the Contractor and its surety. In no event shall termination for cause terminate the obligations of the Contractor's surety on its payment and performance bonds.

Notice of termination, whether initial or given after a period of postponement, may be served upon the Contractor and the surety by mail or any other means at their last known places of business in South Dakota or elsewhere, by delivery to any officer or management/supervisory employee of either wherever they may be found, or, if no such officer, employee or place of business is known or can be found by reasonable inquiry within 3 days, by posting the notice at the job site. Failure to accept or pick up registered or certified mail addressed to the last known address shall be deemed to be delivery.

Upon termination of the Contract, the Owner shall take possession of the premises and of all materials, tools, appliances, equipment, and other facilities on the Project, wherever stored, and may finish the Work by whatever method he may deem expedient. The Contractor shall assign Subcontracts to the Owner or to a designated substitute contractor promptly upon request. In such case the Contractor shall not be entitled to receive any further payment until the Work is finished and the Owner has determined its damages owing to the Contractor's default.

16.2.2 If the costs of finishing the Work, including compensation for the A/E's and Office of the State Engineer's additional services made necessary by the Contractor's default, and all other damages suffered by the Owner on account of the Contractor's default, exceed the unpaid balance of the Contract Sum, the Contractor shall pay the difference to the Owner, and this obligation for payment shall survive the termination of the Contract. If the costs of finishing the Work are less than the unpaid portion of the contract Sum, the Owner shall pay the unpaid balance of any amount properly owing to the Contractor for all Work executed to the date of termination, less actual damages. The Owner will not be obligated to pay any further amount on account of Direct Cost, Indirect Cost or Fee.

16.2.3 If it should be judicially determined that the Owner improperly terminated this Contract for cause, then the termination shall be deemed to be a termination for the convenience of the Owner.

### 16.3 Termination for Convenience.

16.3.1 The Owner may terminate this Contract at any time without cause, in whole or in part, upon giving the Contractor notice of such termination. Upon such termination, the Contractor shall immediately cease Work and remove from the project site all of its labor forces and such of its materials as Owner elects not to purchase or to assume in the manner hereinafter provided. Upon such termination, the Contractor shall take such steps as Owner may require to assign to the Owner the Contractor's interest in all Subcontracts and purchase orders designated by Owner. After all such steps have been taken to Owner's satisfaction, the Contractor shall receive as full compensation for termination and assignment the following:

- (1) All amounts then otherwise due under the terms of this Contract,
- (2) Amounts due for work performed subsequent to the latest Request for Payment through the date of termination,
- (3) Reasonable compensation for the actual cost of demobilization incurred by the Contractor as a direct result of such termination. The Contractor shall not be entitled to any compensation for lost profits or for any other type of contractual compensation or damage other than those provided by the preceding sentence. Upon payment of the foregoing, Owner shall have no further obligations to Contractor of any nature.

16.3.2 In no event shall termination for the convenience of the Owner terminate the obligations of the Contractor's surety on its payment and performance bonds.



**SECTION 00 01 10**  
**INDEX OF TECHNICAL SPECIFICATIONS**

**PART 1 – GENERAL**

1.1 Technical Specifications

A. The specification sections listed below form a part of the contract.

| <u>Section No.</u> | <u>Title</u>                                   |
|--------------------|--|
| 00 01 10           | Index of Technical Specifications              |
| 00 01 15           | List of Drawing Sheets                         |
| 00 60 00           | Project Forms                                  |
| 00 63 13           | Request for Information/Instruction (RFI) Form |
| 00 63 14           | Supplemental Instruction (SI) Form             |
| 00 63 54           | Request for Proposal (RFP) Form                |
| 00 63 60           | CCO Proposal Spreadsheet Form                  |
| 00 63 63           | Construction Change Order (CCO) Form           |
| 00 65 00           | Closeout Forms                                 |
| 00 65 16           | Certificate of Substantial Completion          |
| 00 65 19           | Certificate of Completion                      |
| 00 73 00           | Supplementary Conditions                       |
| 00 73 63           | Security Requirements                          |
| 01 01 00           | General  |
| 01 14 00           | Work Restrictions                              |
| 01 18 00           | Project Utilities                              |
| 01 32 16           | Project Schedules                              |
| 01 33 23           | Shop Drawings Product Data and Samples         |
| 01 35 26           | Safety Requirements                            |
| 01 35 30           | Security Requirements                          |
| 01 42 00           | Sources for Reference Publications             |
| 01 50 00           | Temporary Facilities                           |
| 01 57 19           | Temporary Environmental Controls               |
| 01 74 19           | Construction Waste Management                  |
| 01 74 20           | Waste and Recycling Tracking Form              |
| 01 76 00           | Protecting Installed Construction              |
| 01 78 00           | Closeout Submittals                            |
| 01 78 23           | Operation & Maintenance Data                   |
| 02 41 19           | Selective Demolition                           |
| 03 30 00           | Cast-In-Place Concrete                         |
| 04 05 01           | Masonry Tuck Pointing                          |
| 04 05 13           | Masonry Mortaring                              |
| 06 10 00           | Rough Carpentry                                |
| 32 11 00           | Aggregate Materials                            |
| 32 92 00           | Turf and Grasses                               |

**PART 2 – PRODUCTS – NOT USED**

**PART 3 – EXECUTION – NOT USED**

**END SECTION 00 01 10**

**00 01 15**  
**LIST OF DRAWINGS**

**PART 1 – GENERAL**

1.1 SUMMARY  
This section lists the drawings for the project.

1.2 PROJECT DRAWINGS

| <u>Sheet No.</u> | <u>Title</u>             |
|------------------|--------------------------|
| G-001            | Cover Sheet              |
| A-001            | Foundation Plan          |
| A-002            | Main Floor Plan          |
| A-101            | West Elevation & Details |
| A-102            | East Elevation & Details |
| A-201            | Details                  |
| A-202            | Details                  |

**PART 2 – PRODUCTS – NOT USED**

**PART 3 – EXECUTION – NOT USED**

**END SECTION 00 01 15**

**00 60 00**  
**PROJECT FORMS**

**PART 1 – GENERAL**

**1.1 GENERAL**

- A. This section outlines required documentation to be provided to the AE and Owner at the beginning of the project.

**1.2 PRE-CONSTRUCTION PROJECT SUBMITTALS**

The following submittals are required prior to or at the Pre-Construction meeting:

- A. Agreement for Construction:
1. Contractor shall make a copy for their records, sign, and return the original contract to the SD Dept. of the Military within 10 days of transmittal.
- B. Performance and Payment Bond:
1. Contractor shall submit a Performance and Payment Bond within five (5) calendar days after submittal of the signed contract.
  2. Performance and Payment Bond must be reviewed and approved by the South Dakota Attorney General's Office prior to issuance of the Notice to Proceed.
    - a. Contractor will be required to submit revised Performance and Payment Bonds if errors are found during review process.
- C. Certificate of Insurance
1. Certificate must list "South Dakota Department of the Military" as an additionally insured party.
- D. Contractor's Statement of Skills and Capabilities
1. Contractor shall have a current year's statement on file with the SD Dept. of the Military.
- E. Contractor's Affirmative Action Plan
1. Contractor's with fifteen (15) or more employees must provide AAP
  2. Contractors with fewer than fifteen (15) employees shall provide a formal letter stating number of employees and exemption from this requirement
- F. Contractor's Letter indicating they are not Debarred or Suspended
- G. Contractor's and Subcontractor's Statement of Experience & Qualifications per various Technical Specification requirements.
- H. Contractor's Material Supplier's Statement of Experience & Qualifications per various Technical Specification requirements.
- I. List of Subcontractors and Material Suppliers (AIA G805)
- J. Schedule of Values (AIA G702 & G703)

**1.4 POST NOTICE TO PROCEED SUBMITTALS**

The following submittals are required within 10 calendar days from issuance from the Notice to Proceed:

- A. Project Progress Schedule
1. Refer to section 01 32 16 - Project Schedule for requirements.
- B. Draft Real Property Data – Form 1354
1. Refer to section 01 32 16 - Project Schedule for requirements.
- C. Accident Prevention Plan
1. Refer to section 01 35 26 - Safety Requirements for requirements.
- D. No Smoking Policy
1. Refer to section 01 14 00 – Work Restrictions.
- E. Construction Waste Management Plan
1. Refer to section 01 74 19 – Construction Waste Management.
- F. Environmental Protection Plan
1. Contractor must submit within 10 days from NTP.
  2. Refer to section 01 57 19 – Erosion and Sediment Controls
- G. Notice of Intent (NOI)
1. Contractor must submit a copy of the SD DANR NOI within 10 days from NTP.
  2. Refer to section 01 57 19 – Erosion and Sediment Controls.
- H. Employee Access Lists (EAL) for Contractor and all Subcontractors and Suppliers
1. EAL's shall be submitted to the SD Dept. of the Military prior to or at the Pre-Construction Meeting.
  2. Background checks take a minimum of 10 days to process.
  3. No work may begin until the Contractor's designated supervisors have passed a background check.

4. No additional days will be granted to the Contractor for delays resulting in the Contractor's delayed submittal or in ability to provide personnel that can pass a background check.
5. Refer to section 01 35 26 - Safety Requirements for requirements.

#### 1.4 ADDITIONAL POST AWARD SUBMITTALS

- A. Shop Drawings
  1. Submit to AE for review and approval
  2. Owner shall be copied on all submittals
  3. Refer to section 01 33 23 - Shop Drawings Product Data and Samples for requirements.
- B. First Application for Payment
  - a. Shall be submitted within 30 days of the NTP
- C. Monthly Progress Payments
- D. Lien Waivers
  1. Contractor shall include Lien Waivers signed by Sub-Contractors and Suppliers included with Monthly Progress Payments for projects \$250,000 or more.
- E. RFI'S
- F. RFP'S
- G. CCO'S
- H. Inspection, test, and other periodic reports as required in various Technical Specifications.

### PART 2 – PRODUCTS

#### 2.1 FACILITY PROPERTY BREAKDOWN:

- A. The South Dakota Department of the Military is required to identify certain disposed or new assets along with associated costs of said assets.
- B. The South Dakota Department of the Military will provide a Form 1354 to track all new assets, associated quantities, and associated overall cost of each asset.
- C. Within 10 calendar days of Notice to Proceed, the Contractor shall submit the estimated quantity and the cost of each on the provided form as accurately as possible.

#### 2.2 BUILDER DATA COLLECTION

- A. Contractor shall provide photographs, equipment name plate data (make, model, serial number, etc.), type, size, and quantity of each for all of the following installed assets:
  1. Building Envelope
    - a. Windows
    - b. Solar Tubes
    - c. Store Front Doors
    - d. Doors
    - e. Roofing
  2. Electrical
    - a. Exterior Light Fixtures
    - b. Light Poles
    - c. Interior Light Fixtures
    - d. Electric Panels
    - e. Lightning Protection
    - f. Solar Panels
    - g. Standby Generators
    - h. Transfer Switches (Automatic & Manual)
    - i. Transformers (privately owned, not utility owned)
  3. Fire Protection
    - a. Fire Alarm Control Panel(s)
    - b. Fire Alarm Annunciator Panel
    - c. Fire Alarm Pull Station
    - d. Fire Alarm Strobe/Speaker
    - e. Fire Alarm Detectors
    - f. Mechanical Door Release
    - g. Fire Suppression System Riser
    - h. Fire Suppression Piping

- i. Fire Suppression Heads
- j. Dry System Air Compressor
- 4. Mechanical Systems
  - a. HVAC Equipment
  - b. All Pumps
  - c. Water Heaters
  - d. Passive Solar Wall
  - e. Geothermal System
  - f. In Floor Heating Manifolds and Piping
  - g. Plumbing
  - h. Water Closet/Toilet
  - i. Urinal
  - j. Tub/Shower/Combo
  - k. Restroom Sinks
  - l. Kitchen Sinks
  - m. Map Basin
  - n. Service Sink
  - o. Emergency Shower
  - p. Emergency Eyewash
  - q. Drinking Fountain
  - r. Floor Drains
  - s. Trench Drains
  - t. Roof Drains
  - u. Gas Detection Systems
  - v. Landscape Irrigation System
- 5. Equipment
  - a. Dock Leveler
  - b. Pneumatic Tube System
  - c. Air Compressor
  - d. Pressure Washer
- B. BUILDER Data collection will be required throughout the project with final documentation provided prior to or at the Substantial Completion Inspection.

**PART 3 – EXECUTION – Not Used**

**END 00 60 00**

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**00 63 13**  
**REQUEST FOR INFORMATION/INSTRUCTION (RFI)**

**RFI NO.** \_\_\_\_\_

Project Name: Foundation Repair on Russell House #2 – West Camp Rapid

Project No. 467063

Date of RFI Submittal: \_\_\_\_\_

Date Response Needed by: \_\_\_\_\_

**SUBJECT:**

Description Issue/Item of Concern

Contractor's Project Manager: \_\_\_\_\_  
Name Printed

Contractor's Project Manager: \_\_\_\_\_  
Signature

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**00 63 14**  
**SUPPLEMENTAL INSTRUCTION (SI)**

**Supplemental Instruction No.** \_\_\_\_\_

Response to RFI No(s). \_\_\_\_\_

Date of RFI Submittal: \_\_\_\_\_

Project Name: Foundation Repair on Russell House #2 – West Camp Rapid

Project No. 467063

**SUBJECT:**

Description Issue/Item of Concern

AE/SD DOM Project Manager: \_\_\_\_\_  
Name Printed

AE/SD DOM Project Manager: \_\_\_\_\_  
Signature

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**00 63 54**  
**REQUEST FOR PROPOSAL (RFP)**

Request for Proposal No. \_\_\_\_\_

Date: \_\_\_\_\_

Project Name: Foundation Repair on Russell House #2 – West Camp Rapid

Project No. 467063

Please submit an itemized cost breakdown for changes in contract sum and contract time resulting from the following proposed modification(s) to the Contract Documents, within **ten (10) calendar days or less**:

**Proposed Modification(s):**

RFI #X - Please provide a cost to (Description of scope of work)

The total amount requested for RFI#X is: \$\_\_\_\_\_

RFI #X - Please provide a cost to (Description of scope of work)

The total amount requested for RFI#X is: \$\_\_\_\_\_

RFI #X - Please provide a cost to (Description of scope of work)

The total amount requested for RFI#X is: \$\_\_\_\_\_

**The total amount requested for all RFI's is: \$\_\_\_\_\_**

**Number of additional working days requested are \_\_\_\_\_.**

Indicate the number of additional working days which will be required to complete the scope of work in all RFI's indicated above. If no change in contract time, state "none".

Enclosure(s):      Itemized Cost Proposal(s)  
Shop Drawings

Contractor's Representative: \_\_\_\_\_  
Name Printed

Contractor's Representative: \_\_\_\_\_  
Signature

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**00 63 60**  
**CONSTRUCTION CHANGE ORDER PROPOSAL WORKSHEET**

RFP No. \_\_\_\_\_

Date: \_\_\_\_\_

Project Name: **Foundation Repair on Russell House #2 - West Camp Rapid**

Project No. **467063**

| Item Description                             | %     | General | Sub    |               |
|--|-------|---------|--------|---------------|
| Subcontractor Work                           |       |         |        |               |
|  |       |         |        |               |
| General Contractor Work                      |       |         |        |               |
|  |       |         |        |               |
| General Contractor Total:                    |       | \$0.00  |        |               |
| Prime OH & Profit - General Contractor Only: | 8.00% | \$0.00  |        |               |
| Subcontractor Total:                         |       |         | \$0.00 |               |
| Prime OH & Profit on Subcontractors:         | 6.00% | \$0.00  |        | Net Cost      |
| Total:                                       |       | \$0.00  | \$0.00 | \$0.00        |
| Bond:  | 1.00% |         |        | \$0.00        |
| Builder's Risk:                              | 0.21% |         |        | \$0.00        |
| Contractor Excise Tax:                       | 2.04% |         |        | \$0.00        |
| Net Proposed Cost:                           |       |         |        | <b>\$0.00</b> |

\*\* Cost breakdowns and quotes are attached hereto

**NOTE to Prime Contractor:** Attach proposals from all Subcontractors when submitting to the Architect/Engineer for approval. Must be a complete, itemized breakdown of all labor and material similar to that shown above. Subcontractor sales tax can either be charged by the Sub or the Prime, but not both.

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**00 63 63**  
**CONSTRUCTION CHANGE ORDER**

Construction Change Order No. \_\_\_\_\_

Project Name: Foundation Repair on Russell House #2 – West Camp Rapid

Project No. 467063

Contractor: \_\_\_\_\_

You are hereby authorized and directed to make the changes to your contract with the State of South Dakota covering the above project, as described below.

**RFP #X**

**Add/Deduct: +/- \$x,xxx.xx**

- Description

Additional Contract Days and Revised Substantial Completion Date: X of Days – Date (or none)

Additional Contract Days and Revised Final Completion Date: X of Days – Date (or none)

For labor, material and any other necessary costs to make the change or for omitting labor and material and any other costs, you will be allowed the additions or deductions to the amount of your contract as follows:

|                          |                      |
|--------------------------|----------------------|
| ORIGINAL CONTRACT AMOUNT | \$ <u>xxx,xxx.00</u> |
| CONTRACT AMOUNT TO DATE  | \$ <u>xxx,xxx.00</u> |
| ADDITION TO CONTRACT     | \$ <u>xxx,xxx.00</u> |
| DEDUCTION FROM CONTRACT  | \$ <u>xxx,xxx.00</u> |
| NET CHANGE TO CONTRACT   | \$ <u>xxx,xxx.00</u> |
| NET CONTRACT AMOUNT      | \$ <u>xxx,xxx.00</u> |

It is hereby understood that the provisions of the contract will not be otherwise changed or affected by this order.

RECOMMENDED BY:  
DEPARTMENT OF THE MILITARY

STATE OF SOUTH DAKOTA  
DEPARTMENT OF THE MILITARY

\_\_\_\_\_  
CULLEN B. JORGENSEN (Date)  
Engineering Manager

\_\_\_\_\_  
MARK R. MORRELL, Maj Gen (SD), SDNG (Date)  
The Adjutant General

ACCEPTED BY:  
(COMPANY NAME)

\_\_\_\_\_  
(NAME) (Date)  
Title

**SECTION 00 65 00  
CLOSEOUT FORMS**

**PART 1 – GENERAL**

**1.1 GENERAL**

- A. This section outlines required documentation to be provided to the AE and Owner at the conclusion of the project. Final payment will not be made to the Contractor prior to receipt of all closeout forms.

**1.2 REQUIRED SUBMITTALS**

- A. Training Plan
- B. Construction Waste & Recycled Materials Forms
- C. Hazardous Material Disposal Forms
- D. Recycled Material Weight Tickets
- E. Waste Weight Tickets
- F. Record Drawings
- G. O&M Manuals
- H. Real Property Data – Form 1354 (Final)
- I. Pre-Substantial Completion Punch List
- J. Commissioning Issues Log
- K. Formal Notice of Substantial Completion
- L. Certificate of Substantial Completion
- M. Punch List Verification
- N. Formal Notice of Final Project Completion
- O. Unemployment Contribution Certificate
- P. Final Application for Payment

**PART 2 – PRODUCTS**

**2.1 TRAINING PLAN**

- A. Contractor shall submit their training plan in accordance with section 01 78 23 - Operation & Maintenance Data within this project manual.
- B. Contractor shall submit their written training plan a minimum of 30 calendar days prior to scheduling training.
- C. All training must be completed prior to the Substantial Completion Inspection.

**2.2 CONSTRUCTION WASTE & RECYCLED MATERIALS FORMS**

- A. Refer to section 01 74 19 - Construction Waste Management for requirements.
- B. All weight tickets shall be provided to the Owner with the notice of substantially complete or prior.

**2.3 HAZARDOUS MATERIAL DISPOSAL FORMS**

- A. Refer to section 01 74 19 - Construction Waste Management for requirements.
- B. All weight tickets shall be provided to the Owner with the notice of substantially complete or prior.

**2.4 RECORD DRAWINGS**

- A. Work included:
  - 1. Throughout progress of the work, the Contractor shall maintain, at the job or site, an accurate record of changes in the Contract Documents. The record of changes shall be kept current at all times and shall be accessible for periodic review by the AE and/or the Dept. of the Military.
  - 2. Transfer the recorded changes to a set of Record Documents to be provided to the AE prior to the final payment.
- B. Accuracy of records:
  - 1. Thoroughly coordinate changes within the Record Documents, making adequate and proper entries on each page of specifications and each sheet of Drawings and other Documents where such entry is required to show the change properly.
  - 2. Accuracy of records shall be such that future searches for items shown in the Contract Documents may rely reasonably on information obtained from the approved Project Record Documents.
- C. Entries on Drawings



1. Using an erasable colored pencil (not ink or indelible pencil), clearly describe the change by graphic line and note as required.
2. Date all entries.
3. Call attention to the entry by a "cloud" drawn around the area or areas affected.
4. In the event of overlapping changes, use different colors for the overlapping changes.
5. In some cases on the Drawings, arrangements of conduits, circuits, piping, ducts, and similar items, is shown schematically and is not intended to portray precise physical layout.
  - a. Final physical arrangement is determined by the Contractor, subject to the AE's approval.
  - b. However, design of future modifications of the facility may require accurate information as to the final physical layout of items shown only schematically on the Drawings. This layout will be shown on the Record Drawings.
  - c. The AE may waive the requirements for conversion of schematic layouts where, in the AE's judgment, conversion serves no useful purpose. However, do not rely upon waivers being issued except as specifically issued in writing by the AE.
6. Show on the Record Drawings, the following:
  - a. Clearly identify the item by note, such as "cast iron drain", "galv. water", and the like.
  - b. Show, by the symbol or note, the vertical location of the item ("under slab", "in ceiling plenum", "exposed", and the like).
  - c. Make all identification sufficiently descriptive that it may be related reliably to the Specifications.
- D. The purpose of the final Project Record Documents is to provide factual information regarding all aspects of the work, both concealed and visible, to enable future modification of the work to proceed without lengthy and expensive site measurement, investigation and examination.
- E. Review and submittal:
  1. Contractor shall have Record Documents submitted in final form to the AE prior to or as an attachment with the notice of being substantially complete.

## 2.5 O&M MANUALS

- A. The Contractor shall prepare Operation and Maintenance Manuals in accordance with section 01 78 23 - Operation & Maintenance Data within this project manual.
- B. Draft manuals shall be provided to the AE in sufficient time for thorough review.
- C. Contractor shall submit FINAL Operation and Maintenance Manuals to the AE prior to or as an attachment with the notice of being substantially complete.

## 2.6 REAL PROPERTY DATA – FORM 1354 (FINAL)

- A. The Contractor shall submit the Final Form 1354 data to the Owner prior to or as an attachment with the notice of being substantially complete.

## 2.7 BUILDER DATA

- A. The Contractor shall all project installed asset data to the Owner prior to or as an attachment with the notice of being substantially complete.
  1. Data collected shall conform to the requirements identified in Paragraph 2.2 of Section 00 60 00.

## 2.8 PRE-SUBSTANTIAL COMPLETION PUNCH LIST

- A. The AE may request a pre-substantial completion inspection punch list. This will consist of the AE and Contractor conducting a brief inspection of the project site to identify work items that need to be addressed or corrected before the project may be considered substantially complete.
- B. The Contractor shall record the items identified and generate a log of such items. The log shall note what was done to correct the identified issue, the Contractor that corrected the issue, and the date correction was completed.
- C. Contractor shall submit the pre-substantial completion punch list log prior to or as an attachment with the notice of being substantially complete.

## 2.9 COMMISSIONING ISSUES LOG

- A. During initial commissioning verification process the Commissioning Agent will develop a log of all issues found. The Commissioning Agent will provide a list of all items that need to be addressed to the Contractor.
- B. The Contractor shall create a log to track all items. The log shall indicate what was done to correct the identified issue, the Contractor that corrected the issue, and the date correction was completed.

- C. The Contractor shall have all identified issues resolved prior to requesting the Substantial Completion Inspection. The Contractor shall provide the Commissioning Issues Log to the Commissioning Agent and Owner for verification that all items have been completed.

#### 2.10 FORMAL NOTICE OF SUBSTANTIAL COMPLETION

- A. Once the Contractor believes they have met the requirements of Contract Documents and are substantially complete in accordance with the definition in General Conditions 10.1.3, the Contractor shall submit a formal letter to the AE and Owner stating the project is substantially complete and ready for a substantial completion inspect.
- A. If the AE agrees that the project appears ready for the substantial completion inspection per Article 10 to the General Conditions, the AE shall recommend to the Dept. of the Military that a substantial completion inspection be conducted.
- B. If the Dept. of the Military agrees that the work is substantially complete they will schedule the substantial completion inspection within two (2) weeks of receipt of the AE's recommendation.
  - 1. Should the Contractor fail to submit any documentation required prior to or with the notice of being substantially complete the Substantial Completion Inspection will be delayed until submitted. Calendar days will continue to be counted against the project should Contractor fail to submit required documents on time.

#### 2.11 CERTIFICATE OF SUBSTANTIAL COMPLETION

- A. Following the substantial completion inspection the AE will generate a punch list identifying all items noted during the inspection which require correction or attention by the Contractor.
- B. The AE will then draft the Certificate of Substantial Completion, attached the punch list, sign the certificate, and send the Certificate of Substantial Completion to the Contractor. The certificate shall be provided to the Contractor no more than 7 calendar days from the substantial completion inspection date.
  - 1. The following are considered acceptable Certificate forms:
    - A. Specification Section 00 65 16 – Certificate of Substantial Completion Form
    - B. EJCDC C-625 – Certificate of Substantial Completion
    - C. AIA G704 – Certificate of Substantial Completion
  - 2. The certificate shall indicate the date in which the project was determined to be substantially complete, reference the punch list of items to be completed or corrected, and whether the entire project or specific portions of the project are considered substantially complete.
- C. Within 10 calendar days from determination that the project is substantially complete the Contractor shall provide the signed Certificate of Substantial Completion to the Owner.

#### 2.12 PUNCH LIST VERIFICATION

- A. The Contractor shall provide the AE and Owner verification that all identified punch list items have been corrected/completed. This shall be done by producing a document identifying each punch list item, indicate what was done to correct the identified issue, the Contractor that corrected the issue, and the date correction was completed.
- B. The Contractor shall provide the punch list verification documentation to the AE and Owner as an attachment to their formal request for final inspection.

#### 2.13 FORMAL NOTICE OF FINAL PROJECT COMPLETION

- A. The Contractor shall submit a formal letter to the AE and Owner requesting final inspection per Article 11 of the General Conditions.
- B. If the AE agrees that the project appears ready for the final inspection, the AE shall recommend to the Dept. of the Military that the final inspection be scheduled.
- C. If the Dept. of the Military agrees that the work is complete and in full compliance with the contract documents, they will schedule the final inspection within two (2) weeks of receipt of the AE's recommendation.

#### 2.14 CERTIFICATE OF COMPLETION

- A. If the project is determined to be fully complete in accordance with the Contract Documents the AE will prepare the Certificate of Completion Specification Section 00 65 19 – Certificate of Completion Form.
- B. The AE shall provide the certificate to the Contractor no more than 5 calendar days from the final completion inspection date.

- C. Within 10 calendar days from determination that the project is fully complete the Contractor shall provide the signed Certificate of Completion to the Owner.

#### 2.15 UNEMPLOYMENT CONTRIBUTION CERTIFICATE

- A. The Contractor shall include with their final application for payment a State of South Dakota Unemployment Contribution Certificate.
- B. Final payment will not be processed until the certificate is provided to the Owner.

#### 2.16 FINAL APPLICATION FOR PAYMENT

- A. Contractor shall comply with the requirements established in General Condition's section 11.8.
- B. Once all work is fully complete and all required documentation has been submitted and approved the Contractor shall submit their Application for Final Payment.
- C. Included with the submittal shall be AIA Forms G706, G706A and G707 (or equivalent forms) and any other documentation required within the project manual.

### PART 3 – EXECUTION

#### 3.1 SUBSTANTIAL COMPLETION INSPECTION

- A. Reference Articles 10 and 11 of the General Conditions.
- B. The Substantial Completion Inspection will be conducted to review work of all trades.
  - 1. The Contractors is responsible to ensure all Subcontractors are present for the substantial completion inspection. Failure to have all Subcontractors present may be cause for the Dept. of the Military to postpone the substantial completion inspection.
- C. All parties will gather at the scheduled time and location as designated by the meeting invite. Instructions will be provided to the group as a whole.
- D. Based on project size, the inspection will be conducted as one group reviewing all aspects of the project or broken into multiple groups based on trade.
  - 1. Should the inspection be broken into multiple groups all participants will reconvene at the end of the inspection to discuss findings.
- E. The AE shall record all items of work that need to be corrector or completed in accordance with the Contract Documents.
- F. The AE and Owner will determine overall consensus if the project is substantially complete.
- G. Participants will determine the dollar value associated with all work items identified that need to be corrected or completed.
- H. In accordance with SD Codified Law twice the value of the remaining work will be withheld from payment.
- I. The AE will consolidate all item identified for correction or completion into a "Punch List".
- J. The AE shall provide the consolidated Punch List to the Contractor within 7 calendar days from the date of the inspection.

#### 3.2 FINAL COMPLETION INSPECTION

- A. Reference Articles 10 and 11 of the General Conditions.
- B. A Final Completion Inspection will be conducted to review all items identified on the Punch List.
  - 1. It is the Contractors responsibility to assure all Subcontractors with work listed on the "punch list" are present for the final inspection. Failure to have all Subcontractors present may be cause for the Dept. of the Military to postpone the final inspection.
- C. All parties will gather at the scheduled time and location as designated by the meeting invite.
- D. All items on the Punch List will be inspected to ensure they have been completed in accordance with the Contract Documents.
- E. The project will only be determined to be Final Complete if all items have been corrected/completed in accordance with the Contract Documents.
  - 1. The Contractor's failure to complete all items prior to the Final Completion Inspection will require additional inspections to be conducted.
  - 2. The Contractor shall pay each AE fees for re-inspection of the project site due to their failure to complete all item prior to requesting a Final Completion Inspection.
- F. Once the project has been determined to be fully complete a Certificate of Completion will be prepared by the AE and circulated for signatures.

**END SECTION 00 65 00**

**00 65 16**  
**CERTIFICATE OF SUBSTANTIAL COMPLETION FORM**

---

|                     |   |
|---------------------|---|
| Project:            | Foundation Repair on Russell House #2 – West Camp Rapid |
| Project No.:        | 467063  |
| Contractor:         |   |
| Architect/Engineer: |   |
| Owner:              | South Dakota Department of the Military                 |

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This [preliminary][final] Certificate of Substantial Completion applies to:

- ☐ All Work
- ☐ The following specified portions of the Work

\_\_\_\_\_

\_\_\_\_\_

**DATE**  
**Date of Substantial Completion**

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows:

|   |                          |             |
|---|--------------------------|-------------|
| Amendments to Owner's responsibilities: | <input type="checkbox"/> | None        |
|   | <input type="checkbox"/> | As follows: |

\_\_\_\_\_

\_\_\_\_\_

|  |                          |             |
|--|--------------------------|-------------|
| Amendments to Contractor's responsibilities: | <input type="checkbox"/> | None        |
|  | <input type="checkbox"/> | As follows: |

\_\_\_\_\_

\_\_\_\_\_

The following documents are attached to and made a part of this Certificate: **Punch List dated xx/xx/xxxx.**

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract.

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
Architect/Engineer

\_\_\_\_\_  
Representative

\_\_\_\_\_  
Date

**South Dakota Department of the Military**

Owner

\_\_\_\_\_  
Engineering Manager

\_\_\_\_\_  
Date

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**00 65 19**  
**CERTIFICATE OF COMPLETION FORM**

---

|                     |   |
|---------------------|---|
| Project:            | Foundation Repair on Russell House #2 – West Camp Rapid |
| Project No.:        | 467063  |
| Contractor:         |   |
| Architect/Engineer: |   |
| Owner:              | South Dakota Department of the Military                 |

---

Scope of work covered by this acceptance is applicable only to the work identified in the substantial completion acceptance form(s) dated: \_\_\_\_\_.

\_\_\_\_\_  
**Date of Completion**

**FINAL COMPLETION**

The work performed under this contract has been inspected and found to be complete. This constitutes the Owner's acceptance for Final Completion for the **ENTIRE** contract amount. The Date of Final Completion of the Project is hereby established as set forth above. In accordance with the General Conditions of the Contract, this is to confirm the results of the Final Completion inspection(s).

The Contractor has completed the list of items identified on the Pre-Final and Final punch list(s) that the inspection team required corrected or completed before final acceptance of the Work in accordance with the General Conditions.

Work accepted with incomplete punch list items or failure of the Owner or other parties to identify Work that does not comply with the Contract Documents or is defective in operation or workmanship does not constitute a waiver of the Owner's rights under the Contract or relieve the Contractor of its responsibility for performance or warranties.

In accordance with the General Conditions, the Date of Final Completion is that Date jointly certified by the Architect/Engineer, Owner, and Contractor that the Work is completed and the Contract is fully satisfied according to the Contract Documents. Completion of all Work is a condition Precedent to the Contractor's right to receive Final Payment.

The **CONTRACTOR** has completed/corrected the items identified on all referenced punch list(s) and the requirements of the Contract are fully satisfied according to the Contract Documents.

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
Representative

\_\_\_\_\_  
Date

The **ARCHITECT/ENGINEER** agrees that the Work noted in this Final Acceptance is completed in accordance with the Contract Documents.

\_\_\_\_\_  
Architect/Engineer

\_\_\_\_\_  
Representative

\_\_\_\_\_  
Date

The **OWNER** accepts the Work designated herein to be in accordance with the requirements for Final Completion. Except as provided in the Contract Documents, the South Dakota Department of the Military accepts the Project as complete and accepts responsibility for security, maintenance, and utilities except for Builder's Risk, which is hereby terminated upon the Effective Date of this Acceptance, all other Contractor provided insurance remains in effect through the Warranty period.

**South Dakota Department of the Military**  
Owner

\_\_\_\_\_  
Engineering Manager

\_\_\_\_\_  
Date

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**00 73 00**  
**SUPPLEMENTARY CONDITIONS**

**PART 1 – GENERAL**

**1.1 DESCRIPTION**

This section identifies modifications, clarifications, and additions to Section 00 00 07 – General Conditions. The Contractor is responsible for ensuring compliance with all requirements and providing proper documentation to verify and certify such requirements.

**1.2 ADDITIONAL PROCUREMENT REQUIREMENTS**

**A. Build America, Buy America**

1. The Contractor covenants and agrees that it will comply with The Infrastructure Investment and Jobs Act (IIJA). Pub. L. No. 117-58, which includes the Build America, Buy America Act. Pub. L. No. 117-58, 70901-52. No funds may be obligated to this project unless all of the iron, steel, manufactured products, and construction materials used in the project are produced in the United States.
2. Additional information may be found at the GSA website, BuyAmerican.gov
3. No special waivers will be considered. Only General Applicability Waivers will be accepted as published by the Government.

**B. Recycled Content**

1. The Contractor covenants and agrees that it will use and/or install products composed of the highest percent of recovered material or biobased content practicable, or at least meet, but may exceed, the minimum recovered materials or biobased content of an EPA or USDA designated product.
2. Product Supplier Directory for EPA purchasing recommendations related to Recovered Materials Advisory Notice is available at <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>
3. USDA designated items are available at <http://www.biopreferred.gov>
4. Exemptions
  - a. Only products identified in the construction documents to be of virgin material.
  - b. Should the Contractor encounter difficulties finding products produced in the United States or wishing to use a product not containing recovered material meeting or exceeding the EPA recovered content guidelines, a waiver may be requested.
    - 1) Waivers will require review and approval from National Guard Bureau and will take an extensive period of time for review and approval.
    - 2) Contractor is made aware of this requirement as additional time will not be granted for waiver of noncompliant products.
    - 3) Written justification and documented approval must be included in the shop drawing submittal.

**C. Or Equal Clause**

Requests for such approval must be consistent with Instructions to Bidders paragraph 8, Article 6.3.4 General Conditions to Agreement of Construction, and must be made in writing to the AE, not later than 10 days prior to the bid opening. This “prior” approval of material or equipment as equal to that specified will be made in writing in the form of an addendum issued by the AE to all plan holders of record. The base bid and any alternate shall be based on materials only as specified or approved.

It is the sole responsibility of the Contractor to document to the satisfaction of the AE that proposed material, item, or piece of equipment is equal or better than that identified on the plans or in the specifications. The requirements of this Article shall be strictly enforced. Failure of the Contractor or Subcontractors to identify and submit in writing requests for approval not later than 10 days prior to the bid opening shall not be just cause for future request for or expectation of acceptance for substitution during the construction period.

**1.3 SPECIAL CONTRACT REQUIREMENTS**

- A. The Contractor covenants and agrees that it will comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330), as supplemented by Department of Labor regulations (29 CFR Part 5). As applied to this project, the Contract Work Hours and Safety Standards Act specifies that no laborer or mechanic doing any part of the work contemplated by this project shall be required or permitted to work more than 40 hours in any work week unless paid for all additional hours at not less than 1 1/2 times the basic rate of pay.
- B. The Contractor covenants and agrees that it will comply with Executive Order 11246 of September 24, 1965 entitled “Equal Employment Opportunity,” as amended by Department of Labor regulations (41 CFR Chapter 60).

- C. The Contractor covenants and agrees that no person shall be denied benefits, or otherwise be subjected to discrimination in connection with the Contractor's performance under this contract, on the grounds of race, religion, color, national origin, gender or handicap. Accordingly, and to the extent applicable, the Contractor covenants and agrees to comply with the following:
  - 1. Title VII of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq.), and DoD regulations issued thereunder (32 CFR Part 300);
  - 2. Executive Order 11246 and Department of Labor regulations issued thereunder (41 CFR Part 60);
  - 3. Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. § 794) and DoD regulations issued thereunder (32 CFR Part 56); and
  - 4. The Age Discrimination Act of 1975 (42 U.S.C. § 6101 et seq.) and regulations issued thereunder (45 CFR Part 90).
- D. The Contractor covenants and agrees that it will comply with provisions of the Drug-Free Work Place Act of 1988 (Public Law 100-690, Title V, Subtitle D; 41 U.S.C. § 701 et seq.) and will maintain a drug-free workplace. The Final Rule, Government-Wide Requirements for Drug-Free Workplace (Grants), issued by the Office of Management and Budget and the Department of Defense (32 CFR Part 28, Subpart f) to implement provisions of the Drug-Free Work Place Act of 1988, is incorporated by reference and the Contractor covenants and agrees to comply with provisions thereof, including amendments to the Final Rule that may hereafter be issued.
- E. The Contractor covenants and agrees that it will comply with the Copeland "Anti-Kickback" Act (18 U.S.C. 874), as supplemented in Department of Labor regulations (29 CFR Part 3). As applied to this project, the Copeland "Anti-Kickback" Act makes it unlawful to induce, by force, intimidation, threat of procuring dismissal from employment, or otherwise, any person employed in the construction or repair of public buildings or public works, financed in whole or in part by the United States, to give up any part of the compensation to which that person is entitled under a contract of employment.

#### **1.4 DISCREPANCIES, ERRORS AND OMISSIONS**

- A. In the event any error, omission or discrepancy in or between drawings and specifications exists or appears to exist, Contractor shall not attempt to profit from such obviously unintentional error, but shall have same explained or adjusted by the AE before submitting their proposal/bid. In the event such clarification is not obtained, the Contractor shall be deemed to have estimated the work as follows:
  - 1. Discrepancies between the drawings and specifications, the specifications shall govern.
  - 2. Discrepancies between the schedule and drawings, the schedules shall govern.
  - 3. Discrepancies between plan drawings and approved shop drawings, the plan drawings shall govern.
  - 4. Discrepancies between drawings, the drawing at the larger scale shall govern.
  - 5. Materials shown on drawings but not described in specifications, the drawings shall govern.
  - 6. Discrepancies between manufacturer's printed installation instructions and the project specifications, the manufacturer's installation instructions shall govern provided the manufacturer's requirements are more stringent than that specified.

#### **1.5 ENGINEERING AND LAYOUT**

- A. The Contractor shall provide competent engineering services of layout and execute the work in accordance with the contract requirements. The Contractor shall verify the figures shown on the survey before undertaking any construction work and shall be responsible for the accuracy of the finished work.
- B. The AE has established or will establish such general reference points as will, in his judgment, enable the Contractor to proceed with the work. If the Contractor finds that any previously established reference points have been destroyed or displaced, The Contractor shall promptly notify the AE.
- C. The Contractor shall protect and preserve the established bench marks and monuments and shall make no changes in locations without the written approval of the AE. Any bench marks and monuments which may be lost or destroyed or which required shifting because of necessary changes in grades or locations shall, subject to prior approval by the AE, be replaced and accurately located by the Contractor.

### **PART 2 – PRODUCTS**

### **PART 3 – EXECUTION**

**END SECTION 00 73 00**

**SECTION 00 73 63**  
**SECURITY REQUIREMENTS**

**PART 1 – GENERAL**

**1.1 GENERAL**

Included in this section are the Contractor's responsibilities to ensure construction sites and SDARNG property remain secure at all times during the construction process.

**1.2 SECURITY**

- A. Job site security is the responsibility of the Contractor. The Contractor shall take all necessary, prudent, and reasonable actions to secure the project site and the construction limits, including temporary enclosures and storage facilities, against unauthorized entry and theft. An equivalent security level and measures of the adjacent facility shall be maintained.
- B. The Contractor is advised current national "Force Protection Condition" (FPCON) ratings are applicable to all SDARNG facilities statewide. At any time the FPCON level may be increased to a heightened level requiring additional security measures.

Increased security levels may include, but are not limited to, limited personnel access, thorough entry screening of all personnel, random vehicle searches, parking limitations, and other measures may also be enforced. Cooperation with the Dept. of the Military and local SDARNG personnel with respect to FPCON issues is essential and compliance with FPCON measures directed are mandatory for the Prime Contractor, subcontractors, vendors, and suppliers, all employees of those entities, and any other person or persons having business regarding the work of the project who require access to the SDARNG facility.

FPCON measures directed and deemed necessary but which cause delay to the project or which have a negative impact upon the Prime Contractor's abilities to perform the work shall be subject to consideration as Changes in the Work in accordance with Article 14 of the General Conditions to Agreement for Construction.

**1.3 FACILITY ACCESS**

- A. The Contractor shall submit a SDARNG Contractor Access Application for the individual identified at the Contractor's Superintendent for the project. The Superintendent will be required to pass a background check for unescorted access to the SDARNG project site. The Contractor will be required to have a Superintendent that is able to pass a background check. The Superintendent must be onsite during all time's additional employees or Subcontractors are onsite. The Superintendent is ultimately responsible for all project site security and related issues.
- B. The Contractor shall submit an Employee Access List (EAL) identifying each employee's name and driver's license number or other form of government issued ID number. Only employees on the EAL will be permitted to work on the project site. This list must be kept current throughout the duration of the project. Employees entering the facility may be required to temporarily surrender a government-issued photo ID, such as a driver's license, to verify access clearance.
- C. The Dept. of the Military may, at its sole option, issue to the Contractor one or more proximity cards programmed to allow access to the facility. If such a card(s) is issued, the Contractor shall be responsible to assure only authorized employees utilize the card. The Contractor shall promptly notify the Dept. of the Military in the event the card is lost or damaged in a manner that it cannot be used. The Contractor shall pay \$5.00 for each lost or damaged card. All cards shall be returned to the Dept. of the Military upon completion of the project.

**PART 2 – PRODUCTS – NOT USED**

**PART 3 – EXECUTION – NOT USED**

**END SECTION 00 73 63**

**PART 1 – GENERAL**

**1.1 PROJECT LOCATION**

- A. Facility is located on National Guard Road on West Camp Rapid, Rapid City, SD 57702
- B. Interested bidders should contact the SD Dept. of the Military Project Manager, Kelly Eitreim, at (605) 737-6273 or [kelly.eitreim@state.sd.us](mailto:kelly.eitreim@state.sd.us) to make arrangements for access to the facility for site visits.
- C. Pre-bid walk-thru meeting will be held on September 20, 2023 at 1:00 PM MT meeting at National Guard Road and Red Dale Drive intersection to be escorted out to the site.

**1.2 PROJECT DESCRIPTION**

- A. Project Scope of Work Includes:
  - 1. Structurally reinforce failing stone foundation. Fix and support main support beams. Fix and replace failing grout on chimney. Grade site to achieve positive slope around the house.
- B. Building will be occupied during construction. Contractor shall avoid undue disturbance to building occupants.
- C. Contractor shall not block or obstruct building exits in any way.
- D. Storage areas for materials will be provided within close proximity to the buildings. Exact location will be discussed in greater detail at the preconstruction meeting.

**1.3 DISCREPANCIES, ERRORS AND OMISSIONS**

- A. In the event any error, omission or discrepancy in or between drawings and specifications exists or appears to exist, Contractor shall not attempt to profit from such obviously unintentional error, but shall have same explained or adjusted by the AE before submitting their proposal/bid. In the event such clarification is not obtained, the Contractor shall be deemed to have estimated the work as follows:
  - 1. Discrepancies between the drawings and specifications, the specifications shall govern.
  - 2. Discrepancies between the schedule and drawings, the schedules shall govern.
  - 3. Discrepancies between plan drawings and approved shop drawings, the plan drawings shall govern.
  - 4. Discrepancies between drawings, the drawing at the larger scale shall govern.
  - 5. Materials shown on drawings but not described in specifications, the drawings shall govern.
  - 6. Discrepancies between manufacturer's printed installation instructions and the project specifications, the manufacturer's installation instructions shall govern provided the manufacturer's requirements are more stringent than that specified.

**1.4 ENGINEERING AND LAYOUT**

- A. The Contractor shall provide competent engineering services of layout and execute the work in accordance with the contract requirements. The Contractor shall verify the figures shown on the survey before undertaking any construction work and shall be responsible for the accuracy of the finished work.
- B. The AE has established or will establish such general reference points as will, in his judgment, enable the Contractor to proceed with the work. If the Contractor finds that any previously established reference points have been destroyed or displaced, The Contractor shall promptly notify the AE.
- C. The Contractor shall protect and preserve the established bench marks and monuments and shall make no changes in locations without the written approval of the AE. Any bench marks and monuments which may be lost or destroyed or which required shifting because of necessary changes in grades or locations shall, subject to prior approval by the AE, be replaced and accurately located by the Contractor.

**1.5 OR EQUAL CLAUSE**

Requests for such approval must be consistent with Instructions to Bidders paragraph 8, Article 6.3.4 General Conditions to Agreement of Construction, and must be made in writing to the AE, not later than 10 days prior to the bid opening. This "prior" approval of material or equipment as equal to that specified will be made in writing in the form of an addendum issued by the AE to all plan holders of record. The base bid and any alternate shall be based on materials only as specified or approved. It is the sole responsibility of the Contractor to document to the satisfaction of the AE that proposed material, item, or piece of equipment is equal or better than that identified on the plans or in the specifications. The requirements of this Article shall be strictly enforced. Failure of the Contractor or Subcontractors to identify and submit in writing requests for approval not later than 10 days prior to the bid opening shall not be just cause for future request for or expectation of acceptance for substitution during the construction period.

## 1.6 SPECIAL CONTRACT REQUIREMENTS

- A. The Contractor covenants and agrees that it will comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330), as supplemented by Department of Labor regulations (29 CFR Part 5). As applied to this project, the Contract Work Hours and Safety Standards Act specifies that no laborer or mechanic doing any part of the work contemplated by this project shall be required or permitted to work more than 40 hours in any work week unless paid for all additional hours at not less than 1 1/2 times the basic rate of pay.
- B. The Contractor covenants and agrees that it will comply with Executive Order 11246 of September 24, 1965 entitled "Equal Employment Opportunity," as amended by Department of Labor regulations (41 CFR Chapter 60).
- C. The Contractor covenants and agrees that it will comply with the Copeland "Anti-Kickback" Act (18 U.S.C. 874), as supplemented in Department of Labor regulations (29 CFR Part 3). As applied to this project, the Copeland "Anti-Kickback" Act makes it unlawful to induce, by force, intimidation, threat of procuring dismissal from employment, or otherwise, any person employed in the construction or repair of public buildings or public works, financed in whole or in part by the United States, to give up any part of the compensation to which that person is entitled under a contract of employment.
- D. The Contractor covenants and agrees that it will comply with The Buy American Act (41 U.S.C. 10). The Buy American Act gives preference to domestic end products and domestic construction material. In addition, the Memorandum of Understanding between the United States of America and the European Economic Community (EEC) on Government Procurement, and the North American Free Trade Agreement (NAFTA), provide that EEC and NAFTA end products and construction materials are exempted from application of the Buy American Act.
- E. The Contractor covenants and agrees that it will comply with provisions of the Drug-Free Work Place Act of 1988 (Public Law 100-690, Title V, Subtitle D; 41 U.S.C. § 701 et seq.) and will maintain a drug-free workplace. The Final Rule, Government-Wide Requirements for Drug-Free Workplace (Grants), issued by the Office of Management and Budget and the Department of Defense (32 CFR Part 28, Subpart f) to implement provisions of the Drug-Free Work Place Act of 1988, is incorporated by reference and the Contractor covenants and agrees to comply with provisions thereof, including amendments to the Final Rule that may hereafter be issued.
- F. The Contractor covenants and agrees that no person shall be denied benefits, or otherwise be subjected to discrimination in connection with the Contractor's performance under this contract, on the grounds of race, religion, color, national origin, gender or handicap. Accordingly, and to the extent applicable, the Contractor covenants and agrees to comply with the following:
  1. Title VII of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq.), and DoD regulations issued thereunder (32 CFR Part 300);
  2. Executive Order 11246 and Department of Labor regulations issued thereunder (41 CFR Part 60);
  3. Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. § 794) and DoD regulations issued thereunder (32 CFR Part 56); and
  4. The Age Discrimination Act of 1975 (42 U.S.C. § 6101 et seq.) and regulations issued thereunder (45 CFR Part 90).

## 1.7 PERMITS

- A. South Dakota Department of Agriculture and Natural Resources
  1. Notice of Intent

The SD Department of the Military will submit a Notice of Intent to Obtain Coverage Under the SWD General Permit for Stormwater Discharge Associated with Construction Activities.
  2. General Surface Water Discharge Permit
    - a. The Contractor shall obtain the General Surface Water Discharge Permit for Temporary Discharge Activities Under the South Dakota Surface Water Discharge System.
    - b. The Contractor shall conduct and maintain proper records for inspections, maintenance, and repairs as outlined in the permit requirements. A copy of all records shall be provided to the SD Dept. of the Military Project Manager.
- B. Local Municipalities
  1. The State of South Dakota and Contractors working under contracts with the State of South Dakota are not required to, nor shall they obtain a local municipality building, utility, or other permit(s) in accordance with Attorney General record of opinion of State Codified Law and Administrative Rules.

2. Local municipalities shall be granted access to the project site for inspection of construction activities. The local inspector shall provide a report of inspection and any recommendations to the SD Dept. of the Military Project Manager. The State will then review such recommendations and implement any recommendations at the State's discretion.

## **PART 2 – PRODUCTS**

## **PART 3 – EXECUTION**

**END SECTION 01 01 00**

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**01 14 00**  
**WORK RESTRICTIONS**

**PART 1 – GENERAL**

**1.1 GENERAL**

- A. This section outlines special site-specific requirements that the Contractor must comply with when working on South Dakota Department of the Military/SDARNG projects.

**1.2 SPECIAL SITE CONDITIONS**

A. Tobacco Free Environment Policy:

1. In accordance with the Governor's Executive Order 2006-04; Effective July 1, 2006, smoking and the use of all tobacco products will be prohibited on all real property or portions thereof owned by the State of South Dakota under the direction and control of the Governor and all real property leased by the state. This policy applies to employees, clients, Contractors, visitors, and includes all vehicles, parking lots and walkways leading into facilities.
2. Smoking is prohibited within and outside of all buildings, except in designated smoking areas. This applies to existing buildings, buildings under construction and buildings under renovation. Discarding tobacco materials other than into designated tobacco receptacles is considered littering and is subject to fines.
3. The Project Manager will identify designated smoking areas.
4. No Smoking Policy  
The Contractor shall provide a written No Smoking Policy to the SD DOM Project Manager. This policy shall be provided to the Project Manager before, at, or no later than 10 calendar days from the date of the Notice to Proceed. The policy shall incorporate State of South Dakota requirements and the Contractor's plan for oversight and enforcement of the policy.

B. Work Hours

1. Regular working hours are established as:
  - a. Readiness Center or Training Facilities: 6:30AM to 5:00PM Monday through Friday.
  - b. Some facilities are not open on Monday's. Contractor may be limited to working a Tuesday through Friday (10-hour days) schedule or limited to working in common areas access areas.
  - c. Maintenance Shops: 6:30AM to 5:00PM Tuesday through Friday.

C. Work Outside Regular Hours

Work outside regular working hours will be permitted in non-secure areas. Work within secure areas shall be coordinated with the Project Manager no less than 7 calendar days prior to such work to allow arrangements to be made. Make utility cutovers after normal working hours or on Saturdays, Sundays, Mondays, and holidays unless directed otherwise.

C. Occupied and Existing Building[s]

1. The Contractor shall be working in an existing building or around existing buildings which are occupied. Do not enter the building[s] without prior approval of the Project Manager.
2. The existing buildings and their contents must be kept secure at all times.
3. Provide temporary closures as required to maintain security as directed by the Contracting Officer.
4. Provide dust covers or protective enclosures to protect existing work that remains, and Government material during the construction period.
5. Relocate movable furniture away from the Contractor's working area as required to perform the work, protect the furniture, and replace the furniture in its original location[s] upon completion of the work. Leave attached equipment in place, and protect it against damage, or temporarily disconnect, relocate, protect, and reinstall it at the completion of the work.

**1.3 WORK ON CAMP RAPID**

- A. Only employees listed on an approved Employee Access List will be granted access onto Camp Rapid.
- B. Contractor shall comply with the requirement set forth in section 01 35 30 - Security Requirements of this project manual.
- C. The Contractor shall contact the Dept. of the Military project manager on matters regarding traffic control, access to Camp Rapid, and other similar matters related to the site.

**1.4 WORK ADJACENT TO AIRPORTS**

- A. The Contractor is advised that an area of the construction site is in close proximity to active runways, taxiways, and other aircraft operating areas. As a result, the Contractor will be required to comply with the applicable safety requirements set by the Airport and the Federal Aviation Administration (FAA).



- B. The Contractor is advised that the Airport and/or the FAA Air Traffic Control Tower (ATCT) may require the Contractor to schedule his work to minimize impacts to airport operations.
- C. An area of the construction site is located within the area of and is under the control of the Airport (generally noted as within the airport security fence). For work in this area, the Contractor is responsible to coordinate his work in advance with the Airport and with the ATCT, and for his full compliance with Airport and ATCT safety and security standards.
- D. The Airport is required to prevent unauthorized access and to ensure that proper badging and escort procedures are followed. The construction Contractor will need to coordinate all security and access issues with the Airport. The Contractor must ensure that his personnel remain within the limits of construction at all times that they are on the site. The Contractor must ensure that any access gates used to gain access to the construction site remained locked unless in use. When the access gate is in use, the Contractor will be required to provide one employee at the gate to control access and egress.
- E. The Contractor shall take all necessary measures to ensure that construction materials and debris are not blown by winds such that aviation/flight hazards result.
- F. The Airport and the ATCT requires 72 hour advance notification of the use of any cranes on the construction site, and to comply with all crane operation safety requirements established by the Regional Airport. Boom heights greater than 100' above the ground will not be allowed without special written permission by the Airport. When not in use, crane booms will be lowered.
- G. All construction shall be carried out in accordance with FAA Advisory Circular 150/5370-2C "Operational Safety on Airports during Construction". It is the Contractor's sole responsibility to ensure the requirements of this Advisory are fully complied with.
- H. The Contractor shall establish and maintain radio contact with the FAA Air Traffic Control Tower (ATCT), as required by the Airport, using radios provided by the Contractor.
- I. All construction equipment must be marked and lighted in accordance with FAA Advisory Circular 70/7460-1J, "Observation Marking and Lighting", Chapters 3, 4, 5, and 13. It is the Contractor's sole responsibility to ensure the requirements of this Advisory are fully complied with.
- J. The Contractor shall be responsible for locating utility lines and hand digging to locate FAA cabling and shall provide adequate provisions to protect all FAA cables exposed during the proposed work. The Contractor is responsible for advising the Airport and the ATCT, in writing, if cable relocation is required, and to fully coordinate any cable relocations with the Airport and ATCT to minimize any impact to airport operations. Any damage to Airport and/or FAA cables, access roads, or facilities shall be immediately repaired, to the satisfaction of the Airport and/or the FAA, at the Contractor's sole expense.
- K. The Contractor shall be responsible for erecting and maintaining lighting and barriers around the construction area, as may be required by the Airport and/or the ATCT.
- L. The Contractor shall strictly avoid driving on runways, taxiways, ramps, and aprons. If for any reason, the Contractor leaves dirt and debris on these surfaces, they shall be immediately cleaned, to the satisfaction of the Regional Airport and/or the ATCT.

#### 1.4 UTILITY CUTOVERS AND INTERRUPTIONS

- A. Make utility cutovers and interruptions after normal working hours or on Saturdays, Sundays, Mondays, and Government holidays. Conform to procedures required in paragraph WORK OUTSIDE REGULAR HOURS.
- B. Ensure that new utility lines are complete, except for the connection, before interrupting existing service.
- C. Interruption to water, sanitary sewer, storm sewer, telephone service, electric service, air conditioning, heating, fire alarm, and compressed air are considered utility cutovers pursuant to the paragraph WORK OUTSIDE REGULAR HOURS.

## PART 2 – PRODUCTS

## PART 3 – EXECUTION

**END SECTION 01 14 00**

**01 18 00  
PROJECT UTILITIES**

**PART 1 – GENERAL**

**1.1 SUMMARY**

This section covers Utility Locate Services and the availability of utilities to the Contractor in order to complete the scope of work included with the project.

**1.2 UTILITY LOCATES**

- A. The Contractor shall contact SD One Call and ensure utilities are marked prior to any excavation taking place. The Contractor shall provide a copy of each SD One Call utility request submitted for record keeping purposes.
- B. Contractor shall coordinate and pay for a private locate service to mark all utility locations on State of South Dakota property or leased property on which public utilities will not conduct locates. The Contractor shall submit the private utility locator's employee information to include company name, employee name, and date of birth, and driver's license number for a background check and clearance prior to being able to conduct work at a SDARNG facility.

**1.3 WATER**

- A. The Contractor will furnish, at their expense, all water required for use on the project.
- B. The Contractor shall provide all means of conveying water to place where required, including temporary valves, meters, pipe, etc., and remove any such temporary means when their purpose has been served.
- C. If necessary the Mechanical Contractor shall provide a temporary water connection for the use of all Contractors at the job site and on each floor as the project progresses. They will expedite the permanent water service and furnish outlets for use of all Contractors.

**1.4 ELECTRICITY**

- A. The Contractor will make necessary arrangements with a licensed electrical contractor for temporary electrical service and pay all expenses in connecting, maintaining, and removing therewith.
  - 1. Electrical energy, including the costs of a temporary meter, will be paid by the Contractor.
  - 2. Permanent lighting fixtures may be used during construction only with the permission of the AE.

**1.5 HEAT**

- A. The Contractor will furnish, install, maintain, and be responsible for the costs associated with all temporary equipment and materials necessary to provide temporary heating services to the location of construction.
- B. The Contractor shall pay all heating energy expenses up to the day of project completion/acceptance by the Dept. of the Military.
- C. The Contractor may not use Owner furnished electricity identified in paragraph 1.4 above for heating purposes of spaces larger than 400 SF.

**PART 2 – PRODUCTS – NOT USED**

**PART 3 – EXECUTION – NOT USED**

**END SECTION 01 18 00**

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**01 32 16**  
**PROJECT SCHEDULES**

**PART 1 – GENERAL**

**1.1 SUMMARY**

- A. The Contractor shall develop a Critical Path Method (CPM) plan and schedule demonstrating fulfillment of the contract requirements (Project Schedule), and shall keep the Project Schedule up-to-date in accordance with the requirements of this section and shall utilize the plan for scheduling, coordinating and monitoring work under this contract (including all activities of subcontractors, equipment vendors and suppliers). Conventional Critical Path Method (CPM) technique shall be utilized to satisfy both time and cost applications.
- B. Construction Progress Schedule shall comply with the requirements set forth in General Conditions Article 6 of the Agreement for Construction.

**1.2 CONTRACTOR'S REPRESENTATIVE**

- A. The Contractor shall designate an authorized representative responsible for the Project Schedule including preparation, review and progress reporting with and to the Dept. of the Military (DOM) Project Manager.
- B. The Contractor's representative shall have direct project control and complete authority to act on behalf of the Contractor in fulfilling the requirements of this specification section.

**1.3 PROJECT SCHEDULE SUBMITTAL**

- A. Contractor shall prepare and submit Construction Progress Schedules in accordance with the General Conditions Article 6 to the Agreement for Construction.
- B. Original Submittal:
  - 1. Within 10 calendar days after receipt of Notice to Proceed, the Contractor shall submit for the Project Manager's review.
  - 2. Each activity/event on the computer-produced schedule shall contain as a minimum, but not limited to, activity/event ID, activity/event description, duration, early start date, early finish date, late start date, late finish date and total float.
  - 3. Work activity/event relationships shall be restricted to finish-to-start and start-to-start without lead or lag constraints.
  - 4. Activity/event date constraints, not required by the contract, will not be accepted unless submitted to and approved by the Project Manager.
  - 5. The complete working Project Schedule shall reflect the Contractor's approach to scheduling the complete project and shall meet the detailed requirements.
- C. Progress Schedules
  - 1. Shall be prepared in accordance with the requirements set forth in this section for the original project schedule and shall be distributed for review at each project progress meeting.

**1.4 PROJECT SCHEDULE DETAILED REQUIREMENTS**

- A. Level of Detail Required  
Develop the Project Schedule to the appropriate level of detail to address major milestones and to allow for satisfactory project planning and execution. Failure to develop the Project Schedule to an appropriate level of detail will result in its disapproval. The Project Manager will consider, but is not limited to, the following characteristics and requirements to determine appropriate level of detail:
- B. Activity Durations  
Reasonable activity durations are those that allow the progress of ongoing activities to be accurately determined between update periods. Less than 2 percent of all non-procurement activities may have Original Durations (OD) greater than 30 calendar days.
- C. Design and Permit Activities  
Include design and permit activities with the necessary conferences and follow-up actions and design package submission dates. Include the design schedule in the project schedule, showing the sequence of events involved in carrying out the project design tasks within the specific contract period. Provide at a detailed level of scheduling sufficient to identify all major design tasks, including those that control the flow of work. Also include review and correction periods associated with each item.
- D. Procurement Activities  
Include activities associated with the critical submittals and their approvals, procurement, fabrication, and delivery of long lead materials, equipment, fabricated assemblies, and supplies. Long lead procurement activities are those with an anticipated procurement sequence of over 90 calendar days.

#### E. Mandatory Tasks

Include the following activities/tasks in the initial project schedule and all updates.

- a. Submission, review and acceptance of Preconstruction Submittals (individual activity for each).
- b. Submission, review and acceptance of features require design completion Submission, review and acceptance of design packages.
- c. Submission of mechanical/electrical/information systems layout drawings.
- d. Long procurement activities
- e. Submission and approval of O&M manuals with Training Videos.
- f. Submission and approval of as-built drawings.
- g. Submission and approval of DD1354 data and installed equipment lists.
- h. Submission and approval of BUILDER Data
- i. Submission and approval of Build America, Buy America Certification
- j. Submission and approval of EPA and USDA Recycled Content Certifications
- k. Submission and approval of testing and air balance (TAB).
- l. Submission of TAB specialist design review report.
- m. Submission and approval of Fire Protection specialties.
- n. Submission and approval of Building Commissioning Plan, test data, and reports: Develop the schedule logic associated with testing and commissioning of mechanical systems to a level of detail consistent with the contract commissioning requirements. All tasks associated with all building testing and commissioning will be completed prior to submission of building commissioning report and subsequent contract completion.
- o. Air and water balancing.
- p. Building commissioning - Functional Performance Testing.
- q. Controls testing plan submission.
- r. Controls testing.
- s. Performance Verification testing.
- t. Other systems testing, if required.
- u. Contractor's pre-final inspection.
- v. Correction of punch list from Contractor's pre-final inspection.
- w. Owner's pre-final inspection.
- x. Correction of punch list from Owner's pre-final inspection.
- y. Final inspection.

### 1.5 PROGRESS REPORTING

- A. The Contractor shall accurately update the Project Schedule and all other data required and provide this information to the AE and Project Manager three work days in advance of the scheduled progress meeting.
- B. Job progress will be reviewed to verify:
  1. Actual start and/or finish dates for updated/completed activities/events.
  2. Remaining duration for each activity/event started, or scheduled to start, but not completed.
  3. Logic, time and cost data for change orders, and supplemental agreements that are to be incorporated into the Project Schedule.
  4. Changes in activity/event sequence and/or duration which have been made.
  5. Completion percentage for all completed and partially completed activities/events.
  6. Logic and duration revisions required by this section of the specifications.
  7. Activity/event duration and percent complete shall be updated independently.
- C. The Contractor, AE, and Project Manager shall review the schedule at the progress meeting and mutually agree on current progress, delays, and adjustments.
- D. After completion of the joint review, the contractor shall generate an updated computer-produced calendar-dated schedule and submit to the AE and Project Manager.

### 1.6 PAYMENT TO THE CONTRACTOR

- A. The Contractor shall be entitled to a monthly progress payment upon approval of estimates as determined from the currently approved updated project schedule. Monthly payment requests shall include: a listing of all agreed upon project schedule changes and associated data; and an electronic file (s) of the resulting monthly updated schedule.
- B. Approval of the Contractor's monthly Application for Payment shall be contingent, among other factors, on the submittal of a satisfactory monthly update of the project schedule.

## **1.7 RESPONSIBILITY FOR COMPLETION**

- A. If it becomes apparent from the current revised monthly progress schedule that phasing or contract completion dates will not be met, the Contractor shall execute some or all of the following remedial actions:
  - 1. Increase construction manpower in such quantities and crafts as necessary to eliminate the backlog of work.
  - 2. Increase the number of working hours per shift, shifts per working day, working days per week, the amount of construction equipment, or any combination of the foregoing to eliminate the backlog of work.
  - 3. Reschedule the work in conformance with the specification requirements.
- B. Prior to proceeding with any of the above actions, the Contractor shall notify and obtain approval from the AE and Project Manager for the proposed schedule changes. If such actions are approved, the representative schedule revisions shall be incorporated by the Contractor into the Project Schedule before the next update, at no additional cost.

## **1.8 ADJUSTMENT OF CONTRACT COMPLETION**

- A. The contract completion time will be adjusted only for causes specified in this contract. Request for an extension of the contract completion date by the Contractor shall be supported with a justification, CPM data and supporting evidence as the AE and Project Manager may deem necessary for determination as to whether or not the Contractor is entitled to an extension of time under the provisions of the contract.
- B. Submission of proof based on revised activity/event logic, durations (in work days) is obligatory to any approvals. The schedule must clearly display that the Contractor has used, in full, all the float time available for the work involved in this request. The Project Manager's determination as to the total number of days of contract extension will be based upon the current computer-produced calendar-dated schedule for the time period in question and all other relevant information.
- C. The Contractor shall submit each request for a change in the contract completion date to the Project Manager in writing accordance with the contract documents and procedures.
- D. All delays due to non-work activities/events such as RFI's, Weather, and similar non-work activities/events shall be analyzed on a month by month basis.

## **1.9 FAILURE TO ACHIEVE PROGRESS**

Should the progress fall behind the approved project schedule for reasons other than those that are excusable within the terms of the contract, the Project Manager may require provision of a written recovery plan for approval. The plan must detail how progress will be made-up to include which activities will be accelerated by adding additional crews, longer work hours, extra workdays, etc.

- A. Artificially Improving Progress  
Artificially improving progress by means such as, but not limited to, revising the schedule logic, modifying or adding constraints, shortening activity durations, or changing calendars in the project schedule is prohibited. Indicate assumptions made and the basis for any logic, constraint, duration and calendar changes used in the creation of the recovery plan. Any additional resources, manpower, or daily and weekly work hour changes proposed in the recovery plan must be evident at the work site and documented in the daily report along with the Schedule Narrative Report.
- B. Failure to Perform  
Failure to perform work and maintain progress in accordance with the supplemental recovery plan may result in an interim and final unsatisfactory performance rating and may result in corrective action directed by the Project Manager pursuant to the provisions of the General Conditions of the contract.
- C. Recovery Schedule  
Should the Project Manager find it necessary, submit a recovery schedule.

## **PART 2 – PRODUCTS – NOT USED**

## **PART 3 – EXECUTION – NOT USED**

**END SECTION 01 32 16**

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**01 33 23**  
**SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES**

**PART 1 – GENERAL**

**1.1 DESCRIPTION**

- A. This specification defines the general requirements and procedures for submittals. A submittal is information submitted to the SD Dept. of the Military and/or AE for review to establish compliance with the contract documents.
- B. Detailed submittal requirements are found in the technical sections of the specifications. The SD Dept. of the Military and/or AE may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective technical specifications at no additional cost.
- C. Approval of a submittal does not relieve the Contractor of the responsibility for any error which may exist. The Contractor is responsible for fully complying with all contract requirements and the satisfactory construction of all work, including the need to check, confirm, and coordinate the work of all subcontractors for the project. Non-compliant material incorporated in the work will be removed and replaced at the Contractor's expense.

**1.2 DEFINITIONS**

- A. Preconstruction Submittals: Submittals which are required prior to issuing contract notice to proceed or starting construction. For example, Certificates of insurance; Surety bonds; Site-specific safety plan; Construction progress schedule; Schedule of values; Submittal register; List of proposed subcontractors.
- B. Shop Drawings: Drawings, diagrams, and schedules specifically prepared to illustrate some portion of the work. Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be integrated and coordinated.
- C. Product Data: Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions, and brochures, which describe and illustrate size, physical appearance, and other characteristics of materials, systems, or equipment for some portion of the work. Samples of warranty language when the contract requires extended product warranties.
- D. Samples: Physical examples of materials, equipment, or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged. Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project. Field samples and mock-ups constructed to establish standards by which the ensuing work can be judged.
- E. Design Data: Calculations, mix designs, analyses, or other data pertaining to a part of work.
- F. Test Reports: Report which includes findings of a test required to be performed by the Contractor on an actual portion of the work. Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.
- G. Certificates: Document required of Contractor, or of a manufacturer, supplier, installer, or subcontractor through Contractor. The purpose is to document procedures, acceptability of methods, or personnel qualifications for a portion of the work.
- H. Manufacturer's Instructions: Pre-printed material describing installation of a product, system, or material, including special notices and MSDS concerning impedances, hazards, and safety precautions.
- I. Manufacturer's Field Reports: Documentation of the testing and verification actions taken by manufacturer's representative at the job site on a portion of the work, during or after installation, to confirm compliance with manufacturer's standards or instructions. The documentation must indicate whether the material, product, or system has passed or failed the test.
- J. Operation and Maintenance Data: Manufacturer data that is required to operate, maintain, troubleshoot, and repair equipment, including manufacturer's help, parts list, and product line documentation. This data shall be incorporated in an operations and maintenance manual.
- K. Closeout Submittals: Documentation necessary to properly close out a construction contract. For example, Record Drawings and as-built drawings. Also, submittal requirements necessary to properly close out a phase of construction on a multi-phase contract.

**1.3 SUBMITTAL REGISTER**

- A. The submittal register will list items of equipment and materials for which submittals are required by the specifications. This list may not be all inclusive and additional submittals may be required by the specifications. The Contractor is not relieved from supplying submittals required by the contract documents but which have been omitted from the submittal register.



- B. The submittal register will serve as a scheduling document for submittals and will be used to control submittal actions throughout the contract period.
- C. The Contractor will provide the initial submittal register in electronic format. Contractor shall track all submittals by maintaining a complete list, including completion of all data columns, including dates on which submittals are submitted, returned for correction, and approved, and any comments or additional instruction provided.
- D. The Contractor shall update the submittal register as submittal actions occur and maintain the submittal register at the project site until final acceptance of all work.
- E. The Contractor shall provide/submit formal updates of the submittal register at each progress meeting.

#### **1.4 SUBMITTAL SCHEDULING**

- A. Submittals are to be scheduled, submitted, reviewed, and approved prior to the acquisition of the material or equipment.
- B. Coordinate scheduling, sequencing, preparing, and processing of submittals with performance of work so that work will not be delayed by submittal processing. Allow time for potential resubmittal.
- C. No delay costs or time extensions will be allowed for time lost in late submittals or resubmittals.
- D. All submittals are required to be approved prior to the start of the specified work activity.

#### **1.5 SUBMITTAL PREPARATION**

- A. Each submittal is to be complete and in sufficient detail to allow ready determination of compliance with contract requirements.
- B. Collect required data for each specific material, product, unit of work, or system into a single submittal. Prominently mark choices, options, and portions applicable to the submittal. Partial submittals will not be accepted for expedition of construction effort. Submittal will be returned without review if incomplete.
- C. If available product data is incomplete, provide Contractor-prepared documentation to supplement product data and satisfy submittal requirements.
- D. All irrelevant or unnecessary data shall be removed from the submittal to facilitate accuracy and timely processing. Submittals that contain the excessive amount of irrelevant or unnecessary data will be returned with review.
- E. Provide a transmittal form for each submittal with the following information:
  - 1. Project title, location and number.
  - 2. Construction contract number.
  - 3. Date of the drawings and revisions.
  - 4. Name, address, and telephone number of subcontractor, supplier, manufacturer, and any other subcontractor associated with the submittal.
  - 5. List paragraph number of the specification section and sheet number of the contract drawings by which the submittal is required.
  - 6. When a resubmission, add alphabetic suffix on submittal description. For example, submittal 18 would become 18A, to indicate resubmission.
  - 7. Product identification and location in project.
- F. The Contractor is responsible for reviewing and certifying that all submittals are in compliance with contract requirements before submitting for review. Proposed deviations from the contract requirements are to be clearly identified. All deviations submitted must include a side by side comparison of item being proposed against item specified. Failure to point out deviations will result in required removal and replacement of such work at the Contractor's expense.
- G. Stamp, sign, and date each submittal transmittal form indicating action taken.

#### **1.6 ADDITIONAL REQUIRED DATA**

- A. All submittals shall clearly indicate compliance with the Infrastructure Investment and Jobs Act Pub, Title IX – Build America, Buy America (BABA). All of the iron, steel, manufactured products, and construction materials used in the project must be produced in the United States in accordance with the BABA requirements.
- B. All submittals shall clearly indicate recycled content of all materials and compliance with the EPA procurement guideline.
  - 1. All products to be used and/or installed shall be composed of the highest percent of recovered material or biobased content practicable, or at least meet, but may exceed, the minimum recovered materials or biobased content of an EPA or USDA designated product.

2. Product Supplier Directory for EPA purchasing recommendations related to Recovered Materials Advisory Notice is available at <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>
3. USDA designated items are available at <http://www.biopreferred.gov>
- C. Exemptions
  1. Only products identified in the construction documents to be of virgin material.
  2. Should the Contractor encounter difficulties finding products produced in the United State or wishing to use a product not containing recovered material meeting the EPA recovered content guidelines, a waiver may be requested.
    - a. Waivers will require review and approval from National Guard Bureau and will take an extensive period of time for review and approval.
    - b. Contractor is made aware of the requirement as additional time will not be granted for waiver of noncompliant products.
    - c. Written justification and documented approval must be included in the shop drawing submittal for any noncompliant products/materials.

#### **1.7 SUBMITTAL FORMAT AND TRANSMISSION**

- A. Provide submittals in electronic format, with the exception of material samples. Use PDF as the electronic format, unless otherwise specified or directed.
- B. Compile the electronic submittal file as a single, complete document. Name the electronic submittal file specifically according to its contents.
- C. Electronic files must be of sufficient quality that all information is legible. Generate PDF files from original documents so that the text included in the PDF file is both searchable and can be copied. If documents are scanned, Optical Character Resolution (OCR) routines are required.
- D. E-mail electronic submittal documents smaller than 5MB in size to e-mail addresses as directed by the SD Dept. of the Military and/or AE.
- E. Provide electronic documents over 5MB through an electronic FTP file sharing system. Confirm that the electronic FTP file sharing system can be accessed by all parties. The Contractor is responsible for setting up, providing, and maintaining the electronic FTP file sharing system for the construction contract period of performance.
- F. Provide hard copies of submittals when requested. Up to 3 hard copies of any submittal may be requested at no additional cost.

#### **1.8 SAMPLES**

- A. Submit two sets of physical samples showing range of variation, for each required item.
- B. Where samples are specified for selection of color, finish, pattern, or texture, submit the full set of available choices for the material or product specified.
- C. When color, texture, or pattern is specified by naming a particular manufacturer and style, include one sample of that manufacturer and style, for comparison.
- D. Before submitting samples, the Contractor is to ensure that the materials or equipment will be available in quantities and timeframe required in the project. No change, substitution, or time extension will be permitted after a sample has been approved.
- E. The SD Dept. of the Military reserves the right to disapprove any material or equipment which previously has proven unsatisfactory in service.
- F. Physical samples supplied maybe requested back for use in the project after reviewed and approved.

#### **1.9 OPERATION AND MAINTENANCE DATA**

- A. Submit data specified for a given item within O&M Manual.

#### **1.10 TEST REPORTS**

- A. If materials or quality control testing is required, the SD Dept. of the Military will hire an independent Testing Firm.
- B. Specific tests may be required after work has been installed or completed which could require contractor to repair test area at no additional cost to contract.

### **1.11 REVIEW OF SUBMITTALS AND RFI**

- A. SD Dept. of the Military and/or AE will review all submittals for compliance with the technical requirements of the contract documents. The AE for this project will assist the SD Dept. of the Military in reviewing all submittals and determining contractual compliance. Review will be only for conformance with the applicable codes, standards and contract requirements.
- B. Period of review for submittals begins when the submittal is received from the Contractor.
- C. Period of review for each resubmittal is the same as for initial submittal.
- D. Review period is 15 working days for submittals.
- E. Review period is 10 working days for RFIs.
- F. Submittals will be returned to the Contractor with the following notations:
  - 1. "Approved": authorizes the Contractor to proceed with the work covered.
  - 2. "Approved as noted": authorizes the Contractor to proceed with the work covered provided the Contractor incorporates the noted comments and makes the noted corrections.
  - 3. "Disapproved, revise and resubmit": indicates noncompliance with the contract requirements or that submittal is incomplete. Resubmit with appropriate changes and corrections. No work shall proceed for this item until resubmittal is approved.
  - 4. "Not reviewed": indicates submittal does not have evidence of being reviewed and approved by Contractor or is not complete. A submittal marked "not reviewed" will be returned with an explanation of the reason it is not reviewed. Resubmit submittals after taking appropriate action.

### **1.12 APPROVED SUBMITTALS**

- A. Approval of submittals is not to be construed as a complete check, and indicates only that the general method of construction, materials, detailing, and other information are satisfactory.
- B. Approval of a submittal does not relieve the Contractor of the responsibility for any error which may exist. The Contractor is responsible for fully complying with all contract requirements and the satisfactory construction of all work, including the need to check, confirm, and coordinate the work of all subcontractors for the project. Non-compliant material incorporated in the work will be removed and replaced at the Contractor's expense.
- C. After submittals have been approved, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.
- D. Retain a copy of all approved submittals at project site, including approved samples.

### **1.13 WITHHOLDING OF PAYMENT**

- A. Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

## **PART 2 – PRODUCTS – NOT USED**

## **PART 3 – EXECUTION – NOT USED**

**END SECTION 01 33 23**

**01 35 26**  
**SAFETY REQUIREMENTS**

**PART 1 – GENERAL**

**1.1 SUMMARY**

The following section outlines minimum safety requirements to be followed by the Contractor. The Contractor is responsible to development, posting, training, and compliance of an Accident Prevention Plan. Contractor shall

**1.2 APPLICABLE PUBLICATIONS:**

- A. Latest publications listed below form part of this Article to extent referenced. Publications are referenced in text by basic designations only.
- B. American Society of Mechanical Engineers (ASME)
  - B30.3 ..... Tower Cranes
  - B30.7 ..... Winches
  - B30.9 ..... Slings
  - B30.20 ..... Below-the-Hook Lifting Devices
  - B30.22 ..... Articulating Boom Cranes
  - B30.23 ..... Personnel Lifting Systems Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings
  - B30.26 ..... Rigging Hardware
- C. American Society of Safety Engineers (ASSE):
  - A10.1-2011 ..... Pre-Project & Pre-Task Safety and Health Planning
  - A10.34-2012 ..... Protection of the Public on or Adjacent to Construction Sites
  - A10.38-2013 ..... Basic Elements of an Employer's Program to Provide a Safe and Healthful Work Environment American National Standard Construction and Demolition Operations
  - A10.44 ..... Control of Energy Sources (Lockout/Tagout) for Construction and Demolition Operations
  - Z359.1 ..... The Fall Protection Code
  - Z359.2 ..... Minimum Requirements for a Comprehensive Managed Fall Protection Program
  - ASSP Z359.3 ..... Safety Requirements for Lanyards and Positioning Lanyards
  - ASSP Z359.4 ..... Safety Requirements for Assisted-Rescue and Self-Rescue Systems, Subsystems and Components
  - ASSP Z359.6 ..... Specifications and Design Requirements for Active Fall Protection Systems
  - ASSP Z359.7 ..... Qualification and Verification Testing of Fall Protection Products
  - ASSP Z359.11 ..... Safety Requirements for Full Body Harnesses
  - ASSP Z359.12 ..... Connecting Components for Personal Fall Arrest Systems
  - ASSP Z359.13 ..... Personal Energy Absorbers and Energy Absorbing Lanyards
  - ASSP Z359.14 ..... Safety Requirements for Self-Retracting Devices for Personal Fall Arrest and Rescue Systems
  - ASSP Z359.15 ..... Safety Requirements for Single Anchor Lifelines and Fall Arresters for Personal Fall Arrest Systems
  - ASSP Z359.16 ..... Safety Requirements for Climbing Ladder Fall Arrest Systems
  - ASSP Z359.18 ..... Safety Requirements for Anchorage Connectors for Active Fall Protection Systems
  - ASSP Z490.1 ..... Criteria for Accepted Practices in Safety, Health, and Environmental Training
- D. American Society for Testing and Materials (ASTM):
  - ASTM F855 ..... Standard Specifications for Temporary Protective Grounds to Be Used on De-energized Electric Power Lines and Equipment
- E. National Fire Protection Association (NFPA):
  - 10 ..... Standard for Portable Fire Extinguishers
  - 30 ..... Flammable and Combustible Liquids Code
  - 51B ..... Standard for Fire Prevention during Welding, Cutting and Other Hot Work
  - 70 ..... National Electrical Code
  - 70B ..... Recommended Practice for Electrical Equipment Maintenance

- 70E ..... Standard for Electrical Safety in the Workplace
- 99 ..... Health Care Facilities Code
- 241 ..... Standard for Safeguarding Construction, Alteration, and Demolition Operations
- F. Manual of Uniform Traffic Control Devices
- G. Occupational Safety and Health Administration (OSHA):
  - All Sections
  - 29 CFR 1904 ..... Reporting and Recording Injuries & Illnesses
  - 29 CFR 1910 ..... Safety and Health Regulations for General Industry
  - 29 CFR 1926 ..... Safety and Health Regulations for Construction Industry
  - CPL 2-0.124..... Multi-Employer Citation Policy
- H. Telecommunications Industry Association (TIA)

### 1.3 DEFINITIONS:

- A. **Critical Lift.** A lift with the hoisted load exceeding 75% of the crane's maximum capacity; lifts made out of the view of the operator (blind picks); lifts involving two or more cranes; personnel being hoisted; and special hazards such as lifts over occupied facilities, loads lifted close to power-lines, and lifts in high winds or where other adverse environmental conditions exist; and any lift which the crane operator believes is critical.
- B. **OSHA "Competent Person" (CP).** One who is capable of identifying existing and predictable hazards in the surroundings and working conditions which are unsanitary, hazardous or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them (see 29 CFR 1926.32(f)).
- C. **"Qualified Person"** means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.
- D. **High Visibility Accident.** Any mishap which may generate publicity or high visibility.
- E. Accident/Incident Criticality Categories:
  - No Impact** – near miss incidents that should be investigated but are not required to be reported;
  - Minor incident/impact – incidents that require first aid or result in minor equipment damage (less than \$5000). These incidents must be investigated and shall be reported;
  - Moderate Incident/Impact** – These incidents must be investigated and are required to be reported. These include any work-related injury or illness that results in:
    1. Days away from work (any time lost after day of injury/illness onset);
    2. Restricted work;
    3. Transfer to another job;
    4. Medical treatment beyond first aid;
    5. Loss of consciousness;
    6. A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (5) above or,
    7. Any incident that leads to major equipment damage (greater than \$5000).
  - Major Incident/Impact** – Any mishap that leads to fatalities, hospitalizations, amputations, and losses of an eye as a result of contractors' activities. Or any incident which leads to major property damage (greater than \$20,000) and/or may generate publicity or high visibility. These incidents must be investigated and are required to be reported as soon as practical, but not later than 2 hours after the incident.
- E. Medical Treatment. Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even though provided by a physician or registered personnel.

### 1.4 REGULATORY REQUIREMENTS:

- A. In addition to the detailed requirements included in the provisions of this contract, comply with 29 CFR 1926, comply with 29 CFR 1910 as incorporated by reference within 29 CFR 1926, comply with ASSE A10.34, and all applicable federal, state, and local laws, ordinances, criteria, rules and regulations.
- B. Submit matters of interpretation of standards for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements govern except with specific approval and acceptance by the Project Manager and SDARNG SOHO.

1.5 ACCIDENT PREVENTION PLAN (APP):

- A. The APP (aka Construction Safety & Health Plan) shall interface with the Contractor's overall safety and health program. Include any portions of the Contractor's overall safety and health program referenced in the APP in the applicable APP element and ensure it is site-specific.
- B. The Prime Contractor is considered to be the "controlling authority" for all worksite safety and health of each subcontractor(s). Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out.
- C. The APP shall be prepared as follows:
  - 1. Written in English by a qualified person who is employed by the Prime Contractor articulating the specific work and hazards pertaining to the project. Specifically articulating the safety requirements found within these contract safety specifications.
  - 2. Address both the Prime Contractors and the subcontractors work operations.
  - 3. State measures to be taken to control hazards associated with materials, services, or equipment provided by suppliers.
  - 4. Address all the elements/sub-elements and in order as follows:
    - a. **SIGNATURE SHEET** Title, signature, and phone number of the following:
      - 1) Plan preparer (Qualified Person such as corporate safety staff person or contracted Certified Safety Professional with construction safety experience);
      - 2) Plan approver (company/corporate officers authorized to obligate the company);
      - 3) Plan concurrence (e.g., Chief of Operations, Corporate Chief of Safety, Corporate Industrial Hygienist, project manager or superintendent, project safety professional).
    - b. **BACKGROUND INFORMATION** List the following:
      - 1) Contractor;
      - 2) Project name;
      - 3) Contract number;
      - 4) Brief project description, description of work to be performed, and phases of work anticipated.
    - c. **STATEMENT OF SAFETY AND HEALTH POLICY**
      - 1) Provide a copy of current corporate/company Safety and Health Policy Statement, detailing commitment to providing a safe and healthful workplace for all employees.
    - d. **RESPONSIBILITIES AND LINES OF AUTHORITIES.** Provide the following:
      - 1) Statement of the employer's ultimate responsibility for the implementation of the SOH program;
      - 2) Identification and accountability of personnel responsible for safety at both corporate and project level. Contracts specifically requiring safety or industrial hygiene personnel shall include a copy of their resumes;
      - 3) Names of Competent and Qualified Person(s) and proof of competency/qualification to meet specific OSHA Competent/Qualified Person(s) requirements must be attached;
      - 4) Requirements that no work shall be performed unless a designated competent person is present on the job site;
      - 6) Lines of authority;
      - 7) Policies and procedures regarding noncompliance with safety requirements (to include disciplinary actions for violation of safety requirements) should be identified;
    - e. **SUBCONTRACTORS AND SUPPLIERS**  
Provide procedures for coordinating SOH activities with other employers on the job site:
      - 1) Identification of subcontractors and suppliers (if known);
      - 2) Safety responsibilities of subcontractors and suppliers.
    - f. **TRAINING**
      - 1) Site-specific SOH orientation training at the time of initial hire or assignment to the project for every employee before working on the project site is required.
      - 2) Mandatory training and certifications that are applicable to this project (e.g., explosive actuated tools, crane operator, rigger, crane signal person, fall protection, electrical lockout/NFPA 70E, machine/equipment lockout, confined space, etc.) and any requirements for periodic retraining/recertification are required.
      - 3) Procedures for ongoing safety and health training for supervisors and employees shall be established to address changes in site hazards/conditions.
      - 4) OSHA 10-hour training is required for all workers on site and the OSHA 30-hour training is required for Trade Competent Persons (CPs)

g. **ACCIDENT/INCIDENT INVESTIGATION & REPORTING**

The Contractor shall conduct mishap investigations of all Moderate and Major as well as all High Visibility Incidents. The APP shall include accident/incident investigation procedure and identify person(s) responsible to provide the following to the Project Manager:

- 1) Exposure data (man-hours worked);
- 2) Accident investigation reports;
- 3) Project site injury and illness logs.

h. **PLANS (PROGRAMS, PROCEDURES) REQUIRED**

Based on a risk assessment of contracted activities and on mandatory OSHA compliance programs, the Contractor shall address all applicable occupational, patient, and public safety risks in site-specific compliance and accident prevention plans. These Plans shall include but are not be limited to procedures for addressing the risks associates with the following:

- 1) Emergency response;
- 2) Contingency for severe weather;
- 3) Fire Prevention;
- 4) Medical Support;
- 5) Posting of emergency telephone numbers;
- 6) Prevention of alcohol and drug abuse;
- 7) Site sanitation (housekeeping, drinking water, toilets);
- 8) Hazard communication program;
- 9) Welding/Cutting "Hot" work;
- 10) Electrical Safe Work Practices (Electrical LOTO/NFPA 70E);
- 11) General Electrical Safety;
- 12) Site-Specific Fall Protection & Prevention;
- 13) Excavation/trenching;
- 14) Asbestos abatement;
- 15) Crane Critical lift;
- 16) Respiratory protection;
- 17) Health hazard control program;
- 18) Heat/Cold Stress Monitoring;
- 19) Demolition plan (to include engineering survey);
- 20) Formwork and shoring erection and removal;
- 21) PreCast Concrete;
- 22) Public (Mandatory compliance with ANSI/ASSE A10.34-2012).

- D. Submit the APP to the Project Manager for review of compliance with contract requirements. Work cannot proceed without an accepted APP.
- E. Once accepted by the Project Manager, the APP and attachments will be enforced as part of the contract.
- F. Once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the Project Manager.

1.6 **ACTIVITY HAZARD ANALYSES (AHA):**

- A. AHAs are also known as Job Hazard Analyses, Job Safety Analyses, and Activity Safety Analyses. Before beginning each work activity involving a type of work presenting hazards not experienced in previous project operations or where a new work crew or sub-contractor is to perform the work, the Contractor(s) performing that work activity shall prepare an AHA (Example electronic AHA forms can be found on the US Army Corps of Engineers web site).
- B. AHAs shall define the activities being performed and identify the work sequences, the specific anticipated hazards, site conditions, equipment, materials, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level of risk.
- C. Work shall not begin until the AHA for the work activity has been accepted by the Project Manager and discussed with all engaged in the activity, including the Contractor, subcontractor(s), and on-site representatives at preparatory and initial control phase meetings.

1.7 **PRECONSTRUCTION CONFERENCE:**

- A. Contractor representatives who have a responsibility or significant role in implementation of the accident prevention program, as required by 29 CFR 1926.20(b)(1), on the project shall attend the preconstruction conference to gain a mutual understanding of its implementation. This includes the project superintendent, subcontractor superintendents, and any other assigned safety and health professionals.

- 1.8 “SITE SAFETY AND HEALTH OFFICER” (SSHO) AND “COMPETENT PERSON” (CP):
- A. The Prime Contractor shall designate a minimum of one SSHO at each project site that will be identified as the SSHO to administer the Contractor's safety program and government-accepted Accident Prevention Plan. Each subcontractor shall designate a minimum of one CP in compliance with 29 CFR 1926.20 (b)(2) that will be identified as a CP to administer their individual safety programs.
  - B. Further, all specialized Competent Persons for the work crews will be supplied by the respective contractor as required by 29 CFR 1926 (i.e. Asbestos, Electrical, Cranes, & Derricks, Demolition, Fall Protection, Fire Safety/Life Safety, Ladder, Rigging, Scaffolds, and Trenches/Excavations).
  - C. These Competent Persons can have collateral duties as the subcontractor's superintendent and/or work crew lead persons as well as fill more than one specialized CP role (i.e. Asbestos, Electrical, Cranes, & Derricks, Demolition, Fall Protection, Fire Safety/Life Safety, Ladder, Rigging, Scaffolds, and Trenches/Excavations).
  - D. The SSHO or an equally-qualified Designated Representative/alternate will maintain a presence on the site during construction operations. CPs will maintain presence during their construction activities in accordance with above mentioned clause. A listing of the designated SSHO and all known CPs shall be submitted prior to the start of work as part of the APP with the training documentation and/or AHA as listed in Section 1.8 below.
  - E. The repeated presence of uncontrolled hazards during a contractor's work operations will result in the designated CP as being deemed incompetent and result in the required removal of the employee.
- 1.9 TRAINING:
- A. The designated Prime Contractor SSHO must meet the requirements of all applicable OSHA standards and be capable (through training, experience, and qualifications) of ensuring that the requirements of 29 CFR 1926.16 and other appropriate Federal, State and local requirements are met for the project. As a minimum the SSHO must have completed the OSHA 30-hour Construction Safety class and have five (5) years of construction industry safety experience or three (3) years if he/she possesses a Certified Safety Professional (CSP) or have a safety and health degree from an accredited university or college.
  - B. All designated CPs shall have completed the OSHA 30-hour Construction Safety course within the past 5 years.
  - C. In addition to the OSHA 30 Hour Construction Safety Course, all CPs with high hazard work operations such as operations involving asbestos, electrical, cranes, demolition, work at heights/fall protection, fire safety/life safety, ladder, rigging, scaffolds, and trenches/excavations shall have a specialized formal course in the hazard recognition & control associated with those high hazard work operations. Documented “repeat” deficiencies in the execution of safety requirements will require retaking the requisite formal course.
  - D. All other construction workers shall have the OSHA 10-hour Construction Safety Outreach course and any necessary safety training to be able to identify hazards within their work environment.
  - E. Submit training records associated with the above training requirements to the Project Manager for review of compliance upon request.
  - F. Prior to any worker for the contractor or subcontractors beginning work, they shall undergo a safety briefing provided by the SSHO or his/her designated representative. As a minimum, this briefing shall include information on the site-specific hazards, construction limits, safety guidelines, means of egress, break areas, work hours, locations of restrooms, use of equipment, emergency procedures, accident reporting etc. Documentation shall be provided to the Project Manager that individuals have undergone contractor's safety briefing.
  - G. Ongoing safety training will be accomplished in the form of every other week documented safety meeting.
- 1.10 INSPECTIONS:
- A. The SSHO shall conduct frequent and regular safety inspections (daily) of the site and each of the subcontractors CPs shall conduct frequent and regular safety inspections (daily) of their work operations as required by 29 CFR 1926.20(b)(2).
- 1.11 ACCIDENTS, OSHA 300 LOGS, AND MAN-HOURS:
- A. The prime contractor shall establish and maintain an accident reporting, recordkeeping, and analysis system to track and analyze all injuries and illnesses, high visibility incidents, and accidental property damages that occur on site. Notify the Project Manager as soon as practical, but no more than four hours after any accident meeting the definition of a Moderate or Major incidents, High Visibility Incidents, or any weight handling and hoisting equipment accident. Within notification include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (to include type of construction equipment used, PPE used, etc.).



- B. Conduct an accident investigation for all Minor, Moderate and Major Incidents as defined in the paragraph DEFINITIONS, and property damage accidents resulting in at least \$20,000 in damages, to establish the root cause(s) of the accident. Complete and provide the report to the Project Manager within 5 calendar days of the accident. The Project Manager will provide copies of any required or special forms.
- C. A summation of all man-hours worked by the contractor and associated sub-contractors for each month will be reported to the Project Manager monthly.
- D. A summation of all Minor, Moderate, and Major incidents experienced on site by the contractor and associated sub-contractors for each month will be provided to the Project Manager monthly. The contractor and associated sub-contractors' OSHA 300 logs will be made available to the Project Manager as requested.

#### 1.12 PERSONAL PROTECTIVE EQUIPMENT (PPE):

- A. PPE is governed in all areas by the nature of the work the employee is performing. For example, specific PPE required for performing work on electrical equipment is identified in NFPA 70E, Standard for Electrical Safety in the Workplace.
- B. Mandatory PPE includes:
  - 1. Hard Hats – unless written authorization is given by the SSHO in circumstances of work operations that have limited potential for falling object hazards such as during finishing work or minor remodeling. With authorization to relax the requirement of hard hats, if a worker becomes exposed to an overhead falling object hazard, then hard hats would be required in accordance with the OSHA regulations.
  - 2. Safety glasses - unless written authorization is given by the SSHO in circumstances of no eye hazards, appropriate safety glasses meeting the ANSI Z.87.1 standard must be worn by each person on site.
  - 3. Appropriate Safety Shoes – based on the hazards present, safety shoes meeting the requirements of ASTM F2413-11 shall be worn by each person on site unless written authorization is given by SSHO in circumstances of no foot hazards.
  - 4. Hearing protection - Use personal hearing protection at all times in designated noise hazardous areas or when performing noise hazardous tasks.
  - 5. Should the SSHO provide written authorization to not use PPE as noted above, documentation must be provided to the Project Manager within 24 hours.

#### 1.13 FIRE SAFETY

- A. Fire Safety Plan: Establish and maintain a site-specific fire protection program in accordance with 29 CFR 1926. Prior to start of work, prepare a plan detailing project-specific fire safety measures, including periodic status reports, and submit to Project Manager for record keeping. This plan may be an element of the APP.
- B. Site and Building Access: Maintain free and unobstructed access to facility emergency services and for fire, police and other emergency response forces in accordance with NFPA 241.
- C. Separate temporary facilities, such as trailers, storage sheds, and dumpsters, from existing buildings and new construction by distances in accordance with NFPA 241. For small facilities with less than 20 feet exposing overall length, separate by 10 feet.
- E. Temporary Heating and Electrical: Install, use and maintain installations in accordance with 29 CFR 1926, NFPA 241 and NFPA 70.
- F. Means of Egress: Do not block exiting for occupied buildings, including paths from exits to roads. Minimize disruptions and coordinate with Project Manager.
- G. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions weekly to Project Manager.
- H. Fire Extinguishers: Provide and maintain extinguishers in construction areas and temporary storage areas in accordance with 29 CFR 1926, NFPA 241 and NFPA 10.
- I. Flammable and Combustible Liquids: Store, dispense and use liquids in accordance with 29 CFR 1926, NFPA 241 and NFPA 30.
- K. Sprinklers: Install, test and activate new automatic sprinklers prior to removing existing sprinklers.
- L. Existing Fire Protection: Do not impair automatic sprinklers, smoke and heat detection, and fire alarm systems, except for portions immediately under construction, and temporarily for connections. Request interruptions with Project Manager. All existing or temporary fire protection systems (fire alarms, sprinklers) located in construction areas shall be tested. Parameters for the testing and results of any tests performed shall be recorded and copies provided to the Project Manager.
- M. Smoke Detectors: Prevent accidental operation. Install temporary covers to prevent activation and contamination. Remove temporary covers at end of work operations each day. Coordinate with Project Manager and SD Dept. of the Military Fire & Emergency Services Manager.
- N. Hot Work:

1. Perform and safeguard hot work operations in accordance with NFPA 241 and NFPA 51B. Coordinate with Project Manager and SD Dept. of the Military Fire & Emergency Services Manager.
2. Obtain permits from SD Dept. of the Military Fire & Emergency Services Manager at least 72 hours in advance.
- O. Fire Hazard Prevention and Safety Inspections: Inspect entire construction areas weekly. Coordinate with, and report findings and corrective actions weekly to Project Manager.
- P. Smoking: Smoking is prohibited in and adjacent to construction areas inside existing buildings and additions under construction. In separate and detached buildings under construction, smoking is prohibited except in designated smoking rest areas.
- Q. Dispose of waste and debris in accordance with NFPA 241. Remove from buildings daily.

#### 1.14 ELECTRICAL

- A. All electrical work shall comply with NFPA 70 (NEC), NFPA 70B, NFPA 70E, 29 CFR Part 1910 Subpart J – General Environmental Controls, 29 CFR Part 1910 Subpart S – Electrical, and 29 CFR 1926 Subpart K in addition to other references required by contract.
- B. All qualified persons performing electrical work under this contract shall be licensed journeyman or master electricians. All apprentice electricians performing under this contract shall be deemed unqualified persons unless they are working under the immediate supervision of a licensed electrician or master electrician.
- C. All electrical work will be accomplished de-energized and in the Electrically Safe Work Condition (refer to NFPA 70E for Work Involving Electrical Hazards, including Exemptions to Work Permit). Any Contractor, subcontractor or temporary worker who fails to fully comply with this requirement is subject to immediate termination.

#### 1.15 FALL PROTECTION

- A. The fall protection (FP) threshold height requirement is 6 ft for ALL WORK, unless specified differently or the OSHA 29 CFR 1926 requirements are more stringent, to include steel erection activities, systems-engineered activities (prefabricated) metal buildings, residential (wood) construction and scaffolding work.
  1. The use of a Safety Monitoring System (SMS) as a fall protection method is prohibited.
  2. The use of Controlled Access Zone (CAZ) as a fall protection method is prohibited.
  3. A Warning Line System (WLS) may ONLY be used on floors or flat or low-sloped roofs (between 0 - 18.4 degrees or 4:12 slope) and shall be erected around all sides of the work area (See 29 CFR 1926.502(f) for construction of WLS requirements).
  4. Fall protection while using a ladder will be governed by the OSHA requirements.

#### 1.16 SCAFFOLDS AND OTHER WORK PLATFORMS

- A. All scaffolds and other work platforms construction activities shall comply with 29 CFR 1926 Subpart L.
- B. The fall protection (FP) threshold height requirement is 6 ft.
- C. The following hierarchy and prohibitions shall be followed in selecting appropriate work platforms.
  1. Scaffolds, platforms, or temporary floors shall be provided for all work except that can be performed safely from the ground or similar footing.
  2. Ladders less than 20 feet may be used as work platforms only when use of small hand tools or handling of light material is involved.
  3. Ladder jacks, lean-to, and prop-scaffolds are prohibited.
  4. Emergency descent devices shall not be used as working platforms.
- D. Contractors shall use a scaffold tagging system in which all scaffolds are tagged by the Competent Person. Tags shall be color-coded: green indicates the scaffold has been inspected and is safe to use; red indicates the scaffold is unsafe to use. Tags shall be readily visible, made of materials that will withstand the environment in which they are used, be legible and shall include:
  1. The Competent Person's name and signature;
  2. Dates of initial and last inspections.

#### 1.17 EXCAVATION AND TRENCHES

- A. All excavation and trenching work shall comply with 29 CFR 1926 Subpart P. Excavations less than 5 feet in depth require evaluation by the contractor's "Competent Person" (CP) for determination of the necessity of an excavation protective system where kneeling, laying in, or stooping within the excavation is required.
- C. As required by OSHA 29 CFR 1926.651(b)(1), the estimated location of utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, shall be determined prior to opening an excavation.

1. The planned dig site will be outlined/marked in white prior to locating the utilities.
2. Use of the American Public Works Association Uniform Color Code is required for the marking of the proposed excavation and located utilities.
3. 811 will be called two business days before digging on all local or State lands and public Right-of Ways.
4. Digging will not commence until all known utilities are marked.
5. Utility markings will be maintained by the Contractor.
- D. Excavations will be hand dug or excavated by other similar safe and acceptable means as excavation operations approach within 3 to 5 feet of identified underground utilities. Exploratory bar or other detection equipment will be utilized as necessary to further identify the location of underground utilities.
- E. Excavations greater than 20 feet in depth require a Professional Engineer designed excavation protective system.

#### 1.18 CRANES

- A. All crane work shall comply with 29 CFR 1926 Subpart CC.
- B. Prior to operating a crane, the operator must be licensed, qualified or certified to operate the crane. Thus, all the provisions contained with Subpart CC are effective and there is no "Phase In" date.
- C. A detailed lift plan for all lifts shall be submitted to the Project Manager 14 days prior to the scheduled lift complete with route for truck carrying load, crane load analysis, siting of crane and path of swing and all other elements of a critical lift plan where the lift meets the definition of a critical lift. Critical lifts require a more comprehensive lift plan to minimize the potential of crane failure and/or catastrophic loss. The plan must be reviewed and accepted by the General Contractor before being submitted for review. The lift will not be allowed to proceed without prior acceptance of this document.
- D. Crane operators shall not carry loads
  1. Over the general public or personnel
  2. Over any occupied building unless
    - a. The top two floors are vacated;
    - b. Overhead protection with a design live load of 300 psf is provided.

#### 1.19 CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

- A. All installation, maintenance, and servicing of equipment or machinery shall comply with 29 CFR 1910.147 except for specifically referenced operations in 29 CFR 1926 such as concrete & masonry equipment [1926.702(j)], heavy machinery & equipment [1926.600(a)(3)(i)], and process safety management of highly hazardous chemicals (1926.64). Control of hazardous electrical energy during the installation, maintenance, or servicing of electrical equipment shall comply with Section 1.15 to include NFPA 70E and other requirements discussed in the section.

#### 1.20 CONFINED SPACE ENTRY

- A. All confined space entry shall comply with 29 CFR 1926, Subpart AA except for specifically referenced operations in 29 CFR 1926 such as excavations/trenches [1926.651(g)].
- B. A site-specific Confined Space Entry Plan (including permitting process) shall be developed and submitted to the Project Manager and SD Dept. of the Military Fire & Emergency Services Manager.

#### 1.21 WELDING AND CUTTING

- A. As specified in section 1.14, Hot Work: Perform and safeguard hot work operations in accordance with NFPA 241 and NFPA 51B. Coordinate with Project Manager. Obtain permits from SD Dept. of the Military Fire & Emergency Services Manager at least 72 hours in advance.

#### 1.22 LADDERS

- A. All Ladder use shall comply with 29 CFR 1926 Subpart X.
- B. All portable ladders shall be of sufficient length and shall be placed so that workers will not stretch or assume a hazardous position.
- C. Manufacturer safety labels shall be in place on ladders.
- D. Step Ladders shall not be used in the closed position.
- E. Top steps or cap of step ladders shall not be used as a step.
- F. Portable ladders, used as temporary access, shall extend at least 3 ft (0.9 m) above the upper landing surface.
  1. When a 3 ft (0.9-m) extension is not possible, a grasping device (such as a grab rail) shall be provided to assist workers in mounting and dismounting the ladder.

2. In no case shall the length of the ladder be such that ladder deflection under a load would, by itself, cause the ladder to slip from its support.
- G. Ladders shall be inspected for visible defects on a daily basis and after any occurrence that could affect their safe use. Broken or damaged ladders shall be immediately tagged "DO NOT USE," or with similar wording, and withdrawn from service until restored to a condition meeting their original design.

#### 1.23 FLOOR & WALL OPENINGS

- A. All floor and wall openings shall comply with 29 CFR 1926 Subpart M.
- B. Floor and roof holes/openings are any that measure over 2 inches in any direction of a walking/working surface which persons may trip or fall into or where objects may fall to the level below. Skylights located in floors or roofs are considered floor or roof hole/openings.
- C. All floor, roof openings or hole into which a person can accidentally walk or fall through shall be guarded either by a railing system with toe-boards along all exposed sides or a load-bearing cover. When the cover is not in place, the opening or hole shall be protected by a removable guardrail system or shall be attended when the guarding system has been removed, or other fall protection system.
  1. Covers shall be capable of supporting, without failure, at least twice the weight of the worker, equipment and material combined.
  2. Covers shall be secured when installed, clearly marked with the word "HOLE", "COVER" or "Danger, Roof Opening-Do Not Remove" or color-coded or equivalent methods (e.g., red or orange "X"). Workers must be made aware of the meaning for color coding and equivalent methods.
  3. Roofing material, such as roofing membrane, insulation or felts, covering or partly covering openings or holes, shall be immediately cut out. No hole or opening shall be left unattended unless covered.
  4. Non-load-bearing skylights shall be guarded by a load-bearing skylight screen, cover, or railing system along all exposed sides.
  5. Workers are prohibited from standing/walking on skylights.

#### **PART 2 – PRODUCTS – NOT USED**

##### 2.1 CONFINED SPACE SIGNAGE

Provide permanent signs integral to or securely attached to access covers for new permit-required confined spaces. Signs for confined spaces must comply with NEMA Z535.2. Provide signs with wording: "DANGER-- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER" in bold letters a minimum of one inch in height and constructed to be clearly legible with all paint removed. The signal word "DANGER" must be red and readable from 5 feet.

#### **PART 3 – EXECUTION – NOT USED**

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**SECURITY REQUIREMENTS**

**PART 1 – GENERAL**

**1.1 SUMMARY**

Included in this section are the Contractor's responsibilities to ensure construction sites and SDARNG property remain secure at all times during the construction process.

**1.2 SECURITY**

- A. Job site security is the responsibility of the Contractor. The Contractor shall take all necessary, prudent, and reasonable actions to secure the project site and the construction limits, including temporary enclosures and storage facilities, against unauthorized entry and theft. An equivalent security level and measures of the adjacent facility shall be maintained.
- B. The Contractor is advised current national "Force Protection Condition" (FPCON) ratings are applicable to all SDARNG facilities statewide. At any time the FPCON level may be increased to a heightened level requiring additional security measures.

Increased security levels may include, but are not limited to, limited personnel access, thorough entry screening of all personnel, random vehicle searches, parking limitations, and other measures may also be enforced. Cooperation with the Dept. of the Military and local SDARNG personnel with respect to FPCON issues is essential and compliance with FPCON measures directed are mandatory for the Prime Contractor, subcontractors, vendors, and suppliers, all employees of those entities, and any other person or persons having business regarding the work of the project who require access to the SDARNG facility.

FPCON measures directed and deemed necessary but which cause delay to the project or which have a negative impact upon the Prime Contractor's abilities to perform the work shall be subject to consideration as Changes in the Work in accordance with Article 14 of the General Conditions to Agreement for Construction.

**1.3 FACILITY ACCESS**

- A. The Contractor shall submit a SDARNG Contractor Access Application for the individual identified at the Contractor's Superintendent for the project. The Superintendent will be required to pass a background check for unescorted access to the SDARNG project site. The Contractor will be required to have a Superintendent that is able to pass a background check. The Superintendent must be onsite during all time's additional employees or Subcontractors are onsite. The Superintendent is ultimately responsible for all project site security and related issues.
- B. The Contractor shall submit an Employee Access List (EAL) identifying each employee's name and driver's license number or other form of government issued ID number. Only employees on the EAL will be permitted to work on the project site. This list must be kept current throughout the duration of the project. Employees entering the facility may be required to temporarily surrender a government-issued photo ID, such as a driver's license, to verify access clearance.
- C. The Dept. of the Military may, at its sole option, issue to the Contractor one or more proximity cards programmed to allow access to the facility. If such a card(s) is issued, the Contractor shall be responsible to assure only authorized employees utilize the card. The Contractor shall promptly notify the Dept. of the Military in the event the card is lost or damaged in a manner that it cannot be used. The Contractor shall pay \$5.00 for each lost or damaged card. All cards shall be returned to the Dept. of the Military upon completion of the project.

**PART 2 – PRODUCTS – NOT USED**

**PART 3 – EXECUTION – NOT USED**

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**SOURCES FOR REFERENCE PUBLICATIONS**

**PART 1 – GENERAL**

**1.1 SUMMARY**

This section specifies organizations from which references and standards specified in the project manual are available.

**1.2 REFERENCE ORGANIZATIONS**

The specifications cited in this project manual and associated construction plans may be obtained from the associations or organizations listed below.

|        |   |
|--------|---|
| AACE   | AACE INTERNATIONAL <a href="https://web.aacei.org/">https://web.aacei.org/</a>  |
| ASA    | ACOUSTICAL SOCIETY OF AMERICA <a href="https://acousticalsociety.org/">https://acousticalsociety.org/</a>   |
| ABAA   | AIR BARRIER ASSOCIATION OF AMERICA <a href="https://www.airbarrier.org/">https://www.airbarrier.org/</a>  |
| ACCA   | AIR CONDITIONING CONTRACTORS OF AMERICA <a href="https://www.acca.org/">https://www.acca.org/</a>   |
| ADC    | AIR DUCT COUNCIL <a href="https://flexibleduct.org/">https://flexibleduct.org/</a>  |
| AMCA   | AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC. <a href="http://www.amca.org">http://www.amca.org</a>                                      |
| AHRI   | AIR-CONDITIONING, HEATING AND REFRIGERATION INSTITUTE <a href="http://www.ahrinet.org">http://www.ahrinet.org</a>                                   |
| ATIS   | ALLIANCE FOR TELECOMMUNICATIONS INDUSTRY SOLUTIONS <a href="http://www.atis.org">http://www.atis.org</a>  |
| AA     | ALUMINUM ASSOCIATION <a href="https://www.aluminum.org/">https://www.aluminum.org/</a>  |
| AAMA   | AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION <a href="https://aamanet.org/">https://aamanet.org/</a>  |
| AASHTO | AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS<br><a href="https://www.transportation.org/">https://www.transportation.org/</a> |
| AATCC  | AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS <a href="https://www.aatcc.org/">https://www.aatcc.org/</a>                                  |
| ABMA   | AMERICAN BEARING MANUFACTURERS ASSOCIATION <a href="https://www.americanbearings.org/">https://www.americanbearings.org/</a>                        |
| ACR    | AMERICAN COLLEGE OF RADIOLOGY <a href="https://www.acr.org/">https://www.acr.org/</a>   |
| ACI    | AMERICAN CONCRETE INSTITUTE <a href="https://www.concrete.org/">https://www.concrete.org/</a>   |
| ACPA   | AMERICAN CONCRETE PIPE ASSOCIATION <a href="https://www.concretepipe.org/">https://www.concretepipe.org/</a>  |
| ACGIH  | AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS <a href="https://www.acgi.org/">https://www.acgi.org/</a>                                 |
| AFF    | AMERICAN FOREST FOUNDATION <a href="https://www.treefarmssystem.org">https://www.treefarmssystem.org</a>  |
| AGA    | AMERICAN GAS ASSOCIATION <a href="https://www.aga.org/">https://www.aga.org/</a>  |
| AGMA   | AMERICAN GEAR MANUFACTURERS ASSOCIATION <a href="https://www.agma.org/">https://www.agma.org/</a>   |
| AHA    | AMERICAN HARDBOARD ASSOCIATION <a href="http://domensino.com/AHA/">http://domensino.com/AHA/</a>  |
| AIHA   | AMERICAN INDUSTRIAL HYGIENE ASSOCIATION <a href="https://www.aiha.org/">https://www.aiha.org/</a>   |
| AISC   | AMERICAN INSTITUTE OF STEEL CONSTRUCTION <a href="https://www.aisc.org/">https://www.aisc.org/</a>  |
| AITC   | AMERICAN INSTITUTE OF TIMBER CONSTRUCTION <a href="http://www.aitc-glulam.org">http://www.aitc-glulam.org</a>                                       |
| AISI   | AMERICAN IRON AND STEEL INSTITUTE <a href="https://www.steel.org/">https://www.steel.org/</a>   |
| ALI    | AMERICAN LADDER INSTITUTE <a href="https://www.americanladderinstitute.org">https://www.americanladderinstitute.org</a>                             |
| ALSC   | AMERICAN LUMBER STANDARDS COMMITTEE <a href="http://www.alsc.org">http://www.alsc.org</a>   |
| ANSI   | AMERICAN NATIONAL STANDARDS INSTITUTE <a href="https://www.ansi.org/">https://www.ansi.org/</a>   |
| API    | AMERICAN PETROLEUM INSTITUTE <a href="https://www.api.org/">https://www.api.org/</a>  |
| AREMA  | AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION<br><a href="https://www.arema.org">https://www.arema.org</a>                        |
| ASNT   | AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING <a href="https://www.asnt.org/">https://www.asnt.org/</a>   |
| ASCE   | AMERICAN SOCIETY OF CIVIL ENGINEERS <a href="https://www.asce.org/">https://www.asce.org/</a>   |
| ASHRAE | AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS<br><a href="https://www.ashrae.org/">https://www.ashrae.org/</a>          |
| ASME   | AMERICAN SOCIETY OF MECHANICAL ENGINEERS <a href="https://www.asme.org/">https://www.asme.org/</a>  |
| ASSP   | AMERICAN SOCIETY OF SAFETY PROFESSIONALS <a href="https://www.assp.org/">https://www.assp.org/</a>  |
| ASSE   | AMERICAN SOCIETY OF SANITARY ENGINEERING <a href="http://www.asse-plumbing.org">http://www.asse-plumbing.org</a>                                    |
| AWWA   | AMERICAN WATER WORKS ASSOCIATION <a href="https://www.awwa.org/">https://www.awwa.org/</a>  |
| AWS    | AMERICAN WELDING SOCIETY <a href="https://www.aws.org/">https://www.aws.org/</a>  |
| AWC    | AMERICAN WOOD COUNCIL <a href="https://www.awc.org/">https://www.awc.org/</a>   |
| AWPA   | AMERICAN WOOD PROTECTION ASSOCIATION <a href="http://www.awpa.com">http://www.awpa.com</a>  |
| AH     | AmericanHort <a href="https://www.americanhort.org/">https://www.americanhort.org/</a>  |
| APA    | APA - THE ENGINEERED WOOD ASSOCIATION <a href="https://www.apawood.org/">https://www.apawood.org/</a>   |
| AABC   | ASSOCIATED AIR BALANCE COUNCIL <a href="https://www.aabc.com/">https://www.aabc.com/</a>  |



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| AEIC   | ASSOCIATION OF EDISON ILLUMINATING COMPANIES <a href="https://aeic.org/">https://aeic.org/</a>   |
| APSP   | ASSOCIATION OF POOL & SPA PROFESSIONALS <a href="https://apsp.org/">https://apsp.org/</a>  |
| ASTM   | ASTM INTERNATIONAL <a href="https://www.astm.org/">https://www.astm.org/</a>   |
| AVIXA  | AUDIOVISUAL AND INTEGRATED EXPERIENCE ASSOCIATION <a href="https://www.avixa.org/">https://www.avixa.org/</a>                                      |
| BTL    | BACNET INTERNATIONAL <a href="https://www.bacnetlabs.org/">https://www.bacnetlabs.org/</a>   |
| BICSI  | BICSI International Standards Program <a href="https://www.bicsi.org/">https://www.bicsi.org/</a>  |
| BIFMA  | BIFMA INTERNATIONAL <a href="https://www.bifma.org/">https://www.bifma.org/</a>  |
| BHMA   | BUILDERS HARDWARE MANUFACTURERS ASSOCIATION <a href="https://www.buildershardware.com/">https://www.buildershardware.com/</a>                      |
| CRI    | CARPET AND RUG INSTITUTE <a href="https://carpet-rug.org/">https://carpet-rug.org/</a>   |
| CISPI  | CAST IRON SOIL PIPE INSTITUTE <a href="https://www.cispi.org/">https://www.cispi.org/</a>  |
| CDC    | CENTERS FOR DISEASE CONTROL AND PREVENTION <a href="https://www.cdc.gov">https://www.cdc.gov</a>   |
| CPA    | COMPOSITE PANEL ASSOCIATION <a href="https://www.compositepanel.org/">https://www.compositepanel.org/</a>  |
| CAGI   | COMPRESSED AIR AND GAS INSTITUTE <a href="https://www.cagi.org/">https://www.cagi.org/</a>   |
| CGA    | COMPRESSED GAS ASSOCIATION <a href="https://www.cganet.com/">https://www.cganet.com/</a>   |
| CRSI   | CONCRETE REINFORCING STEEL INSTITUTE <a href="http://www.crsi.org/">http://www.crsi.org/</a>   |
| CEA    | CONSUMER ELECTRONICS ASSOCIATION <a href="https://www.cta.tech/">https://www.cta.tech/</a>   |
| CTI    | COOLING TECHNOLOGY INSTITUTE <a href="https://www.coolingtechnology.org/">https://www.coolingtechnology.org/</a>                                   |
| CDA    | COPPER DEVELOPMENT ASSOCIATION <a href="https://www.copper.org/">https://www.copper.org/</a>   |
| CEQ    | COUNCIL ON ENVIRONMENTAL QUALITY <a href="https://www.whitehouse.gov/administration/eop/ceq">https://www.whitehouse.gov/administration/eop/ceq</a> |
| CMAA   | CRANE MANUFACTURERS ASSOCIATION OF AMERICA <a href="http://www.mhi.org/cmaa">http://www.mhi.org/cmaa</a>   |
| CSA    | CSA GROUP <a href="https://www.csagroup.org/">https://www.csagroup.org/</a>  |
| DASMA  | DOOR AND ACCESS SYSTEM MANUFACTURERS ASSOCIATION <a href="https://www.dasma.com/">https://www.dasma.com/</a>                                       |
| ECMA   | ELECTRIFICATION AND CONTROLS MANUFACTURERS ASSOCIATION <a href="http://www.mhi.org/ecma">www.mhi.org/ecma</a>                                      |
| ECIA   | ELECTRONIC COMPONENTS INDUSTRY ASSOCIATION <a href="https://www.ecianow.org">https://www.ecianow.org</a>   |
| EIA    | ELECTRONIC INDUSTRIES ALLIANCE   |
| ECIA   | ELECTRONIC COMPONENTS INDUSTRY ASSOCIATION   |
| ESD    | ELECTROSTATIC DISCHARGE ASSOCIATION <a href="https://www.esda.org/">https://www.esda.org/</a>  |
| ETL    | ETL TESTING LABORATORIES <a href="http://www.intertek.com/">http://www.intertek.com/</a>   |
| EJMA   | EXPANSION JOINT MANUFACTURERS ASSOCIATION <a href="http://www.ejma.org">http://www.ejma.org</a>  |
| EE     | EXTRON ELECTRONICS <a href="https://www.extron.com/">https://www.extron.com/</a>   |
| FCI    | FLUID CONTROLS INSTITUTE <a href="https://fluidcontrolsinstitute.org/">https://fluidcontrolsinstitute.org/</a>                                     |
| FSA    | FLUID SEALING ASSOCIATION <a href="http://www.fluidsealing.com">www.fluidsealing.com</a>   |
| FM     | FM GLOBAL <a href="https://www.fmglobal.com/">https://www.fmglobal.com/</a>  |
| FSC    | FOREST STEWARDSHIP COUNCIL <a href="https://us.fsc.org/">https://us.fsc.org/</a>   |
| FCCCHR | FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH<br><a href="https://fccchr.usc.edu/">https://fccchr.usc.edu/</a>                    |
| GSi    | GEOSYNTHETIC INSTITUTE <a href="https://geosynthetic-institute.org/">https://geosynthetic-institute.org/</a>                                       |
| GANA   | GLASS ASSOCIATION OF NORTH AMERICA <a href="http://www.glasswebsite.com">http://www.glasswebsite.com</a>   |
| GBCI   | GREEN BUSINESS CERTIFICATION INC. <a href="https://www.gbci.org">https://www.gbci.org</a>  |
| GBI    | GREEN BUILDING INITIATIVE <a href="https://www.thegbi.org/">https://www.thegbi.org/</a>  |
| GS     | GREEN SEAL <a href="https://www.greenseal.org/">https://www.greenseal.org/</a>   |
| GA     | GYPSON ASSOCIATION <a href="https://www.gypsum.org/">https://www.gypsum.org/</a>   |
| HPVA   | HARDWOOD PLYWOOD AND VENEER ASSOCIATION <a href="https://www.decorativehardwoods.org/">https://www.decorativehardwoods.org/</a>                    |
| HI     | HYDRAULIC INSTITUTE <a href="http://www.pumps.org">http://www.pumps.org</a>  |
| HYI    | HYDRONICS INSTITUTE DIVISION OF AHRI <a href="http://www.ahrinet.org">http://www.ahrinet.org</a>   |
| ICC-ES | ICC EVALUATION SERVICE, INC. <a href="https://icc-es.org/">https://icc-es.org/</a>   |
| IES    | ILLUMINATING ENGINEERING SOCIETY <a href="https://www.ies.org/">https://www.ies.org/</a>   |
| IEEE   | INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS <a href="https://www.ieee.org/">https://www.ieee.org/</a>  |
| IENT   | INSTITUTE OF ENVIRONMENTAL SCIENCES AND TECHNOLOGY <a href="https://www.ient.org/">https://www.ient.org/</a>                                       |
| IICRC  | INSTITUTE OF INSPECTION, CLEANING, AND RESTORATION CERTIFICATION <a href="https://www.iicrc.org/">https://www.iicrc.org/</a>                       |
| ICEA   | INSULATED CABLE ENGINEERS ASSOCIATION <a href="https://www.icea.net/">https://www.icea.net/</a>  |
| IGMA   | INSULATING GLASS MANUFACTURERS ALLIANCE <a href="https://www.igmaonline.org/">https://www.igmaonline.org/</a>                                      |
| ICS    | INTELLIGENCE COMMUNITY STANDARD <a href="https://www.hSDL.org/c/">https://www.hSDL.org/c/</a>  |
| IAPMO  | INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS<br><a href="http://www.iapmo.org">http://www.iapmo.org</a>                          |
| ICPA   | INTERNATIONAL CAST POLYMER ASSOCIATION <a href="https://theicpa.com/">https://theicpa.com/</a>   |
| ICC    | INTERNATIONAL CODE COUNCIL <a href="https://www.iccsafe.org/">https://www.iccsafe.org/</a>   |
| ICRI   | INTERNATIONAL CONCRETE REPAIR INSTITUTE <a href="https://www.icri.org/">https://www.icri.org/</a>  |

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| NETA        | INTERNATIONAL ELECTRICAL TESTING ASSOCIATION <a href="https://www.netaworld.org/">https://www.netaworld.org/</a>   |
| IEC         | INTERNATIONAL ELECTROTECHNICAL COMMISSION <a href="https://www.iec.ch/">https://www.iec.ch/</a>  |
| IGSHPA      | INTERNATIONAL GROUND SOURCE HEAT PUMP ASSOCIATION <a href="https://igshpa.org/">https://igshpa.org/</a>  |
| IIAR        | INTERNATIONAL INSTITUTE OF AMMONIA REFRIGERATION <a href="https://www.iiar.org">https://www.iiar.org</a>   |
| ISO         | INTERNATIONAL ORGANIZATION FOR STANDARDIZATION <a href="https://www.iso.org">https://www.iso.org</a>   |
| ISEA        | INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION <a href="https://safetyequipment.org/">https://safetyequipment.org/</a>   |
| ISA         | INTERNATIONAL SOCIETY OF AUTOMATION <a href="https://www.isa.org/">https://www.isa.org/</a>  |
| IWCA        | INTERNATIONAL WINDOW CLEANING ASSOCIATION <a href="https://www.iwca.org/">https://www.iwca.org/</a>  |
| IPC         | IPC - ASSOCIATION CONNECTING ELECTRONICS INDUSTRIES <a href="http://www.ipc.org">http://www.ipc.org</a>  |
| LHBH        | L.H. BAILEY HORTORIUM <a href="https://plantbio.cals.cornell.edu/hortorium/">https://plantbio.cals.cornell.edu/hortorium/</a>  |
| MSS         | MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY<br><a href="http://msshq.org">http://msshq.org</a>  |
| MPI         | MASTER PAINTERS INSTITUTE <a href="http://www.mpi.net/">http://www.mpi.net/</a>  |
| MHI         | MATERIAL HANDLING INDUSTRY OF AMERICA <a href="http://www.mhi.org">http://www.mhi.org</a>  |
| MBMA        | METAL BUILDING MANUFACTURERS ASSOCIATION <a href="https://www.mbma.com/">https://www.mbma.com/</a>   |
| MA          | MIDDLE ATLANTIC PRODUCTS <a href="https://www.legrand.us/middle-atlantic-products">https://www.legrand.us/middle-atlantic-products</a>   |
| MICA        | MIDWEST INSULATION CONTRACTORS ASSOCIATION <a href="https://www.micainsulation.org/">https://www.micainsulation.org/</a>   |
| NACE        | NACE INTERNATIONAL <a href="https://www.nace.org">https://www.nace.org</a>   |
| NASA        | NATIONAL AERONAUTICS AND SPACE ADMINISTRATION <a href="https://www.nasa.gov/">https://www.nasa.gov/</a>  |
| NADCA       | NATIONAL AIR DUCT CLEANERS ASSOCIATION <a href="https://nadca.com/">https://nadca.com/</a>   |
| NAAMM       | NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS <a href="http://www.naamm.org">http://www.naamm.org</a>  |
| NECA        | NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION <a href="https://www.necanet.org/">https://www.necanet.org/</a>  |
| NEMA        | NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION <a href="https://www.nema.org">https://www.nema.org</a>  |
| NEBB        | NATIONAL ENVIRONMENTAL BALANCING BUREAU <a href="http://www.nebb.org">http://www.nebb.org</a>  |
| NFRC        | NATIONAL FENESTRATION RATING COUNCIL <a href="http://www.nfrc.org">http://www.nfrc.org</a>   |
| NFPA        | NATIONAL FIRE PROTECTION ASSOCIATION <a href="https://www.nfpa.org">https://www.nfpa.org</a>   |
| NFLPA       | NATIONAL FLUID POWER ASSOCIATION <a href="https://www.nfpa.com">https://www.nfpa.com</a>   |
| NHLA        | NATIONAL HARDWOOD LUMBER ASSOCIATION <a href="https://nhla.com/">https://nhla.com/</a>   |
| NIOSH       | NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH <a href="https://www.cdc.gov/niosh/">https://www.cdc.gov/niosh/</a>  |
| NIJ         | NATIONAL INSTITUTE OF JUSTICE <a href="https://www.justnet.org/">https://www.justnet.org/</a>  |
| NIST        | NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY <a href="https://www.nist.gov/">https://www.nist.gov/</a>   |
| NRMCA       | NATIONAL READY MIXED CONCRETE ASSOCIATION <a href="https://www.nrmca.org/">https://www.nrmca.org/</a>  |
| NRCA        | NATIONAL ROOFING CONTRACTORS ASSOCIATION <a href="http://www.nrca.net">http://www.nrca.net</a>   |
| NSTISS      | NATIONAL SECURITY TELECOMMUNICATIONS AND INFORMATION SYSTEMS SECURITY<br><a href="http://www.dtic.mil/dtic/">http://www.dtic.mil/dtic/</a>   |
| NAVFAC EXWC | NAVAL FACILITIES ENGINEERING AND EXPEDITIONARY WARFARE CENTER<br><a href="https://www.navfac.navy.mil/navfac_worldwide/specialty_centers/exwc.html">https://www.navfac.navy.mil/navfac_worldwide/specialty_centers/exwc.html</a> |
| NAIMA       | NORTH AMERICAN INSULATION MANUFACTURERS ASSOCIATION <a href="https://insulationinstitute.org">https://insulationinstitute.org</a>  |
| NELMA       | NORTHEASTERN LUMBER MANUFACTURERS ASSOCIATION <a href="https://www.nelma.org/">https://www.nelma.org/</a>  |
| NSF         | NSF INTERNATIONAL <a href="http://www.nsf.org">http://www.nsf.org</a>  |
| ONVIF       | OPEN NETWORK VIDEO INTERFACE FORUM <a href="https://www.onvif.org/">https://www.onvif.org/</a>   |
| OECD        | ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT <a href="http://www.oecd.org">http://www.oecd.org</a>   |
| PHI         | PASSIVE HOUSE INSTITUTE INTERNATIONAL <a href="https://passivehouse.com/">https://passivehouse.com/</a>  |
| PHIUS       | PASSIVE HOUSE INSTITUTE - US <a href="http://phius.org/home-page">http://phius.org/home-page</a>   |
| PDCA        | PILE DRIVING CONTRACTORS ASSOCIATION <a href="http://www.piledrivers.org/">http://www.piledrivers.org/</a>   |
| PFI         | PIPE FABRICATION INSTITUTE <a href="https://pfi-institute.org/">https://pfi-institute.org/</a>   |
| PPFA        | PLASTIC PIPE AND FITTINGS ASSOCIATION <a href="https://www.ppfahome.org/">https://www.ppfahome.org/</a>  |
| PDI         | PLUMBING AND DRAINAGE INSTITUTE <a href="http://www.pdionline.org">http://www.pdionline.org</a>  |
| PMCA        | PLUMBING AND MECHANICAL CONTRACTORS ASSOCIATION <a href="http://www.pmcaoregon.com/">http://www.pmcaoregon.com/</a>  |
| PEI         | PORCELAIN ENAMEL INSTITUTE <a href="http://www.porcelainenamel.com">http://www.porcelainenamel.com</a>   |
| PCI         | PRECAST/PRESTRESSED CONCRETE INSTITUTE <a href="https://www.pci.org/">https://www.pci.org/</a>   |
| PEFC        | PROGRAMME FOR ENDORSEMENT OF FOREST CERTIFICATION <a href="https://www.pefc.org/">https://www.pefc.org/</a>  |
| CRA         | REDWOOD INSPECTION SERVICE (RIS) OF THE CALIFORNIA REDWOOD ASSOCIATION<br><a href="https://www.wvpa.org/about-wvpa/redwood-inspection-service">https://www.wvpa.org/about-wvpa/redwood-inspection-service</a>                    |
| RCSC        | RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS <a href="http://www.boltcouncil.org">http://www.boltcouncil.org</a>   |
| RFCI        | RESILIENT FLOOR COVERING INSTITUTE <a href="https://rfci.com/">https://rfci.com/</a>   |
| SAND        | SANDIA NATIONAL LABORATORIES <a href="https://energy.sandia.gov/">https://energy.sandia.gov/</a>   |
| SCS         | SCIENTIFIC CERTIFICATION SYSTEMS <a href="https://www.scsglobalservices.com/">https://www.scsglobalservices.com/</a>   |

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| SMA         | SCREEN MANUFACTURERS ASSOCIATION <a href="http://smainfo.org">http://smainfo.org</a>   |
| SMACNA      | SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION<br><a href="https://www.smacna.org/">https://www.smacna.org/</a>  |
| SPRI        | SINGLE PLY ROOFING INDUSTRY <a href="https://www.spri.org/">https://www.spri.org/</a>  |
| SSPC        | SOCIETY FOR PROTECTIVE COATINGS <a href="http://www.sspc.org">http://www.sspc.org</a>  |
| SAE         | SOCIETY OF AUTOMOTIVE ENGINEERS INTERNATIONAL <a href="https://www.sae.org/">https://www.sae.org/</a>  |
| SCTE        | SOCIETY OF CABLE TELECOMMUNICATIONS ENGINEERS <a href="https://www.scte.org/">https://www.scte.org/</a>  |
| SD DOT SSRB | SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS<br>AND BRIDGES <a href="https://dot.sd.gov">https://dot.sd.gov</a>   |
| SCMA        | SOUTHERN CYPRESS MANUFACTURERS ASSOCIATION <a href="http://www.cypressinfo.org">http://www.cypressinfo.org</a>   |
| SPIB        | SOUTHERN PINE INSPECTION BUREAU <a href="https://www.spib.org/">https://www.spib.org/</a>  |
| SPFA        | SPRAY POLYURETHANE FOAM ALLIANCE <a href="http://www.sprayfoam.org">http://www.sprayfoam.org</a>   |
| SDI/DOOR    | STEEL DOOR INSTITUTE <a href="https://www.steeldoor.org/">https://www.steeldoor.org/</a>   |
| SWI         | STEEL WINDOW INSTITUTE <a href="https://www.steelwindows.com/">https://www.steelwindows.com/</a>   |
| SFI         | SUSTAINABLE FOREST INITIATIVE <a href="http://www.sfiprogram.org">http://www.sfiprogram.org</a>  |
| TAPPI       | TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY <a href="http://www.tappi.org">http://www.tappi.org</a>   |
| TIA         | TELECOMMUNICATIONS INDUSTRY ASSOCIATION <a href="https://www.tiaonline.org/">https://www.tiaonline.org/</a>  |
| TMS         | THE MASONRY SOCIETY <a href="https://masonrysociety.org/">https://masonrysociety.org/</a>  |
| TCIA        | TREE CARE INDUSTRY ASSOCIATION <a href="https://tcia.org/">https://tcia.org/</a>   |
| TRIDIUM     | TRIDIUM, INC <a href="https://www.tridium.com/">https://www.tridium.com/</a>   |
| TPI         | TRUSS PLATE INSTITUTE <a href="https://www.tpinst.org/">https://www.tpinst.org/</a>  |
| TPI         | TURFGRASS PRODUCERS INTERNATIONAL <a href="http://www.turfgrassod.org">http://www.turfgrassod.org</a>  |
| USACE       | U.S. ARMY CORPS OF ENGINEERS <a href="http://www.publications.usace.army.mil/">http://www.publications.usace.army.mil/</a>   |
| USC         | U.S. CODE <a href="http://uscode.house.gov/">http://uscode.house.gov/</a>  |
| DLA         | U.S. DEFENSE LOGISTICS AGENCY <a href="http://www.dla.mil">http://www.dla.mil</a>  |
| USDA        | U.S. DEPARTMENT OF AGRICULTURE   |
| AMS         | AGRICULTURAL MARKETING SERVICE <a href="https://www.ams.usda.gov/">https://www.ams.usda.gov/</a>   |
| USDA        | USDA Rural Development <a href="https://www.rd.usda.gov/about-rd/agencies/rural-utilities-service">https://www.rd.usda.gov/about-rd/agencies/rural-utilities-service</a>   |
| DOC         | U.S. DEPARTMENT OF COMMERCE <a href="https://www.commerce.gov/">https://www.commerce.gov/</a>  |
| NTIS        | National Technical Information Service <a href="https://www.ntis.gov/">https://www.ntis.gov/</a>   |
| DOD         | U.S. DEPARTMENT OF DEFENSE <a href="https://www.ntis.gov/">https://www.ntis.gov/</a>   |
| ASSIST      | Acquisition Streamlining and Standardization Information System  |
| DODSSP      | Department of Defense Single Stock Point   |
| DAPS        | Document Automation and Production Service <a href="https://assist.dla.mil/online/start/">https://assist.dla.mil/online/start/</a>   |
| UFC         | Unified Facilities Criteria <a href="https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc">https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc</a>  |
| WBDG        | Whole Building Design Guide  |
| NIBS        | National Institute of Building Sciences  |
| DOE         | U.S. DEPARTMENT OF ENERGY <a href="https://www.energy.gov/">https://www.energy.gov/</a>  |
| FEMP        | U.S. DEPARTMENT OF ENERGY FEDERAL ENERGY MANAGEMENT PROGRAM<br><a href="https://www.energy.gov/eere/femp/federal-energy-management-program">https://www.energy.gov/eere/femp/federal-energy-management-program</a> |
| HUD         | U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT <a href="https://www.huduser.gov">https://www.huduser.gov</a>   |
| SD          | U.S. DEPARTMENT OF STATE <a href="https://www.state.gov/">https://www.state.gov/</a>   |
| EPA         | U.S. ENVIRONMENTAL PROTECTION AGENCY <a href="https://www.epa.gov">https://www.epa.gov</a>   |
| NTIS        | National Technical Information Service <a href="https://www.ntis.gov/">https://www.ntis.gov/</a>   |
| GPO         | U.S. Government Publishing Office <a href="https://www.gpo.gov/">https://www.gpo.gov/</a>  |
| FAA         | U.S. FEDERAL AVIATION ADMINISTRATION <a href="https://www.faa.gov/">https://www.faa.gov/</a>   |
| FCC         | U.S. FEDERAL COMMUNICATIONS COMMISSION <a href="https://www.fcc.gov/">https://www.fcc.gov/</a>   |
| GPO         | U.S. Government Publishing Office <a href="https://www.gpo.gov/">https://www.gpo.gov/</a>  |
| FHWA        | U.S. FEDERAL HIGHWAY ADMINISTRATION <a href="https://www.fhwa.dot.gov/">https://www.fhwa.dot.gov/</a>  |
| GPO         | U.S. Government Publishing Office <a href="https://www.gpo.gov/">https://www.gpo.gov/</a>  |
| GSA         | U.S. GENERAL SERVICES ADMINISTRATION <a href="https://www.gsa.gov/EligMain/home.do">https://www.gsa.gov/EligMain/home.do</a>   |
| ASSIST      | Acquisition Streamlining and Standardization Information System<br><a href="https://assist.dla.mil/online/start/">https://assist.dla.mil/online/start/</a>   |
| USGBC       | U. S. GREEN BUILDING COUNCIL <a href="https://new.usgbc.org/">https://new.usgbc.org/</a>   |
| NARA        | U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION <a href="https://www.archives.gov/">https://www.archives.gov/</a>  |
| ULE         | UL ENVIRONMENT <a href="https://industries.ul.com/environment/">https://industries.ul.com/environment/</a>   |
| UL          | UNDERWRITERS LABORATORIES <a href="https://www.ul.com/">https://www.ul.com/</a>  |
| ULC         | UNDERWRITERS LABORATORIES OF CANADA <a href="https://canada.ul.com/">https://canada.ul.com/</a>  |

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| UBPPA | UNI-BELL PVC PIPE ASSOCIATION <a href="https://www.uni-bell.org/">https://www.uni-bell.org/</a>              |
| WCLIB | WEST COAST LUMBER INSPECTION BUREAU <a href="http://www.wclib.org">http://www.wclib.org</a>                  |
| WWPA  | WESTERN WOOD PRODUCTS ASSOCIATION <a href="http://www.wwpa.org">http://www.wwpa.org</a>                      |
| WDMA  | WINDOW AND DOOR MANUFACTURERS ASSOCIATION <a href="https://www.wdma.com/">https://www.wdma.com/</a>          |
| WMMPA | WOOD MOULDING AND MILLWORK PRODUCERS ASSOCIATION <a href="https://www.wmmpa.com/">https://www.wmmpa.com/</a> |
| WI    | WOODWORK INSTITUTE <a href="https://woodworkinstitute.com">https://woodworkinstitute.com</a>                 |
| WBI   | WOOLMARK COMPANY <a href="https://www.woolmark.com/">https://www.woolmark.com/</a>                           |

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**TEMPORARY FACILITIES**

**PART 1 – GENERAL**

**1.1 SUMMARY**

This section includes requirements for temporary job trailer, restroom facilities, storage, enclosures, and other temporary items for the duration of the project.

**1.2 TEMPORARY OFFICE/JOB TRAILER**

The Contractor may, at their option, erect or bring on the site when directed, maintain in good condition, and remove when directed, a temporary, weathertight office, for his use and representatives of the AE and/or the Dept. of the Military. It shall be adequately heated and electrically lighted. The Contractor shall maintain a listed telephone at the temporary office. All costs related to the office, including but not limited to utilities, utility hookups and disconnects, maintenance, transporting, etc., shall be paid by the Contractor. Such office shall meet with the approval of the AE and the Dept. of the Military.

**1.3 RESTROOM FACILITIES**

1. The Contractor shall provide and maintain sanitary, temporary chemical toilet(s) located where indicated by the AE.
2. The temporary toilets shall be enclosed, weatherproofed, protected and secured from movement or overturning, and kept in a sanitary condition at all times.
3. The temporary toilets shall be supplied with the following requirements:
  - a. Constructed of fiberglass or (polyethylene) material.
  - b. Equipped with 40 gallon capacity holding tank.
  - c. Unit shall have separate urinal, be properly vented, locking door.
  - d. Provide number of units and maintenance according to the following:

| <u>Number of People</u> | <u>Minimum Number of Facilities at Job Site</u> | <u>Maintenance Period</u> |
|-------------------------|---|---------------------------|
| 20 or less              | One   | Two Weeks                 |
| 20 - 199                | One unit per 40 people at site                  | One Week                  |
| 200 more                | One unit per 50 people at site                  | One Week                  |

- e. Maintenance shall include pump holding tank, wash and deodorize entire unit (weather permitting), equipped with four (4) rolls of toilet paper, repair any damages.
- f. The construction of a cesspool or a pit privy is prohibited.

**1.4 STORAGE BUILDINGS**

The Contractor and/or Sub-contractors may construct or bring on the site, such storage buildings as necessary to protect materials, tools or equipment for use on the project. Such buildings shall meet with the approval of the AE and shall be removed from the site upon completion of the work of the respective Contractor. The location of the storage buildings shall be as approved by the AE.

**1.5 TEMPORARY ENCLOSURES**

- A. The Contractor shall provide and install temporary weathertight enclosures for all exterior openings to protect work from weather. Equip exterior doors with self-closing hardware and padlocks.
- B. Provide and install temporary sash frames or enclosures for all exterior window openings. Fasten securely in place but capable of removal when required.

**PART 2 – PRODUCTS**

**2.1 BARRICADES**

Erect and maintain temporary barricades to limit public access to hazardous areas. Whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic barricades will be required. Securely place barricades clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

**2.2 TEMPORARY SIGNAGE**

**A. Bulletin Board**

Within one calendar day of mobilization on site and prior to the commencement of work activities, provide a

clear weatherproof covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, Safety and Health Information and other information.

B. Project Identification Signs

The requirements for the signs, their content, and location are as indicated and as specified in Section 01 58 00 PROJECT IDENTIFICATION. Erect signs 2 days prior to the Ground Breaking Ceremony or 15 days after receipt of the Notice to Proceed, whichever is earliest. The Project Manager will provide as much notice as possible when a Ground Breaking Ceremony is scheduled.

C. Warning Signs

Post temporary signs, tags, and labels to give workers and the public adequate warning and caution of construction hazards. Attach signs to the perimeter fencing every 150 feet warning the public of the presence of construction hazards. Signs must require unauthorized persons to keep out of the construction site.

2.3 BARRICADES

Erect and maintain temporary barricades to limit public access to hazardous areas. Barricades are required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Securely place barricades clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

2.4 FENCING

Provide fencing along the construction site and at all open excavations and tunnels to control access by unauthorized personnel. Safety fencing must be highly visible to be seen by pedestrians and vehicular traffic. Specific fencing requirements are as described herein.

A. Polyethylene Mesh Safety Fencing

Temporary safety fencing must be a high visibility orange colored, high density polyethylene grid, a minimum of 48 inches high and maximum mesh size of 2 inches. Fencing must extend from the grade to a minimum of 48 inches above the grade and be tightly secured to T-posts spaced as necessary to maintain a rigid and taut fence. Fencing must remain rigid and taut with a minimum of 200 pounds of force exerted on it from any direction with less than 4 inches of deflection.

B. Chain Link Panel Fencing

Temporary panel fencing must be galvanized steel chain link panels 6 feet high. Multiple fencing panels may be linked together at the bases to form long spans as needed. Each panel base must be weighted down using sand bags or other suitable materials in order for the fencing to withstand anticipated winds while remaining upright. Fencing must remain rigid and taut with a minimum of 200 pounds of force exerted on it from any direction with less than 4 inches of deflection.

2.5 TEMPORARY WIRING

Provide temporary wiring in accordance with NFPA 241 and NFPA 70. Include monthly inspection and testing of all equipment and apparatus.

**PART 3 – EXECUTION**

3.1 EMPLOYEE PARKING

Construction contract employees will park privately owned vehicles in an area designated by the Owner. This area will be within reasonable walking distance of the construction site. Employee parking must not interfere with existing and established parking requirements of the installation.

3.2 TEMPORARY BULLETIN BOARD

Locate the bulletin board at the project site in a conspicuous place easily accessible to all employees.

3.3 TEMPORARY UTILITIES

Provide temporary utilities required for construction. Materials may be new or used, must be adequate for the required usage, not create unsafe conditions, and not violate applicable codes and standards.

3.4 CONTRACTOR'S TEMPORARY OFFICE/JOB TRAILER

Trailers or storage buildings will be permitted, where space is available, subject to the approval of the Owner. A sign not smaller than 24 by 24 inches shall be conspicuously placed on the trailer depicting the company name, business phone number, and emergency phone number.

Trailers must be anchored to resist high winds and must meet applicable state or local standards for anchoring mobile trailers.

A. Appearance of Trailers and Buildings

1. Trailers must be roadworthy and comply with all appropriate state and local vehicle requirements.
2. Must present a clean and neat exterior appearance, with paint or graphic wrapping.
3. In good condition, free from visible damage, rust, deterioration, and meet all applicable safety requirements and be in a state of good repair.
4. Trailers or buildings rusted, have peeling paint or graphics, or are otherwise in need of repair will not be allowed on Installation property.
5. Failure to meet appearance requirements or properly maintain to the appearance standards will result in formal notification from the Owner to the Contractor.
  - a. The Owner will provide formal notice to the Contractor to remove the non-complying units at the Contractor's expense.
  - b. Failure to remove the identified trailer or building will result in the Contractor being assessed \$250.00 per calendar day beginning the next calendar day from the deadline date indicated on the formal notice from the Owner until the unit is removed from the property.
  - c. Assessed Public Perception Fees will be deducted from the Contractor's Contract utilizing the Construction Change Order process.

3.5 RESTORATION OF STORAGE AREA

Upon completion of the project remove the bulletin board, signs, barricades, haul roads, and all other temporary products from the site. After removal of trailers, materials, and equipment from within the fenced area, remove the fence. Restore areas used during the performance of the Contract to the original or better condition. Remove gravel used to traverse grassed areas and restore the area to its original condition, including top soil and seeding as necessary in accordance with the technical specifications.

**END 01 50 00**



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**SECTION 01 57 19**  
**TEMPORARY ENVIRONMENTAL CONTROLS**

**PART 1 – GENERAL**

**1.1 DESCRIPTION**

- A. This section specifies the control of environmental pollution and damage that the Contractor must consider for air, water, and land resources. It includes management of visual aesthetics, noise, solid waste, radiant energy, and radioactive materials, as well as other pollutants and resources encountered or generated by the Contractor. The Contractor is obligated to consider specified control measures with the costs included within the various contract items of work.
- B. Environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which:
  - 1. Adversely effect human health or welfare,
  - 2. Unfavorably alter ecological balances of importance to human life,
  - 3. Effect other species of importance to humankind, or;
  - 4. Degrade the utility of the environment for aesthetic, cultural, and historical purposes.
- C. Definitions of Pollutants:
  - 1. Chemical Waste: Petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, organic chemicals, and inorganic wastes.
  - 2. Debris: Combustible and noncombustible wastes, such as leaves, tree trimmings, ashes, and waste materials resulting from construction or maintenance and repair work.
  - 3. Sediment: Soil and other debris that has been eroded and transported by runoff water.
  - 4. Solid Waste: Rubbish, debris, garbage, and other discarded solid materials resulting from industrial, commercial, and agricultural operations and from community activities.
  - 5. Surface Discharge: The term "Surface Discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion may occur. Waters that are surface discharged may terminate in drainage ditches, storm sewers, creeks, and/or "water of the United States" and would require a permit to discharge water from the governing agency.
  - 6. Rubbish: Combustible and noncombustible wastes such as paper, boxes, glass and crockery, metal and lumber scrap, tin cans, and bones.
  - 7. Sanitary Wastes:
    - a. Sewage: Domestic sanitary sewage and human and animal waste.
    - b. Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

**1.2 QUALITY CONTROL**

- A. Establish and maintain quality control for the environmental protection of all items set forth herein.
- B. Record on daily reports any problems in complying with laws, regulations, and ordinances. Note any corrective action taken.

**1.3 REFERENCES:**

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.
- B. U.S. National Archives and Records Administration (NARA): 33 CFR 328
- C. South Dakota Department of Agriculture and Natural Resources
  - 1. Air Quality
  - 2. Watershed Protection Resources
- D. SD DOT Standard Specification for Roads and Bridges, Current Edition
  - 1. Section 734 - Erosion Control and Water Pollution Control and Current Supplements
  - 2. Section 831 - Geotextile and Impermeable Plastic Membrane
  - 3. Section 891 – Dust Control Chlorides
  - 4. Supplemental Specifications to the current edition of the South Dakota Department of Transportation, Standard Specifications for Roads and Bridges.

**1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Follow the manufacturer's recommendation for shipping, handling, and unloading
- B. Follow the manufacturer's recommendation for storage and protection

**1.5 SUBMITTALS**

- A. In accordance with Section, 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, furnish the following:
  - 1. SD DANR Notice of Intent (NOI)
    - a. Contractor shall complete, submit, and pay all associated fees for the Notice of Intent.

- b. [https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR\\_TemporaryDischargeNOI2018Finalable.pdf](https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_TemporaryDischargeNOI2018Finalable.pdf)
- 2. Environmental Protection Plan: After the contract is awarded and prior to the commencement of the work, the Contractor shall meet with the AE to discuss the proposed Environmental Protection Plan and to develop mutual understanding relative to details of environmental protection. Not more than 10 days after the meeting, the Contractor shall prepare and submit to the AE for approval, a written and/or graphic Environmental Protection Plan including, but not limited to, the following:
  - a. Name(s) of person(s) within the Contractor's organization who is (are) responsible for ensuring adherence to the Environmental Protection Plan.
  - b. Name(s) and qualifications of person(s) responsible for manifesting hazardous waste to be removed from the site.
  - c. Name(s) and qualifications of person(s) responsible for training the Contractor's environmental protection personnel.
  - d. Description of the Contractor's environmental protection personnel training program.
  - e. A list of permits concerning environmental protection, pollution control, noise control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed.
  - f. Methods for protection of features to be preserved within authorized work areas including trees, shrubs, vines, grasses, ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, and archeological and cultural resources.
  - g. Procedures to provide the environmental protection that comply with the applicable laws and regulations. Describe the procedures to correct pollution of the environment due to accident, natural causes, or failure to follow the procedures as described in the Environmental Protection Plan.
  - i. Drawings showing locations of any proposed temporary excavations or embankments for haul roads, material storage areas, structures, and stockpiles of excess or spoil materials. Include as part of an Erosion Control Plan.
  - j. Environmental Monitoring Plans for the job site including land, water, air, and noise.
  - k. Work Area Plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Plan should include measures for marking the limits of use areas. This plan may be incorporated within the Erosion Control Plan.
- B. Approval of the Contractor's Environmental Protection Plan will not relieve the Contractor of responsibility for adequate and continued control of pollutants and other environmental protection measures.

## **PART 2 – PRODUCTS**

### **2.1 MATERIALS:**

- A. Materials shall comply with the requirements of SD DOT Standard Specifications for Roads and Bridges, Current Edition and Current Supplemental.

## **PART 3 – EXECUTION**

### **3.1 PROTECTION OF ENVIRONMENTAL RESOURCES**

- A. Protect environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire period of this contract. Confine activities to areas defined by the specifications and drawings.
- B. Protection of Land Resources: Prior to construction, identify all land resources to be preserved within the work area. Do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, top soil, and land forms without permission from the AE. Do not fasten or attach ropes, cables, or guys to trees for anchorage unless specifically authorized, or where special emergency use is permitted.
  - 1. Work Area Limits: Prior to any construction, mark the areas that require work to be performed under this contract. Mark or fence isolated areas within the general work area that are to be saved and protected. Protect monuments, works of art, and markers before construction operations begin. Convey to all personnel the purpose of marking and protecting all necessary objects.
  - 2. Protection of Landscape: Protect trees, shrubs, vines, grasses, land forms, and other landscape features shown on the drawings to be preserved by marking, fencing, or using any other approved techniques.
    - a. Box and protect from damage existing trees and shrubs to remain on the construction site.
    - b. Immediately repair all damage to existing trees and shrubs by trimming, cleaning, and painting with antiseptic tree paint.
    - c. Do not store building materials or perform construction activities closer to existing trees or shrubs than the farthest extension of their limbs.

3. Reduction of Exposure of Unprotected Erodible Soils: Plan and conduct earthwork to minimize the duration of exposure of unprotected soils. Clear areas in reasonably sized increments only as needed to use. Form earthwork to final grade as shown. Immediately protect side slopes and back slopes upon completion of rough grading.
4. Temporary Protection of Disturbed Areas: Construct diversion ditches, benches, and berms to retard and divert runoff from the construction site to protected drainage areas approved under paragraph 208 of the Clean Water Act.
  - a. Sediment Basins: Trap sediment from construction areas in temporary sediment. After each storm, pump the basins dry and remove the accumulated sediment. Control overflow/drainage with paved weirs or by vertical overflow pipes, draining from the surface.
  - b. Institute effluent quality monitoring programs as required by Federal, State, and local environmental agencies.
5. Erosion and Sedimentation Control Devices: The erosion and sediment controls selected and maintained by the Contractor shall be such that water quality standards are not violated as a result of the Contractor's activities. Construct or install all temporary and permanent erosion and sedimentation control features on the Environmental Protection Plan. Maintain temporary erosion and sediment control measures such as berms, dikes, drains, sedimentation basins, grassing, and mulching, until permanent drainage and erosion control facilities are completed and operative.
6. Manage and control spoil areas to limit spoil to areas on the Environmental Protection Plan and prevent erosion of soil or sediment from entering nearby water courses or lakes.
7. Protect adjacent areas from despoilment by temporary excavations and embankments.
8. Handle and dispose of solid wastes in such a manner that will prevent contamination of the environment. Place solid wastes (excluding clearing debris) in containers that are emptied on a regular schedule. Containers shall be equipped with lids to prevent waste from blowing out of the container and off site. Transport all solid waste off site and dispose of waste in compliance with Federal, State, and local requirements.
9. Store chemical waste away from the work areas in corrosion resistant containers and dispose of waste in accordance with Federal, State, and local regulations.
10. Handle discarded materials other than those included in the solid waste category as directed by the AE.
- C. Protection of Water Resources: Keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters and sewer systems. Implement management techniques to control water pollution by the listed construction activities that are included in this contract.
  1. Washing and Curing Water: Do not allow wastewater directly derived from construction activities to enter water areas. Collect and place wastewater in retention ponds allowing the suspended material to settle, the pollutants to separate, or the water to evaporate.
  2. Control movement of materials and equipment at stream crossings during construction to prevent violation of water pollution control standards of the Federal, State, or local government.
  3. Monitor water areas affected by construction.
- D. Protection of Fish and Wildlife Resources: Keep construction activities under surveillance, management, and control to minimize interference with, disturbance of, or damage to fish and wildlife. Prior to beginning construction operations, list species that require specific attention along with measures for their protection.
- E. Protection of Air Resources: Keep construction activities under surveillance, management, and control to minimize pollution of air resources. Burning is not permitted on the job site. Keep activities, equipment, processes, and work operated or performed, in strict accordance with the State of and Federal emission and performance laws and standards. Maintain ambient air quality standards set by the Environmental Protection Agency, for those construction operations and activities specified.
  1. Particulates: Control dust particles, aerosols, and gaseous by-products from all construction activities, processing, and preparation of materials (such as from asphaltic batch plants) at all times, including weekends, holidays, and hours when work is not in progress.
  2. Particulates Control: Maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and all other work areas within or outside the project boundaries free from particulates which would cause a hazard or a nuisance. Sprinklering, chemical treatment of an approved type, light bituminous treatment, baghouse, scrubbers, electrostatic precipitators, or other methods are permitted to control particulates in the work area.
  3. Hydrocarbons and Carbon Monoxide: Control monoxide emissions from equipment to Federal and State allowable limits.
  4. Odors: Control odors of construction activities and prevent obnoxious odors from occurring.

- F. Reduction of Noise: Minimize noise using every action possible. Perform noise-producing work in less sensitive hours of the day or week as directed by the AE. Maintain noise-produced work at or below the decibel levels and within the time periods specified.
1. Perform construction activities involving repetitive, high-level impact noise only between 8:00 a.m. and 7:00 p.m unless otherwise permitted by local ordinance or the AE. Repetitive impact noise on the property shall not exceed the following dB limitations:

| Time Duration of Impact Noise       | Sound Level in dB |
|-------------------------------------|-------------------|
| More than 12 minutes in any hour    | 70                |
| Less than 30 seconds of any hour    | 85                |
| Less than three minutes of any hour | 80                |
| Less than 12 minutes of any hour    | 75                |

2. Provide sound-deadening devices on equipment and take noise abatement measures that are necessary to comply with the requirements of this contract, consisting of, but not limited to, the following:
  - a. Maintain maximum permissible construction equipment noise levels at 50 feet (dBA):

| EARTHMOVING        |    | MATERIALS HANDLING |               |
|--------------------|----|--------------------|---------------|
| FRONT LOADERS      | 75 | CONCRETE MIXERS    | 75            |
| BACKHOES           | 75 | CONCRETE PUMPS     | 75            |
| DOZERS             | 75 | CRANES             | 75            |
| TRACTORS           | 75 | DERRICKS IMPACT    | 75            |
| SCAPERS            | 80 | PILE DRIVERS       | 95            |
| GRADERS            | 75 | JACK HAMMERS       | 75            |
| TRUCKS             | 75 | ROCK DRILLS        | 80            |
| PAVERS, STATIONARY | 80 | PNEUMATIC TOOLS    | 80            |
| PUMPS              | 75 | BLASTING           | Not Permitted |
| GENERATORS         | 75 | SAWS               | 75            |
| COMPRESSORS        | 75 | VIBRATORS          | 75            |

- b. Use shields or other physical barriers to restrict noise transmission.
    - c. Provide soundproof housings or enclosures for noise-producing machinery.
    - d. Use efficient silencers on equipment air intakes.
    - e. Use efficient intake and exhaust mufflers on internal combustion engines that are maintained so equipment performs below noise levels specified.
    - f. Line hoppers and storage bins with sound deadening material.
    - g. Conduct truck loading, unloading, and hauling operations so that noise is kept to a minimum.
  3. Measure sound level for noise exposure due to the construction at least once every five successive working days while work is being performed above 55 dB(A) noise level. Measure noise exposure at the property line or 50 feet from the noise source, whichever is greater. Measure the sound levels on the A weighing network of a General Purpose sound level meter at slow response. To minimize the effect of reflective sound waves at buildings, take measurements at three to six feet in front of any building face. Submit the recorded information to the AE noting any problems and the alternatives for mitigating actions.
- G. Restoration of Damaged Property: If any direct or indirect damage is done to public or private property resulting from any act, omission, neglect, or misconduct, the Contractor shall restore the damaged property to a condition equal to that existing before the damage at no additional cost to the State. Repair, rebuild, or restore property as directed or make good such damage in an acceptable manner.
- H. Maintenance: Maintain all erosion and sediment control facilities to provide proper function throughout the Project and for a period of one (1) year from the date of Substantial Completion for the earthwork portion of the project.
- I. Final Clean-up: On completion of project and after removal of all debris, rubbish, and temporary construction, Contractor shall leave the construction area in a clean condition satisfactory to the AE. Cleaning shall include off the station disposal of all items and materials not required to be salvaged, as well as all debris and rubbish resulting from demolition and new work operations.

**END OF SECTION 01 57 19**

**01 74 19**  
**CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL**

**PART 1 GENERAL**

**1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

|            |   |
|------------|---|
| 40 CFR 273 | Standards for Universal Waste Management                      |
| 49 CFR 173 | Shippers - General Requirements for Shipments and Packaging's |
| 49 CFR 178 | Specifications for Packaging's                                |

**1.2 DEFINITIONS**

- A. Co-mingle  
The practice of placing unrelated materials together in a single container, usually for benefits of convenience and speed.
- B. Construction Waste  
Waste generated by construction activities, such as scrap materials, damaged or spoiled materials, temporary and expendable construction materials, and other waste generated by the workforce during construction activities.
- C. Demolition Debris/Waste  
Waste generated from demolition activities, including minor incidental demolition waste materials generated as a result of intentional dismantling of all or portions of a building, to include clearing of building contents that have been destroyed or damaged.
- D. Disposal  
Depositing waste in a solid waste disposal facility, usually a managed landfill or incinerator, regulated in the US under the Resource Conservation and Recovery Act (RCRA).
- E. Diversion  
The practice of diverting waste from disposal in a landfill or incinerator, by means of eliminating or minimizing waste, or reuse of materials.
- F. Final Construction Waste Diversion Report  
A written assertion by a material recovery facility operator identifying constituent materials diverted from disposal, usually including summary tabulations of materials, weight in short-ton.
- G. Recycling  
The series of activities, including collection, separation, and processing, by which products or other materials are diverted from the solid waste stream for use in the form of raw materials in the manufacture of new products sold or distributed in commerce, or the reuse of such materials as substitutes for goods made of virgin materials, other than fuel.
- H. Reuse  
The use of a product or materials again for the same purpose, in its original form or with little enhancement or change.
- I. Salvage  
Usable, salable items derived from buildings undergoing demolition or deconstruction, parts from vehicles, machinery, other equipment, or other components.
- J. Source Separation  
The practice of administering and implementing a management strategy to identify and segregate unrelated waste at the first opportunity.

**1.3 CONSTRUCTION WASTE (INCLUDES DEMOLITION DEBRIS/WASTE)**

Divert a minimum of 60 percent by weight of the project construction waste and demolition debris/waste from the landfill or incinerator. Follow applicable industry standards in the management of waste. Apply sound environmental principles in the management of waste.

- A. Practice efficient waste management when sizing, cutting, and installing products and materials
- B. use all reasonable means to divert construction waste and demolition debris/waste from landfills and incinerators and to facilitate the recycling or reuse of excess construction materials.

#### 1.4 CONSTRUCTION WASTE MANAGEMENT

Implement a Construction Waste Management Program for the project. Take a pro-active, responsible role in the management of construction waste, recycling process, disposal of demolition debris/waste, and require all subcontractors, vendors, and suppliers to participate in the Construction Waste Management Program. Establish a process for clear tracking, and documentation of construction waste and demolition debris/waste.

##### A. Implementation of Construction Waste Management Program

Develop and document how the Construction Waste Management Program will be implemented in a Construction Waste Management Plan. Submit a Construction Waste Management Plan to the Contracting Officer for approval. Construction waste and demolition debris/waste materials include un-used construction materials not incorporated in the final work, as well as demolition debris/waste materials from demolition activities or deconstruction activities. In the management of waste, consider the availability of viable markets, the condition of materials, the ability to provide material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project completion mandates.

##### B. Oversight

The Quality Control Manager, as specified in Section 01 45 00.00 10 QUALITY CONTROL, is responsible for overseeing and documenting results from executing the Construction Waste Management Plan for the project. The Environmental Manager, as specified in Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS, is responsible for overseeing and documenting results from executing the Construction Waste Management Plan for the project.

##### C. Special Programs

Implement special programs involving rebates or similar incentives related to recycling of construction waste and demolition debris/waste materials. Retain revenue or savings from salvaged or recycling, unless otherwise directed. Ensure firms and facilities used for recycling, reuse, and disposal are permitted for the intended use to the extent required by federal, state, and local regulations.

##### D. Special Instructions

Provide on-site instruction of appropriate separation, handling, recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the projects. Designation of single source separating or commingling will be clearly marked on the containers.

##### E. Waste Streams

Delineate waste streams and characterization, including estimated material types and quantities of waste, in the Construction Waste Management Plan. Manage all waste streams associated with the project. Typical waste streams are listed below. Include additional waste streams not listed:

1. Land Clearing Debris
2. Asphalt
3. Masonry and CMU
4. Concrete
5. Metals (Includes, but is not limited to, banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum, copper, zinc, bronze.)
6. Wood (nails and staples allowed)
7. Glass
8. Paper
9. Plastics (PET, HDPE,PVC,LDPE,PP,PS, Other)
10. Gypsum
11. Non-hazardous paint and paint cans
12. Carpet
13. Ceiling Tiles
14. Insulation
15. Beverage Containers

#### 1.5 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

##### A. Preconstruction Submittals

1. Construction Waste Management Plan

##### B. Test Reports

1. Quarterly Reports
2. Annual Report

- C. Closeout Submittals
  - 1. Final Construction Waste Diversion Report

#### 1.6 MEETINGS

Conduct Construction Waste Management meetings. After award of the Contract and prior to commencement of work, schedule and conduct a meeting with the Contracting Officer to discuss the proposed Construction Waste Management Plan and to develop a mutual understanding relative to the management of the Construction Waste Management Program and how waste diversion requirements will be met.

The requirements of this meeting may be fulfilled during the coordination and mutual Understanding meeting outlined in Section 01 45 00 – QUALITY CONTROL. At a minimum, discuss and document waste management goals at following meetings:

- A. Preconstruction meeting.
- B. Regular site meetings.
- C. Work safety meeting (if applicable).

#### 1.7 CONSTRUCTION WASTE MANAGEMENT PLAN

Submit Construction Waste Management Plan within 15 calendar days after Notice to Proceed. Revise and resubmit Construction Waste Management Plan as necessary, in order for construction to begin. Execute demolition or deconstruction activities in accordance with Section 02 41 00 – DEMOLITION. Manage demolition debris/waste or deconstruction materials in accordance with the approved construction waste management plan.

An approved Construction Waste Management Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations or meeting project cumulative waste diversion requirement. Ensure all subcontractors receive a copy of the approved Construction Waste Management Plan. The plan demonstrates how to meet the project waste diversion requirement. Also, include the following in the plan:

- A. Identify the names of individuals responsible for waste management and waste management tracking, along with roles and responsibilities on the project.
- B. Actions that will be taken to reduce solid waste generation, including coordination with subcontractors to ensure awareness and participation.
- C. Description of the regular meetings to be held to address waste management.
- D. Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas on site and equipment to be used for processing, sorting, and temporary storage of materials.
- E. Name of landfill and incinerator to be used.
- F. Identification of local and regional re-use programs, including non-profit organizations such as schools, local housing agencies, and organization that accept used materials such as material exchange networks and resale stores. Include the name, location, phone number for each re-use facility identified, and provide a copy of the permit or license for each facility.
- G. List of specific materials, by type and quantity, that will be salvaged for resale, salvaged and reused on the current project, salvaged and stored for reuse on a future project, or recycled. Identify the recycling facilities by name, address, and phone number.
- H. Identification of materials that cannot be recycled or reused with an explanation or justification, to be approved by the Contracting Officer.
- I. Description of the means by which materials identified in item above will be protected from contamination.
- J. Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site).
- K. Copy of training plan for subcontractors and other services to prevent contamination by co-mingling materials identified for diversion and waste materials.
- L. Identification of at least 5 construction or demolition material streams for diversion.
- M. Detailed plan and distribution of waste diversion between buildings, when project is a part of a campus.
- N. Facilities or subcontractors offering construction waste transport on-site or off-site must ensure that proper shipping orders, bill of lading, manifests, or other shipping documents containing waste diversion information meet requirements of 40 CFR 273 Universal Waste Management, 49 CFR 173 Shippers - General Requirements for Shipments and Packaging's, and 49 CFR 178 Specifications for Packaging. Individuals signing manifests or other shipping documents should meet the minimum training requirements.



- O. List each supplier who deliver construction materials, in bulk, or package products in returnable containers or returnable packaging, or have take-back programs. List each program and the applicable material to actively monitor and track to assist in meeting waste diversion requirements on the project.
- P. Identify local jurisdiction requirements for waste management. Include local requirements and points of contact.

Distribute copies of the waste management plan to each subcontractor, Quality Control Manager Environmental Manager, and the Contracting Officer.

## 1.8 RECORDS (DOCUMENTATION)

### A. General

Maintain records to document the types and quantities of waste generated and diverted through re-use, recycling and sale to third parties; through disposal to a landfill or incinerator facility. Provide explanations for materials not recycled, reused or sold. Collect and retain manifests, weight tickets, sales receipts, and invoices specifically identifying diverted project waste materials or disposed materials.

### B. Accumulated

Maintain a running record of materials generated and diverted from landfill disposal, including accumulated diversion rates for the project. Make records available to the Contracting Officer during construction or incidental demolition activities. Provide a copy of the diversion records to the Contracting Officer upon completion of the construction, incidental demolitions or minor deconstruction activities.

## 1.9 REPORTS

### A. General

Maintain current construction waste diversion information on site for periodic inspection by the Contracting Officer. Include in the quarterly reports, annual reports and final reports: the project name, contract information, information for waste generated, diverted and disposed of for the current reporting period and show cumulative totals for the project. Reports must identify quantities of waste by type and disposal method. Also include in each report, supporting documentation to include manifests, weight tickets, receipts, and invoices specifically identifying the project and waste material type and weighted sum.

### B. Quarterly Reporting

Provide cumulative reports at the end of each quarter (December, March, June, and September, corresponding with the federal fiscal year for reporting purposes). Submit quarterly reports not later than 15 calendar days after the preceding quarter has ended. Submit Quarterly Reports to the Project Manager.

### C. Final Reporting

Provide a cumulative construction waste diversion report. Submit report not later than 10 calendar days after the Substantial Completion Inspection. The Final Inspection will not take place until the final report is submitted. The Contractor is responsible for ensuring the report is submitted on time, failure to submit will delay the Final Inspection and potentially subject the Contractor to liquidated damages for failure to have the project ready for Final Inspection. Provide construction waste diversion report to the Project Manager.

## 1.10 COLLECTION

Collect, store, protect, and handle reusable and recyclable materials at the site in a manner which prevents contamination, and provides protection from the elements to preserve their usefulness and monetary value. Provide receptacles and storage areas designated specifically for recyclable and reusable materials and label them clearly and appropriately to prevent contamination from other waste materials. Keep receptacles or storage areas neat and clean.

Train subcontractors and other service providers to either separate waste streams or use the co-mingling method as described in the Construction Waste Management Plan. Handle hazardous waste and hazardous materials in accordance with applicable regulations and coordinate with Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS and Section 02 81 00 TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS. Separate materials by one of the following methods described herein:

### A. Source Separation Method

Separate waste products and materials that are recyclable from trash and sort as described below into appropriately marked separate containers and then transport to the respective recycling facility for further processing. Deliver materials in accordance with recycling or reuse facility requirements (e.g., free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process). Separate materials into the category types as defined in the Construction Waste Management Plan.

- B. Co-Mingled Method  
Place waste products and recyclable materials into a single container and then transport to an authorized recycling facility, which meets all applicable requirements to accept and dispose of recyclable materials in accordance with all applicable local, state and federal regulations. The Co-mingled materials must be sorted and processed in accordance with the approved Construction Waste Management Plan.
- C. Other Methods  
Other methods proposed by the Contractor may be used when approved by the Contracting Officer.

#### 1.11 DISPOSAL

Control accumulation of waste materials and trash. Recycle or dispose of collected materials off-site at intervals approved by the Contracting Officer and in compliance with waste management procedures as described in the waste management plan. Except as otherwise specified in other sections of the specifications, dispose of in accordance with the following:

- A. Reuse  
Give first consideration to reusing construction and demolition materials as a disposition strategy. Recover for reuse materials, products, and components as described in the approved Construction Waste Management Plan. Coordinate with the Contracting Officer to identify onsite reuse opportunities or material sales or donation available through Government resale or donation programs. Sale of recovered materials is allowed on the Installation. Consider the use of surplus industrial supply broker services, who match entities with reusable or repurpose industrial materials with entities with need of such materials.
- B. Recycle  
Recycle non-hazardous construction and demolition/debris materials that are not suitable for reuse. Track rejection of contaminated recyclable materials by the recycling facility. Rejected recyclables materials will not be counted as a percentage of diversion calculation. Recycle all fluorescent lamps, HID lamps, mercury (Hg) - containing thermostats and ampoules, and PCBs-containing ballasts and electrical components as directed by the Contracting Officer. Do not crush lamps on site as this creates a hazardous waste stream with additional handling requirements.
- C. Compost  
Consider composting on site if a reasonable amount of compostable materials will be available and a utilization of compostable material can be determined and appropriately planned for. Compostable materials include plant materials, sawdust and certain food scraps. Composting as a strategy must be explicitly addressed in the Construction Waste Management Plan submitted for approval to ensure it is feasible.
- D. Waste  
Dispose by landfill or incineration only those waste materials with no practical use, economic benefit, or recycling opportunity.

#### **PART 2 PRODUCTS - NOT USED.**

#### **PART 3 EXECUTION - NOT USED.**

**-- END OF SECTION --**

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## WASTE AND RECYCLING TRACKING FORM

Contractor: \_\_\_\_\_  
Project Manager: \_\_\_\_\_

[illegible]

01 74 20 - WASTE AND RECYCLING TRACKING FORM

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**01 76 00**  
**PROTECTING INSTALLED CONSTRUCTION**

**PART 1 – GENERAL**

**1.1 SUMMARY**

- A. Protecting installed construction includes installing, delineating, or other means of ensuring that existing structures, objects, or surfaces remain in their current conditions.

**1.2 MEASUREMENT AND PAYMENT**

- A. Measurement and payment shall be considered incidental to the project. No compensation will be made for materials, equipment, labor, or other resources necessary for Protecting Installed Construction.

**1.3 PROTECTION**

- A. Existing facilities: protect adjacent walkways, roadways, loading docks, building entries, and other building facilities during demolition operations.
- B. Existing landscaping: protect trees, bushes, plantings, etc. from construction activities. Damage to existing landscaping due to the contractor's negligence to properly protect existing landscaping will result in the contractor replacing or repairing damaged landscaping at the Contractor's cost.
- C. Existing items to remain: protect facilities or infrastructure to remain, against damage and soiling during demolition.
- D. Existing utilities: maintain utility services to all adjacent facilities and protect them against damage during demolition operations.  
Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by owner and authorities having jurisdiction.  
Provide temporary services during interruptions to existing utilities, as acceptable to owner and to authorities having jurisdiction.
- E. Provide at least 72 hours' notice to owner if shutdown of service is required during changeover.
- F. Temporary protection: erect temporary protection such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction and as indicated.
  - a. Protect existing site improvements, appurtenances, and landscaping to remain.
  - b. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  - c. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
  - d. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.
- G. Damage to existing structures, objects, or surfaces as a direct result of the contractor's negligence shall be replaced or repaired by the contractor to original or improved conditions. All costs associated with such replacement or repairs shall be paid by the contractor.
- H. Contractor shall take caution to not damage existing roadways or entrances with heavy construction equipment. Contractor shall repair damage caused due to heavy construction traffic.
  - 1. Contractor is to provide visual evidence of before and after conditions.

**PART 2 – PRODUCTS - Not Used**

**PART 3 – EXECUTION - Not Used**

**END OF 01 76 00**

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**01 78 00**  
**CLOSEOUT SUBMITTALS**

**PART 1 – GENERAL**

**1.1 SUMMARY**

This section outlines required documentation to be provided to the AE and Owner at the conclusion of the project. Final payment will not be made to the Contractor prior to receipt of all closeout forms.

**1.2 REQUIRED SUBMITTALS**

- A. Training Plan
- B. Construction Waste & Recycled Materials Forms
- C. Hazardous Material Disposal Forms
- D. Certification of EPA Designated Items
- E. Certification of USDA Designated Items
- F. Recycled Material Weight Tickets
- G. Waste Weight Tickets
- H. Record Drawings
- I. O&M Manuals
- J. Real Property Data – Form 1354 (Final)
- K. BUILDER Data Information
- L. Pre-Substantial Completion Punch List
- M. Commissioning Issues Log
- N. Formal Notice of Substantial Completion
- O. Certificate of Substantial Completion
- P. Punch List Verification
- Q. Formal Notice of Final Project Completion
- R. Unemployment Contribution Certificate
- S. Final Application for Payment

**PART 2 – PRODUCTS**

**2.1 TRAINING PLAN**

- A. Contractor shall submit their training plan in accordance with section 01 78 23 - Operation & Maintenance Data within this project manual.
- B. Contractor shall submit their written training plan a minimum of 30 calendar days prior to scheduling training.
- C. All training must be completed prior to the Substantial Completion Inspection.

**2.2 CONSTRUCTION WASTE & RECYCLED MATERIALS FORMS**

- A. Refer to section 01 74 19 - Construction Waste Management for requirements.
- B. All weight tickets shall be provided to the Owner with the notice of substantially complete or prior.

**2.3 HAZARDOUS MATERIAL DISPOSAL FORMS**

- A. Refer to section 01 74 19 - Construction Waste Management for requirements.
- B. All weight tickets shall be provided to the Owner with the notice of substantially complete or prior.

**2.4 CERTIFICATION OF EPA DESIGNATED ITEMS**

Submit the Certification of EPA Designated Items as required by the Estimate of Percentage of Recovered Material Content for EPA Designated Items and Affirmative Procurement of EPA designated items in Service and Construction Contracts. Include on the certification form the following information: project name, project number, Contractor name, license number, Contractor address, and certification. The certification will read as follows and be signed and dated by the Contractor. "I hereby certify the information provided herein is accurate and that the requisition/procurement of all materials listed on this form comply with current EPA standards for recycled/recovered materials content. The following exemptions may apply to the non-procurement of recycled/recovered content materials:

- A. The product does not meet appropriate performance standards;
- B. The product is not available within a reasonable time frame;
- C. The product is not available competitively (from two or more sources);



- D. The product is only available at an unreasonable price (compared with a comparable non-recycled content product)."

Record each product used in the project that has a requirement or option of containing recycled content in accordance with SECTION 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING, noting total price, total value of post-industrial recycled content, total value of post-consumer recycled content, exemptions (a, b, c, or d, as indicated), and comments. Recycled content values may be determined by weight or volume percent but must be consistent throughout.

## 2.5 CERTIFICATION OF USDA DESIGNATED ITEMS

Submit the Certification of USDA Designated Items as required by the Bio-based Product Certifications and Affirmative Procurement of Biobased Products Under Service and Construction Contracts. Include on the certification form the following information: project name, project number, Contractor name, license number, Contractor address, and certification. The certification will read as follows and be signed and dated by the Contractor. "I hereby certify the information provided herein is accurate and that the requisition/procurement of all materials listed on this form comply with current USDA standards for biobased materials content. The following exemptions may apply to the non-procurement of biobased content materials:

- A. The product does not meet appropriate performance standards;
- B. The product is not available within a reasonable time frame;
- C. The product is not available competitively (from two or more sources);
- D. The product is only available at an unreasonable price (compared with a comparable bio-based content product)."

Record each product used in the project that has a requirement or option of containing biobased content in accordance with SECTION 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING, noting total price, total value of post-industrial recycled content, total value of post-consumer recycled content, total value of biobased content, exemptions (a, b, c, or d, as indicated), and comments. Biobased content values may be determined by weight or volume percent but must be consistent throughout.

## 2.6 RECORD DRAWINGS

### A. Work included:

- 1. Throughout progress of the work, the Contractor shall maintain, at the job or site, an accurate record of changes in the Contract Documents. The record of changes shall be kept current at all times and shall be accessible for periodic review by the AE and/or the Dept. of the Military.
- 2. Transfer the recorded changes to a set of Record Documents to be provided to the AE prior to the final payment.

### B. Accuracy of records:

- 1. Thoroughly coordinate changes within the Record Documents, making adequate and proper entries on each page of specifications and each sheet of Drawings and other Documents where such entry is required to show the change properly.
- 2. Accuracy of records shall be such that future searches for items shown in the Contract Documents may rely reasonably on information obtained from the approved Project Record Documents.

### C. Entries on Drawings

- 1. Using an erasable colored pencil (not ink or indelible pencil), clearly describe the change by graphic line and note as required.
- 2. Date all entries.
- 3. Call attention to the entry by a "cloud" drawn around the area or areas affected.
- 4. In the event of overlapping changes, use different colors for the overlapping changes.
- 5. In some cases on the Drawings, arrangements of conduits, circuits, piping, ducts, and similar items, is shown schematically and is not intended to portray precise physical layout.
  - a. Final physical arrangement is determined by the Contractor, subject to the AE's approval.
  - b. However, design of future modifications of the facility may require accurate information as to the final physical layout of items shown only schematically on the Drawings. This layout will be shown on the Record Drawings.
  - c. The AE may waive the requirements for conversion of schematic layouts where, in the AE's judgment, conversion serves no useful purpose. However, do not rely upon waivers being issued except as specifically issued in writing by the AE.
- 6. Show on the Record Drawings, the following:
  - a. Clearly identify the item by note, such as "cast iron drain", "galv. water", and the like.

- b. Show, by the symbol or note, the vertical location of the item ("under slab", "in ceiling plenum", "exposed", and the like).
  - c. Make all identification sufficiently descriptive that it may be related reliably to the Specifications.
- D. The purpose of the final Project Record Documents is to provide factual information regarding all aspects of the work, both concealed and visible, to enable future modification of the work to proceed without lengthy and expensive site measurement, investigation and examination.
- E. Review and submittal:
  - 1. Contractor shall have Record Documents submitted in final form to the AE prior to or as an attachment with the notice of being substantially complete.

## 2.7 O&M MANUALS

- A. The Contractor shall prepare Operation and Maintenance Manuals in accordance with section 01 78 23 - Operation & Maintenance Data within this project manual.
- B. Draft manuals shall be provided to the AE in sufficient time for thorough review.
- C. Contractor shall submit FINAL Operation and Maintenance Manuals to the AE prior to or as an attachment with the notice of being substantially complete.

## 2.8 REAL PROPERTY DATA – FORM 1354 (FINAL)

- A. The Contractor shall submit the Final Form 1354 data to the Owner prior to or as an attachment with the notice of being substantially complete.
- B. Refer to UFC 1-300-08 for instruction on completing the DD FORM 1354. Contact the Project Manager for any project specific information necessary to complete the DD FORM 1354.
- C. Completed DD FORM 1354  
Attach the Real Property receiving Component's completed High Performance and Sustainable Building (HPSB) Checklist for each applicable building to the completed DD 1354, in accordance with Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING.
- D. Completed Checklist  
Submit the completed Checklist for DD FORM 1354 of Installed Building Equipment items. Attach this list to the updated DD FORM 1354.

## 2.9 BUILDER DATA INFORMATION

- A. Contractor shall submit a completed excel document provided by the Project Manager. All necessary information shall be documented along with electronic photographs of each piece of equipment or asset requiring photographic logging.

## 2.10 PRE-SUBSTANTIAL COMPLETION PUNCH LIST

- B. The AE may request a pre-substantial completion inspection punch list. This will consist of the AE and Contractor conducting a brief inspection of the project site to identify work items that need to be addressed or corrected before the project may be considered substantially complete.
- C. The Contractor shall record the items identified and generate a log of such items. The log shall note what was done to correct the identified issue, the Contractor that corrected the issue, and the date correction was completed.
- D. Contractor shall submit the pre-substantial completion punch list log prior to or as an attachment with the notice of being substantially complete.

## 2.11 COMMISSIONING ISSUES LOG

- A. During initial commissioning verification process the Commissioning Agent will develop a log of all issues found. The Commissioning Agent will provide a list of all items that need to be addressed to the Contractor.
- B. The Contractor shall create a log to track all items. The log shall indicate what was done to correct the identified issue, the Contractor that corrected the issue, and the date correction was completed.
- C. The Contractor shall have all identified issues resolved prior to requesting the Substantial Completion Inspection. The Contractor shall provide the Commissioning Issues Log to the Commissioning Agent and Owner for verification that all items have been completed.

## 2.12 FORMAL NOTICE OF SUBSTANTIAL COMPLETION

- A. Once the Contractor believes they have met the requirements of Contract Documents and are substantially complete in accordance with the definition in General Conditions 10.1.3, the Contractor shall submit a formal

letter to the AE and Owner stating the project is substantially complete and ready for a substantial completion inspection.

- A. If the AE agrees that the project appears ready for the substantial completion inspection per Article 10 to the General Conditions, the AE shall recommend to the Dept. of the Military that a substantial completion inspection be conducted.
- B. If the Dept. of the Military agrees that the work is substantially complete they will schedule the substantial completion inspection within two (2) weeks of receipt of the AE's recommendation.
  - 1. Should the Contractor fail to submit any documentation required prior to or with the notice of being substantially complete the Substantial Completion Inspection will be delayed until submitted. Calendar days will continue to be counted against the project should Contractor fail to submit required documents on time.

#### 2.13 CERTIFICATE OF SUBSTANTIAL COMPLETION

- A. Following the substantial completion inspection the AE will generate a punch list identifying all items noted during the inspection which require correction or attention by the Contractor.
- B. The AE will then draft the Certificate of Substantial Completion, attached the punch list, sign the certificate, and send the Certificate of Substantial Completion to the Contractor. The certificate shall be provided to the Contractor no more than 7 calendar days from the substantial completion inspection date.
  - 1. The following are considered acceptable Certificate forms:
    - A. Specification Section 00 65 16 – Certificate of Substantial Completion Form
    - B. EJCDC C-625 – Certificate of Substantial Completion
    - C. AIA G704 – Certificate of Substantial Completion
  - 2. The certificate shall indicate the date in which the project was determined to be substantially complete, reference the punch list of items to be completed or corrected, and whether the entire project or specific portions of the project are considered substantially complete.
- C. Within 10 calendar days from determination that the project is substantially complete the Contractor shall provide the signed Certificate of Substantial Completion to the Owner.

#### 2.14 PUNCH LIST VERIFICATION

- A. The Contractor shall provide the AE and Owner verification that all identified punch list items have been corrected/completed. This shall be done by producing a document identifying each punch list item, indicate what was done to correct the identified issue, the Contractor that corrected the issue, and the date correction was completed.
- B. The Contractor shall provide the punch list verification documentation to the AE and Owner as an attachment to their formal request for final inspection.

#### 2.15 FORMAL NOTICE OF FINAL PROJECT COMPLETION

- A. The Contractor shall submit a formal letter to the AE and Owner requesting final inspection per Article 11 of the General Conditions.
- B. If the AE agrees that the project appears ready for the final inspection, the AE shall recommend to the Dept. of the Military that the final inspection be scheduled.
- C. If the Dept. of the Military agrees that the work is complete and in full compliance with the contract documents, they will schedule the final inspection within two (2) weeks of receipt of the AE's recommendation.

#### 2.16 CERTIFICATE OF COMPLETION

- A. If the project is determined to be fully complete in accordance with the Contract Documents the AE will prepare the Certificate of Completion Specification Section 00 65 19 – Certificate of Completion Form.
- B. The AE shall provide the certificate to the Contractor no more than 5 calendar days from the final completion inspection date.
- C. Within 10 calendar days from determination that the project is fully complete the Contractor shall provide the signed Certificate of Completion to the Owner.

#### 2.17 UNEMPLOYMENT CONTRIBUTION CERTIFICATE

- A. The Contractor shall include with their final application for payment a State of South Dakota Unemployment Contribution Certificate.
- B. Final payment will not be processed until the certificate is provided to the Owner.

## 2.18 FINAL APPLICATION FOR PAYMENT

- A. Contractor shall comply with the requirements established in General Condition's section 11.8.
- B. Once all work is fully complete and all required documentation has been submitted and approved the Contractor shall submit their Application for Final Payment.
- C. Included with the submittal shall be AIA Forms G706, G706A and G707 (or equivalent forms) and any other documentation required within the project manual.

## PART 3 – EXECUTION

### 3.1 SUBSTANTIAL COMPLETION INSPECTION

- A. Reference Articles 10 and 11 of the General Conditions.
- B. The Substantial Completion Inspection will be conducted to review work of all trades.
  - 1. The Contractors is responsible to ensure all Subcontractors are present for the substantial completion inspection. Failure to have all Subcontractors present may be cause for the Dept. of the Military to postpone the substantial completion inspection.
- C. All parties will gather at the scheduled time and location as designated by the meeting invite. Instructions will be provided to the group as a whole.
- D. Based on project size, the inspection will be conducted as one group reviewing all aspects of the project or broken into multiple groups based on trade.
  - 1. Should the inspection be broken into multiple groups all participants will reconvene at the end of the inspection to discuss findings.
- E. The AE shall record all items of work that need to be corrector or completed in accordance with the Contract Documents.
- F. The AE and Owner will determine overall consensus if the project is substantially complete.
- G. Participants will determine the dollar value associated with all work items identified that need to be corrected or completed.
- H. In accordance with SD Codified Law twice the value of the remaining work will be withheld from payment.
- I. The AE will consolidate all item identified for correction or completion into a "Punch List".
- J. The AE shall provide the consolidated Punch List to the Contractor within 7 calendar days from the date of the inspection.

### 3.2 FINAL COMPLETION INSPECTION

- A. Reference Articles 10 and 11 of the General Conditions.
- B. A Final Completion Inspection will be conducted to review all items identified on the Punch List.
  - 1. It is the Contractors responsibility to assure all Subcontractors with work listed on the "punch list" are present for the final inspection. Failure to have all Subcontractors present may be cause for the Dept. of the Military to postpone the final inspection.
- C. All parties will gather at the scheduled time and location as designated by the meeting invite.
- D. All items on the Punch List will be inspected to ensure they have been completed in accordance with the Contract Documents.
- E. The project will only be determined to be Final Complete if all items have been corrected/completed in accordance with the Contract Documents.
  - 1. The Contractor's failure to complete all items prior to the Final Completion Inspection will require additional inspections to be conducted.
  - 2. The Contractor shall pay each AE fees for re-inspection of the project site due to their failure to complete all item prior to requesting a Final Completion Inspection.
- F. Once the project has been determined to be fully complete a Certificate of Completion will be prepared by the AE and circulated for signatures.

**END SECTION 01 78 00**

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**01 78 23**  
**OPERATION AND MAINTENANCE DATA**

**PART 1 GENERAL**

**1.1 OVERVIEW**

This section includes requirements for owner training along with operation and maintenance manual requirements.

**1.2 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM E1971      Standard Guide for Stewardship for the Cleaning of Commercial and Institutional Buildings

**1.3 SUBMITTALS**

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

- A. Operation and Maintenance Data
  - 1. O&M Database
  - 2. Training Plan
  - 3. Training Outline
  - 4. Training Content
- B. Closeout Submittals
  - 1. Training Video Recording
  - 2. Validation of Training Completion

**1.4 OPERATION AND MAINTENANCE DATA**

- A. Submit Operation and Maintenance (O&M) Data for the provided equipment, product, or system, defining the importance of system interactions, troubleshooting, and long-term preventive operation and maintenance.
- B. Compile, prepare, and aggregate O&M data to include clarifying and updating the original sequences of operation to as-built conditions.
- C. Organize and present information in sufficient detail to clearly explain O&M requirements at the system, equipment, component, and subassembly level.
- D. Include an index preceding each submittal.
- E. Submit in accordance with this section and Section 01 33 00 SUBMITTAL PROCEDURES.
- F. Package Quality
  - 1. Documents must be fully legible.
  - 2. Operation and Maintenance data must be consistent with the manufacturer's standard brochures, schematics, printed instructions, general operating procedures, and safety precautions.
  - 3. Operation and Maintenance data must be submitted to the AE for quality review and approval prior to issuance to owner.
- G. Package Content
  - 1. Provide data package content in accordance with paragraph SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGES.
  - 2. Comply with the data package requirements specified in the individual technical sections, including the content of the packages and addressing each product, component, and system designated for data package submission, except as follows.
- H. Operation and Maintenance data must be submitted to the AE for inclusiveness review and approval prior to issuance to owner.
- I. Changes to Submittals
  - 1. Provide manufacturer-originated changes or revisions to submitted data if a component of an item is so affected subsequent to acceptance of the O&M Data. Submit changes, additions, or revisions required for final acceptance of submitted data within 30 calendar days of the notification of this change requirement.
- J. Commissioning Authority Review and Approval (if Cx is included with project)
  - 1. Submit the commissioned systems and equipment submittals to the Commissioning Authority (Cx) to review for completeness and applicability.
  - 2. Obtain validation from the Cx that the systems and equipment provided meet the requirements of the Contract documents and design intent, particularly as they relate to functionality, energy performance, water performance, maintainability, sustainability, system cost, indoor environmental quality, and local

- environmental impacts.
- 3. The CxA communicates deficiencies to the Owner.
- 4. Submit the O&M manuals to the owner upon a successful review of the corrections, and with the CxA recommendation for approval and acceptance of these O&M manuals. This work is in addition to the normal AE review procedures for O&M data.

## 1.5 INFORMATION REQUIRED IN O&M DATA PACKAGE

- A. Identification of Contractor and Subcontractors
- B. Index of Manual Sections
- C. Real Property Equipment
  - 1. Real property equipment shall be the first section of the Operation and Maintenance Manual.
  - 2. Provide a list of installed equipment furnished under this contract. Include all information usually listed on manufacturer's name plate. In the "EQUIPMENT-IN-PLACE LIST" include, as applicable, the following for each piece of equipment installed: assigned equipment number, description of item, location (by room number), model number, serial number, capacity, name and address of manufacturer, name and address of equipment supplier, condition, spare parts list, manufacturer's catalog, and warranty.
  - 3. Provide spreadsheet listing all equipment with extended warranties.
    - a. List all warranties for products, equipment, components, and sub-components whose duration exceeds one year. For each warranty listed, indicate the applicable specification section, piece of equipment, description of item, location, manufacturer, duration, start date, end date, type of warranty, and the point of contact for warranty fulfillment. Also, list or reference the specific operation and maintenance procedures that must be performed to keep the warranty valid. Provide copies of warranties required by Section 01 78 00 CLOSEOUT SUBMITTALS.
  - 4. Facility Property Breakdown
 

National Guard Bureau requires certain infrastructure or systems to be quantified and associated pricing indicated for each identified item. Contractor shall provide installed quantity and the associated price with each on a Form 1354 (Form provided by owner).
- D. Operating Instructions
 

Provide specific instructions, procedures, and illustrations for the following phases of operation for the installed model and features of each system:

  - 1. Safety Precautions and Hazards – List personnel hazards and equipment or product safety precautions for operating conditions. Provide recommended safeguards for each identified hazard.
  - 2. Operator Prestart – Provide procedures required to install, set up, and prepare each system for use.
  - 3. Startup, Shutdown, and Post-Shutdown Procedures – Provide narrative description for Startup, Shutdown and Post-shutdown operating procedures including the control sequence for each procedure.
  - 4. Normal Operations – Provide Control Diagrams with data to explain operation and control of systems and specific equipment. Provide narrative description of Normal Operating Procedures.
  - 5. Emergency Operations – Provide Emergency Procedures for equipment malfunctions to permit a short period of continued operation or to shut down the equipment to prevent further damage to systems and equipment. Provide Emergency Shutdown Instructions for fire, explosion, spills, or other foreseeable contingencies. Provide guidance and procedures for emergency operation of utility systems including required valve positions, valve locations and zones or portions of systems controlled.
  - 6. Operator Service Requirements – Provide instructions for services to be performed by the operator such as lubrication, adjustment, inspection, and recording gauge readings.
  - 7. Environmental Conditions – Provide a list of Environmental Conditions (temperature, humidity, and other relevant data) that are best suited for the operation of each product, component or system. Describe conditions under which the item equipment should not be allowed to run.
  - 8. Operating Log – Provide forms, sample logs, and instructions for maintaining necessary operating records.
  - 9. Additional Requirements for HVAC Control Systems Provide Data Package 5 and the following for control systems:
    - a. Narrative description on how to perform and apply functions, features, modes, and other operations, including unoccupied operation, seasonal changeover, manual operation, and alarms. Include detailed technical manual for programming and customizing control loops and algorithms.
    - b. Full as-built sequence of operations.
    - c. Copies of checkout tests and calibrations performed by the Contractor (not Cx tests).
    - d. Full points list. Provide a listing of rooms with the following information for each room:
      - 1) Floor
      - 2) Room number

- 3) Room name
  - 4) Air handler unit ID
  - 5) Reference drawing number
  - 6) Air terminal unit tag ID
  - 7) Heating or cooling valve tag ID
  - 8) Minimum cfm
  - 9) Maximum cfm
  - e. Full print out of all schedules and set points after testing and acceptance of the system.
  - f. Full as-built print out of software program.
  - g. Marking of system sensors and thermostats on the as-built floor plan and mechanical drawings with their control system designations.
- E. Preventive Maintenance
- Provide the following information for preventive and scheduled maintenance to minimize repairs for the installed model and features of each system. Include potential environmental and indoor air quality impacts of recommended maintenance procedures and materials.
1. Lubrication Data – Include the following preventive maintenance lubrication data, in addition to instructions for lubrication required under paragraph OPERATOR SERVICE REQUIREMENTS:
    - a. A table showing recommended lubricants for specific temperature ranges and applications.
    - b. Charts with a schematic diagram of the equipment showing lubrication points, recommended types and grades of lubricants, and capacities.
    - c. A Lubrication Schedule showing service interval frequency.
  2. Preventive Maintenance Plan, Schedule, and Procedures
 

Provide manufacturer's schedule for routine preventive maintenance, inspections, condition monitoring (predictive tests) and adjustments required to ensure proper and economical operation and to minimize repairs. Provide instructions stating when the systems should be retested. Provide manufacturer's projection of preventive maintenance work-hours on a daily, weekly, monthly, and annual basis including craft requirements by type of craft. For periodic calibrations, provide manufacturer's specified frequency and procedures for each separate operation.

    - a. Define the anticipated time required to perform each of each test (work-hours), test apparatus, number of personnel identified by responsibility, and a testing validation procedure permitting the record operation capability requirements within the schedule. Provide a remarks column for the testing validation procedure referencing operating limits of time, pressure, temperature, volume, voltage, current, acceleration, velocity, alignment, calibration, adjustments, cleaning, or special system notes. Delineate procedures for preventive maintenance, inspection, adjustment, lubrication and cleaning necessary to minimize repairs.
    - b. Repair requirements must inform operators how to check out, troubleshoot, repair, and replace components of the system. Include electrical and mechanical schematics and diagrams and diagnostic techniques necessary to enable operation and troubleshooting of the system after acceptance.
  3. Cleaning Recommendations – Provide environmentally preferable cleaning recommendations in accordance with ASTM E1971.
- F. Repair
- Provide manufacturer's recommended procedures and instructions for correcting problems and making repairs for the installed model and features of each system. Include potential environmental and indoor air quality impacts of recommended maintenance procedures and materials.
1. Troubleshooting Guides and Diagnostic Techniques
 

Provide step-by-step procedures to promptly isolate the cause of typical malfunctions. Describe clearly why the checkout is performed and what conditions are to be sought. Identify tests or inspections and test equipment required to determine whether parts and equipment may be reused or require replacement.
  2. Wiring Diagrams and Control Diagrams
 

Provide point-to-point drawings of wiring and control circuits including factory-field interfaces. Provide a complete and accurate depiction of the actual job specific wiring and control work in color. On diagrams, number electrical and electronic wiring and pneumatic control tubing and the terminals for each type, identically to actual installation configuration and numbering.
  3. Repair Procedures
 

Provide instructions and a list of tools required to repair or restore the product or equipment to proper condition or operating standards.
  4. Removal and Replacement Instructions



Provide step-by-step procedures and a list of required tools and supplies for removal, replacement, disassembly, and assembly of components, assemblies, subassemblies, accessories, and attachments. Provide tolerances, dimensions, settings and adjustments required. Use a combination of text and illustrations.

5. Spare Parts and Supply Lists

Provide lists of spare parts and supplies required for repair to ensure continued service or operation without unreasonable delays. Special consideration is required for facilities at remote locations. List spare parts and supplies that have a long lead-time to obtain.

6. Repair Work-Hours

Provide manufacturer's projection of repair work-hours including requirements by type of craft. Identify, and tabulate separately, repair that requires the equipment manufacturer to complete or to participate.

G. Appendices

Provide information required below and information not specified in the preceding paragraphs but pertinent to the maintenance or operation of the product or equipment. Include the following:

1. Product Submittal Data – Provide a copy of Product Data submittals documented with the required approval.
2. Manufacturer's Instructions – Provide a copy of Manufacturer's Instructions submittals documented with the required approval.
3. O&M Submittal Data – Provide a copy of Operation and Maintenance Data submittals documented with the required approval.
4. Parts Identification – Provide identification and coverage for the parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Include special hardware requirements, such as requirement to use high-strength bolts and nuts. Identify parts by make, model, serial number, and source of supply to allow reordering without further identification. Provide clear and legible illustrations, drawings, and exploded views to enable easy identification of the items. When illustrations omit the part numbers and description, both the illustrations and separate listing must show the index, reference, or key number that will cross-reference the illustrated part to the listed part. Group the parts shown in the listings by components, assemblies, and subassemblies in accordance with the manufacturer's standard practice. Parts data may cover more than one model or series of equipment, components, assemblies, subassemblies, attachments, or accessories, such as typically shown in a master parts catalog.
5. Warranty Information – List and explain the various warranties and clearly identify the servicing and technical precautions prescribed by the manufacturers or contract documents in order to keep warranties in force. Include warranty information for primary components of the system. Provide copies of warranties required by Section 01 78 00 CLOSEOUT SUBMITTALS.
6. Extended Warranty Certificates.
7. Personnel Training Requirements – Provide information available from the manufacturers that is needed for use in training designated personnel to properly operate and maintain the equipment and systems.
8. Testing Equipment and Special Tool Information – Include information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components. Provide final set points.
9. Testing and Performance Data – Include completed pre-functional checklists, functional performance test forms, and monitoring reports. Include recommended schedule for retesting and blank test forms. Provide final set points.
10. Field Test Reports – Provide a copy of Field Test Reports submittals documented with the required approval.
11. Contractor Information – Provide a list that includes the name, address, and telephone number of the General Contractor and each Subcontractor who installed the product or equipment, or system. For each item, also provide the name address and telephone number of the manufacturer's representative and service organization that can provide replacements most convenient to the project site. Provide the name, address, and telephone number of the product, equipment, and system manufacturers.

1.6 SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGE

Provide the O&M data packages specified in individual technical sections. The information required in each type of data package follows:

- A. Safety precautions and hazards
- B. Operator prestart
- C. Startup, shutdown, and post-shutdown procedures

- D. Normal operations
- E. Emergency operations
- F. Operator service requirements
- G. Environmental conditions
- H. Operating log
- I. Lubrication data
- J. Preventive maintenance plan, schedule, and procedures
- K. Cleaning recommendations
- L. Troubleshooting guides and diagnostic techniques
- M. Wiring diagrams and control diagrams
- N. Repair procedures
- O. Removal and replacement instructions
- P. Spare parts and supply list
- Q. Repair work-hours
- R. Product submittal data
- S. O&M submittal data
- T. Parts identification
- U. Warranty information
- V. Extended warranty information
- W. Personnel training requirements
- X. Testing equipment and special tool information
- Y. Testing and performance data
- Z. Contractor Information
- AA. Field test reports

## **PART 2 PRODUCTS**

### **2.1 OPERATION AND MAINTENANCE MANUAL FILE FORMAT**

Assemble data packages into electronic Operation and Maintenance Manuals. Assemble each manual into a composite electronically indexed file using the most current version of Adobe Acrobat or similar software capable of producing PDF file format. Provide compact disks (CD) or data digital versatile disk (DVD) as appropriate, so that each one contains operation, maintenance, startup reports, testing reports, and other record documentation. Include a complete electronically linked operation and maintenance directory.

#### **A. Organization**

Bookmark Product and Drawing Information documents using the current version of CSI Masterformat numbering system, and arrange submittals using the specification sections as a structure. Use CSI Masterformat and UFGS numbers along with descriptive bookmarked titles that explain the content of the information that is being bookmarked.

#### **B. CD or DVD Label and Disk Holder or Case**

Provide the following information on the disk label and disk holder or case: Operation & Maintenance Manual; Volume No. (if necessary); CFMO Project Name; CFMO#; Facility Name; Substantial Completion Date

### **2.2 OPERATION AND MAINTENANCE MANUAL BINDERS**

1. Bound in 8-1/2" x 11" hard cover, indexed, loose leaf binder.
  - a. Information shall be folded, if necessary
2. Binders shall not exceed 3" in depth.
3. All sections and subsections will be provided with labeled index tabs.
4. A sufficient number of binders shall be used so that each binder is less than 3/4 full.
5. Multiple binders shall be used if required to contain materials.
6. All binders shall be properly identified on Cover and Side with: O&M Manual; CFMO Project Name; CFMO #; Facility Name; Substantial Completion Date.
7. Contractor shall provide three (3) hard copies of all manuals produced.

### **2.3 TRAINING AUDIO/VIDEO FILES**

1. All training videos shall be produced to be one composite electronically indexed file. Training videos shall be indexed in accordance with technical specification sections.
2. Audio and video shall be professional quality.
3. Provide three (3) copies each on data digital versatile disk (DVD).

4. All DVD's shall be labeled with: Training Videos; CFMO Project Name; CFMO#; Facility Name; Substantial Completion Date.

#### 2.4 FORM 1354 – REAL PROPERTY BREADOWN

1. Contractor shall be provided a Form 1354 with identified infrastructure or systems along with the associated estimated quantities and units of measure.
2. Contractor shall note any revisions to the quantities indicated on the form.
3. Contractor shall provide furnished and installed pricing for each indicated item on the Form 1354.
4. Within 14 calendar days following the date of acceptance of the project and prior to the final pay application, the Contractor shall submit the final document.

### PART 3 EXECUTION

#### 3.1 TRAINING

Prior to acceptance of the facility by the Owner for Beneficial Occupancy, provide comprehensive training for the systems and equipment specified in the technical specifications. The training must be targeted for building maintenance personnel, and applicable building occupants. Instructors must be well-versed in the particular systems that they are presenting. Address aspects of the Operation and Maintenance Manual submitted. Training must include classroom or field lectures based on the system operating requirements. The location of classroom training requires approval by the Owner.

##### A. Training Plan

Submit a written training plan for approval at least 30 calendar days prior to the scheduled training. Training plan must be approved by the AE, Commissioning Authority (CxA), and Owner. Also, coordinate the training schedule with the AE, CxA, and Owner. Include within the plan the following elements:

1. Equipment included in training
2. Intended audience
3. Location of training
4. Dates of training
5. Objectives
6. Outline of the information to be presented and subjects covered including description
7. Start and finish times and duration of training on each subject
8. Methods (e.g. classroom lecture, video, site walk-through, actual operational demonstrations, written handouts)
9. Instructor names and instructor qualifications for each subject
10. List of texts and other materials to be furnished by the Contractor that are required to support training
11. Description of proposed software to be used for video recording of training sessions.

##### B. Training Content

The core of this training must be based on manufacturer's recommendations and the operation and maintenance information. The AE and CxA is responsible for overseeing and approving the content and adequacy of the training. Spend 95 percent of the instruction time during the presentation on the OPERATION AND MAINTENANCE DATA. Include the following for each system training presentation:

1. Start-up, normal operation, shutdown, unoccupied operation, seasonal changeover, manual/emergency operation, controls set-up and programming, troubleshooting, and alarms.
2. Relevant health and safety issues.
3. Discussion of how the feature or system is environmentally responsive. Advise adjustments and optimizing methods for energy conservation.
4. Design intent.
5. Use of O&M Manual Files.
6. Review of control drawings and schematics.
7. Interactions with other systems.
8. Special maintenance and replacement sources.
9. Tenant interaction issues.

##### C. Training Outline

Provide the Operation and Maintenance Manual Files (Bookmarked PDF) and a written course outline listing the major and minor topics to be discussed by the instructor on each day of the course to each trainee in the course. Provide the course outline 21 calendar days prior to the training.

##### D. Training Video Recording

Record classroom training session(s) on video. Provide to the Owner three copies of the training session(s) in

DVD video recording format. Capture within the recording, in video and audio, the instructors' training presentations including question and answer periods with the attendees. The recording camera(s) must be attended by a person during the recording sessions to assure proper size of exhibits and projections during the recording are visible and readable when viewed as training. Audio shall be sufficient to clearly hear the presenter and participant questions on the recording when viewed as training.

E. Unresolved Questions from Attendees

If, at the end of the training course, there are questions from attendees that remain unresolved, the instructor must send the answers, in writing, to the Owner for transmittal to the attendees, and the training video must be modified to include the appropriate clarifications.

F. Validation of Training Completion

Ensure that each attendee at each training session signs a class roster daily to confirm Government participation in the training. At the completion of training, submit a signed validation letter that includes a sample record of training for reporting what systems were included in the training, who provided the training, when and where the training was performed, and copies of the signed class rosters. Provide two copies of the validation to the Owner, and one copy to the Operation and Maintenance Manual Preparer for inclusion into the Manual's documentation.

**-- END OF SECTION --**

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**02 41 19**  
**SELECTIVE DEMOLITION**

**PART 1 – GENERAL**

- 1.1 DESCRIPTION
  - A. Removal of identified items/materials within the Construction Plans.
  - B. Unless identified to be salvaged, all items shall become property of the Contractor.
  - C. Contractor shall properly dispose of all items in accordance with Section 01 74 19 - Construction Waste Management, or in accordance with local, State, and Federal laws.
  - D. Salvaged items shall remain in the same condition as existing. Salvaged items may be designated to be re-installed or turned over to the SDARNG for reuse at a later date. Items designated to be salvaged that are damaged during Contractor's removal or storage of the item shall be replaced or repaired by the Contractor at no cost to the SD Dept. of the Military.
- 1.2 QUALITY ASSURANCE
  - A. Use adequate numbers of skilled workers who are thoroughly trained and experienced with the crafts necessary for proper performance of demolition work described herein and as shown on the Plans. Workers shall be familiar with specified requirements.

**PART 2 – PRODUCTS – Not Used**

**PART 3 – EXECUTION**

- 3.1 PROTECTION
  - A. Contractor shall implement measures to prevent damage to adjacent construction, equipment, etc. that is to remain in place and intact.
- 3.2 EXISTING CONDITIONS
  - A. Contractor shall examine the areas and conditions under which demolition work will take place. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.
- 3.3 DEMOLITION
  - A. Contractor shall thoroughly examine the contract documents, determine exact location and extent of selective demolition to be performed.
  - B. Remove items identified on the Construction Plans and as described below.
    - 1. Civil/Site Demolition
      - a. Excavation for foundation improvements and drainage
    - 2. Landscape Demolition – None
    - 3. Structural Demolition
      - a. Temporary supports under main support beams
    - 4. Architectural Demolition
      - a. Deteriorating grout on chimney
    - 5. Mechanical Demolition – None
    - 6. Electrical Demolition – None
- 3.4 REPLACEMENTS
  - A. Contractor shall repair and/or replace adjacent construction, equipment, etc. damaged or removed due to demolition activities. Repair and/or replacement shall be at the Contractor's expense and no reimbursement or compensation shall be provided.

**END SECTION 02 41 19**

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**03 30 00**  
**CAST-IN-PLACE CONCRETE**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
  - 1. Footings.
  - 2. Foundation walls.
  - 3. Slabs-on-grade.
  - 4. Suspended slabs.
  - 5. Building walls.

**1.2 DEFINITIONS**

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast- furnace slag, and silica fume; subject to compliance with requirements.

**1.3 SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. LEED Submittals:
  - 1. Product Data for Credit MR 4.: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
  - 2. Product Certificates for Credit MR 5.1 and Credit MR 5.2: For products and materials required to comply with requirements for regional materials indicating location, and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.
  - 3. Product Data for Credit IEQ 4.2: For curing and sealing compounds and coatings, documentation including printed statement of VOC content.
- C. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
- D. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- E. Samples: For vapor retarder.

**1.4 INFORMATIONAL SUBMITTALS**

- A. Qualification Data: For Installer and manufacturer.
- B. Welding certificates.
- C. Material Certificates: For each of the following, signed by manufacturers:
  - 1. Cementitious materials.
  - 2. Form materials and form-release agents.
  - 3. Steel reinforcement and accessories.
  - 4. Fiber reinforcement.
  - 5. Waterstops.
  - 6. Curing compounds.
  - 7. Floor and slab treatments.
  - 8. Bonding agents.
  - 9. Adhesives.
  - 10. Vapor retarders.
  - 11. Semirigid joint filler.
  - 12. Joint-filler strips.
  - 13. Repair materials.
- D. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
  - 1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to



- alkali aggregate reactivity.
- E. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.
- F. Field quality-control reports.
- G. Minutes of pre-installation conference.

## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI- certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
  - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
  - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
  - 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.
- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- E. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code - Reinforcing Steel."
- F. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
  - 1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
  - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- G. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.
- H. Pre-installation Conference: Conduct conference at Project site.
  - 1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
    - a. Contractor's superintendent.
    - b. Independent testing agency responsible for concrete design mixtures.
    - c. Ready-mix concrete manufacturer.
    - d. Concrete subcontractor.
    - e. Special concrete finish subcontractor.
  - 2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semirigid joint fillers, forms and form removal limitations, shoring and reshoring procedures, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

## PART 2 - PRODUCTS

### 2.1 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
  - 1. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
    - a. Structural 1, B-B or better; mill oiled and edge sealed.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

- C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.
- D. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.
- E. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
- F. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- G. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
  - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- H. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
  - 1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
  - 2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.
  - 3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

## 2.2 STEEL REINFORCEMENT

- A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
- B. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- C. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn steel wire into flat sheets.

## 2.3 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
  - 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

## 2.4 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
  - 1. Portland Cement: ASTM C 150, Type I/II, gray.
    - a. Fly Ash: ASTM C 618, Class F.
  - B. Normal-Weight Aggregates: ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.
    - 1. Maximum Coarse-Aggregate Size: 1-1/2 inches nominal.
    - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M and potable.

## 2.5 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
  - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
  - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
  - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
  - 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.

5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.
- C. Color Pigment: ASTM C 979, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, nonfading, and resistant to lime and other alkalis.
  1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. ChemMasters.
    - b. Davis Colors.
    - c. Dayton Superior Corporation.
    - d. Hoover Color Corporation.
    - e. Lambert Corporation.
    - f. QC Construction Products.
    - g. Rockwood Pigments NA, Inc.
    - h. Scofield, L. M. Company.
    - i. Solomon Colors, Inc.
  2. Color: Match Architect's sample. Mix design to be coordinated with precast supplier to match precast elements.

## 2.6 FIBER REINFORCEMENT

- A. Synthetic Micro-Fiber: fibrillated polypropylene micro-fibers engineered and designed for use in concrete, complying with ASTM C 1116/C 1116M, Type III, 1 to 2-1/4 inches long.

## 2.7 WATERSTOPS

- A. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch.
  1. Products:
    - a. Colloid Environmental Technologies Company; Volclay Waterstop-RX
    - b. Concrete Sealants Inc.; Conseal CS-231
    - c. Greenstreak; Swellstop.
    - d. Henry Company. Sealants Division; Hydro-Flex
    - e. JP Specialties Inc.; Earthshield Type 20
    - f. Progress Unlimited, inc.; Superstop.
    - g. TCMiraDRI; Mirastop.

## 2.8 VAPOR RETARDERS

- A. Sheet Vapor Retarder: ASTM E 1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape.
  1. Products: Subject to compliance with requirements, **provide one of the following**:
    - a. Fortifiber Building Systems Group; Moistop Ultra **10**.
    - b. Insulation Solutions, Inc.; Viper VaporCheck **10**.
    - c. Meadows, W. R., Inc.; Perminator **10 mil**.
    - d. Raven Industries Inc.; Vapor Block **10**.
    - e. Stego Industries, LLC; Stego Wrap **10 mil Class A**.
    - f. Approved Equal.

## 2.9 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.
- D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
- E. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
  1. VOC Content: Curing and sealing compounds shall have a VOC content of 200 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- F. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
  1. VOC Content: Curing and sealing compounds shall have a VOC content of 200 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

## 2.10 FLOOR AND SLAB TREATMENTS:

- A. Basis of Design: Valspar "Aqua-crete VB-20" or pre-approved equal with low V.O.C. Levels.
  - 1. Water-based hardener and sealer
  - 2. Clear transparent finish.
- B. VOC Content: Floor Coatings compounds shall have a VOC content of 100 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

## 2.11 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.
- B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 per ASTM D 2240.
- C. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
  - 1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
- E. Reglets: Fabricate reglets of not less than 0.022-inch- thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.
- F. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inch thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

## 2.12 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
  - 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
  - 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
  - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
  - 4. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109/C 109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.
  - 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
  - 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
  - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
  - 4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M.

## 2.13 CONCRETE MIXTURES, GENERAL

- A. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
  - 1. Fly Ash: 25 percent.
- B. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- C. Admixtures: Use admixtures according to manufacturer's written instructions.
  - 1. Use water-reducing high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
  - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
  - 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
- D. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

## 2.14 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Footings: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 4000 psi at 28 days.
  - 2. Maximum Water-Cementitious Materials Ratio: 0.45.
  - 3. Slump Limit: 5 inches, plus or minus 1 inch.
  - 4. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.
- B. Foundation Walls: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 4000 psi at 28 days.
  - 2. Maximum Water-Cementitious Materials Ratio: 0.45.
  - 3. Slump Limit: 5 inches, plus or minus 1 inch.
  - 4. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.
- C. Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 4000 psi at 28 days.
  - 2. Maximum Water-Cementitious Materials Ratio: 0.45.
  - 3. Slump Limit: 5 inches, plus or minus 1 inch.
  - 4. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.
  - 5. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.
  - 6. Synthetic Micro-Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than 1.5 lb/cu. yd..
- D. Suspended Slabs: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 4000 psi at 28 days.
  - 2. Maximum Water-Cementitious Materials Ratio: 0.45.
  - 3. Slump Limit: 5 inches, plus or minus 1 inch.
  - 4. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.
- E. Building Walls: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 4000 psi at 28 days.
  - 2. Maximum Water-Cementitious Materials Ratio: 0.45.
  - 3. Slump Limit: 5 inches, plus or minus 1 inch.
  - 4. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.

## 2.15 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

## 2.16 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116M, and furnish batch ticket information.
  - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

## PART 3 - EXECUTION

### 3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
  - 1. Class A, 1/8 inch for smooth-formed finished surfaces.
  - 2. Class B, 1/4 inch for rough-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of permanently exposed concrete.
- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

### 3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
  2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
  3. Install dovetail anchor slots in concrete structures as indicated.

### 3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.
  1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
  2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. 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 for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

### 3.4 SHORES AND RESHORES

- A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring.
  1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.
- B. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.
- C. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

### 3.5 VAPOR RETARDERS

- A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.
  1. Lap joints 6 inches and seal with manufacturer's recommended tape.

### 3.6 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
  - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

### 3.7 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
  - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
  - 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
  - 3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
  - 4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
  - 5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
  - 6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
  - 7. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
  - 1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
  - 1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
  - 2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Division 7 Section "Joint Sealants," are indicated.
  - 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

### 3.8 WATERSTOPS

- A. Self-Expanding Strip Waterstops: Install at locations indicated, according to manufacturer's written instructions, adhesive bonding, mechanically fastening, and firmly pressing into place. Install in longest lengths practicable.

### 3.9 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by

Architect.

- C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
  - 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
  - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
  - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- D. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
  - 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
  - 2. Maintain reinforcement in position on chairs during concrete placement.
  - 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
  - 4. Slope surfaces uniformly to drains where required.
  - 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- E. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
  - 1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
  - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- F. Hot-Weather Placement: Comply with ACI 301 and as follows:
  - 1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
  - 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

### 3.10 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
  - 1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
  - 1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, to be covered with a coating or covering material applied directly to concrete.
- C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:
  - 1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces 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.



### 3.11 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, re-straightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull- floated or darried. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction.
  - 1. Apply scratch finish to surfaces indicated and to receive concrete floor toppings to receive mortar setting beds for bonded cementitious floor finishes .
- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Re-straighten, cut down high spots, and fill low spots. Repeat float passes and re-straightening until surface is left with a uniform, smooth, granular texture.
  - 1. Apply float finish to surfaces indicated or to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.
- D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and re-straighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
  - 1. Apply a trowel finish to surfaces indicated, exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
  - 2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:
    - a. Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 17.
- E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated or where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.
  - 1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.
  - 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

### 3.12 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.
- D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel finish concrete surfaces.

### 3.13 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
  - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
    - a. Water.
    - b. Continuous water-fog spray.
    - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
  - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed

by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

- a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
  - b. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
- a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

### 3.14 LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions.
  1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
  2. Apply according to manufacturer's written instructions.
- B. Sealing Coat: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete by power spray or roller according to manufacturer's written instructions.

### 3.15 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
  1. Defer joint filling until concrete has aged at least six month(s). Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semi-rigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

### 3.16 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
  1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
  2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area 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.
  3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
  2. After concrete has cured at least 14 days, correct high areas by grinding.
  3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
  4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
  5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
  6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
  7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

### 3.17 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Inspections:
1. Steel reinforcement placement.
  2. Steel reinforcement welding.
  3. Headed bolts and studs.
  4. Verification of use of required design mixture.
  5. Concrete placement, including conveying and depositing.
  6. Curing procedures and maintenance of curing temperature.
  7. Verification of concrete strength before removal of shores and forms from beams and slabs.
- C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
    - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
  2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
  3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
  5. Compression Test Specimens: ASTM C 31/C 31M.
    - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
  6. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.

- a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
- b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
- 7. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- 8. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- 9. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
- 10. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
- 11. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- 12. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
- D. Measure floor and slab flatness and levelness according to ASTM E 1155 within 24 hours of finishing.

**END OF SECTION 03 30 00**

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**04 05 01**  
**MASONRY TUCK POINTING**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Repointing existing or damaged masonry joints.
  - 2. Replacing existing or damaged masonry units.

**1.2 APPLICABLE PUBLICATIONS**

- A. Comply with references to extent specified in this section.
- B. ASTM International (ASTM):
  - 1. C67-14 - Sampling and Testing Brick and Structural Clay Tile.
  - 2. C144-11 - Aggregate for Masonry Mortar.
  - 3. C150/C150M-15 - Portland Cement.
  - 4. C207-06(2011) - Hydrated Lime for Masonry Purposes.
  - 5. C216-15 - Facing Brick (Solid Masonry Units Made from Clay or Shale).
  - 6. C270-14a - Mortar for Unit Masonry.
  - 7. C295/C295M-12 - Petrographic Examination of Aggregates for Concrete.

**1.3 SUBMITTALS**

- A. Submittal Procedures: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data:
  - 1. Description of each product.
  - 2. Replacement units indicating manufacturer recommendation for each application.
- C. Samples:
  - 1. Pointing Mortar: Molded, 150 mm (6 inches) long for each type, texture, and color.
- D. Test reports:
  - 1. Preconstruction test results of existing masonry mortar and units.
  - 2. Recommended mortar mix and mortar materials sources.

**1.4 QUALITY ASSURANCE**

- A. Installer Qualifications:
  - 1. Documented experience in completion of work, similar in design, material, and extent specified.
- B. Preconstruction Testing:
  - 1. Existing Brick: according to ASTM C67.
  - 2. Existing Mortar: according to ASTM C295/C295M.
    - a. Recommend mortar mix compatible with existing and mortar material sources required to match existing color and texture.
- C. Mockups: Prepare mockup demonstrating quality and aesthetics of tuck pointing, masonry unit replacement and cleaning.

**1.5 DELIVERY**

- A. Deliver products in manufacturer's original sealed packaging.
- B. Mark packaging, legibly. Indicate manufacturer's name or brand, type, color, production run number, and manufacture date.
- C. Before installation, return or dispose of products within distorted, damaged, or opened packaging.

**1.6 STORAGE AND HANDLING**

- A. Store materials covered, protected from weather, and elevated above grade.
  - 1. Prevent contamination of aggregates.
- B. Protect products from damage during handling and construction operations.

**1.7 FIELD CONDITIONS**

- A. Environment:
  - 1. Cold Weather Requirements: Maintain mortar ingredients and substrate within temperature range between 40 degrees F and 120 degrees F when outside temperature is less than 40 degrees F.

2. Hot Weather Requirements: Protect mortar-joint from evaporation of moisture from mortar material. When required, provide adequately shaded work area.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Mortar Components:
  1. Hydrated Lime: ASTM C207, Type S.
  2. Aggregate: ASTM C144.
  3. Portland Cement: ASTM C150/C150M, Type I.
  4. Water: Potable, free of substances that are detrimental to grout, masonry, and metal.
  5. Color: Match existing

### **2.2 PRODUCTS - GENERAL**

- A. Provide each product from one manufacturer and from one production run.

### **2.3 REPLACEMENT MASONRY UNITS**

- A. Face Brick:
  1. Matching existing.
  2. Efflorescence: Rated slight efflorescent when tested according to ASTM C67.
- B. Other Masonry Units: Match existing.

### **2.4 MIXES**

- A. Tuck Pointing Mortar: ASTM C270; Appendix X3.
  1. Type K: 1 part Portland cement, 4 parts hydrated lime and 11-1/4 to 15 parts fine sand.

### **2.5 ACCESSORIES.**

- A. Cleaning Agent: Soapless, non-acidic, detergent, specially prepared for cleaning brick masonry.

## **PART 3 - EXECUTION**

### **3.1 PREPARATION**

- A. Examine and verify substrate suitability for product installation.
- B. Protect existing construction and completed work from damage.
  1. Protect from mortar droppings and cleaning operations.
- C. Remove existing fixtures and fittings concealing masonry joints to permit repointing and repair.

### **3.2 EXISTING MORTAR JOINTS**

- A. Cut out existing bed and head mortar joints, to uniform depth of 3/4 inches, or to sound mortar without damaging edges and faces of existing masonry units to remain.
- B. Remove dust and debris from joints.
  1. Do not rinse when temperature is below freezing.

### **3.3 TUCK POINTING**

- A. Dampen joints immediately before tuck pointing. Allow masonry units to absorb surface water.
- B. Tightly pack tuck pointing mortar into joints in thin layers, 1/4 inch thick, maximum.
- C. Allow layer to become slightly hardened before applying next layer.
- D. Pack final layer flush with surfaces of masonry units.

### **3.4 MASONRY UNIT REPLACEMENT**

- A. Cut out mortar joints surrounding masonry units requiring replacement.
  1. Remove existing masonry units creating opening for replacement masonry unit installation.
  2. Remove mortar, dust, and debris from opening perimeter surfaces.
  3. Prevent debris from falling into cavity.
- B. Dampen surfaces of surrounding existing masonry before installing replacement masonry units.
  1. Allow existing masonry to absorb surface moisture before installing replacement units.
  2. Butter contact surfaces of existing masonry and replacement masonry units with mortar.
  3. Center replacement masonry units in opening and press into position.

4. Remove excess mortar.
5. Tuck point replacement masonry units to ensure full head and bed joints.

### **3.5 JOINT TOOLING**

- A. Tool, repointed and/or replaced masonry joints when mortar becomes slightly hardened.
- B. Produce smooth, compacted, joint matching existing.

### **3.6 CLEANING**

- A. Remove mortar splatter from exposed surfaces immediately.
- B. Clean exposed masonry surfaces on completion.
- C. Remove mortar droppings and other foreign substances from wall surfaces.
- D. Wet surfaces with clean water.
- E. Wash with cleaning agent.
- F. Brush masonry surfaces with stiff fiber brushes while washing.
- G. Immediately after washing, rinse with clean water.
  1. Remove traces of detergent, foreign streaks or stains.

**END OF 04 05 01**



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**SECTION 04 05 13**  
**MASONRY MORTARING**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Masonry mortar installed by other concrete and masonry sections.

**1.2 APPLICABLE PUBLICATIONS**

- A. Comply with references to extent specified in this section.
- B. ASTM International (ASTM):
  - 1. C40/C40M-11 - Organic Impurities in Fine Aggregates for Concrete.
  - 2. C91/C91M-12 - Masonry Cement.
  - 3. C144-11 -Aggregate for Masonry Mortar.
  - 4. C150/C150M-15 - Portland Cement.
  - 5. C207-06(2011) - Hydrated Lime for Masonry Purposes.
  - 6. C270-14a - Mortar of Unit Masonry.
  - 7. C595/C595M-15e1 - Blended Hydraulic Cements.
  - 8. C780-15 - Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.
  - 9. C979/C979M-10 - Pigments for Integrally Colored Concrete.
  - 10. C1329/C1329M-15 - Mortar Cement.

**1.3 SUBMITTALS**

- A. Manufacturer's Literature and Data:
  - 1. Description of each product.
- B. Test Reports: Certify each product complies with specifications.
  - 1. Mortar.
  - 2. Admixtures.
- C. Certificates: Certify each product complies with specifications.
  - 1. Portland cement.
  - 2. Masonry cement.
  - 3. Mortar cement.
  - 4. Hydrated lime.
  - 5. Fine aggregate.
  - 6. Color admixture.
- D. Qualifications: Substantiate qualifications comply with specifications.
  - 1. Testing laboratory.

**1.4 QUALITY ASSURANCE**

- A. Preconstruction Testing:
  - 1. Engage independent testing laboratory to tests and submit reports.
    - a. Deliver samples to laboratory in number and quantity required for testing.
  - 2. Test mortar and materials specified.
  - 3. Mortar:
    - a. Test for compressive strength and water retention according to ASTM C270.
    - b. Minimum Mortar compressive strengths 28 days:
      - 1) Type M: 17.2 MPa (2,500 psi).
      - 2) Type S: 12.4 MPa (1,800 psi).
      - 3) Type N: 5.1 MPa (750 psi).
  - 4. Non Staining Cement: Test for water soluble alkali.
    - a. Water Soluble Alkali: Maximum 0.03 percent.
  - 5. Sand: Test for deleterious substances, organic impurities, soundness and grading.

**1.5 DELIVERY**

- A. Deliver products in manufacturer's original sealed packaging.
- B. Mark packaging, legibly. Indicate manufacturer's name or brand, type, color, production run number, and manufacture date.
- C. Before installation, return or dispose of products within distorted, damaged, or opened packaging.

## **1.6 STORAGE AND HANDLING**

- A. Store masonry materials under waterproof covers on planking clear of ground.
  - 1. Protect loose, bulk materials from contamination.
- B. Protect products from damage during handling and construction operations.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Hydrated Lime: ASTM C207, Type S.
- B. Aggregate for Masonry Mortar: ASTM C144 and as follows:
  - 1. Light colored sand for mortar for laying face brick.
  - 2. White plastering sand meeting sieve analysis for mortar joints for pointing except that 100 percent passes No. 8 sieve, and maximum 5 percent retained on No. 16 sieve.
  - 3. Test sand for color value according to ASTM C40/C40M. Sand producing color darker than specified standard is unacceptable.
- C. Blended Hydraulic Cement: ASTM C595/C595M, Type IS, IP.
- D. Masonry Cement: ASTM C91/C91M. Type N, S, Or M.
  - 1. Use white masonry cement whenever white mortar is specified.
- E. Mortar Cement: ASTM C1329/C1329M, Type N, S or M.
- F. Portland Cement: ASTM C150/C150M, Type I.
  - 1. Use white Portland cement wherever white mortar is specified.
- G. Pigments: ASTM C979/C979M; inorganic, inert, mineral pigments only, unaffected by atmospheric conditions, nonfading, alkali resistant, and water insoluble.
- H. Water: Potable, free of substances that are detrimental to mortar, masonry, and metal.

### **2.2 PRODUCTS - GENERAL**

- A. Provide each product from one manufacturer and from one production run.

### **2.3 MIXES**

- A. Pointing Mortar for New Work:
  - 1. For Cast Stone or Precast Concrete: Proportion by volume; one part white Portland cement, two parts white sand, and 1/5 part hydrated lime.
  - 2. Pointing Mortar for Glazed Structural Facing Tile:
    - a. Proportion by volume: One part white Portland cement, two parts of graded white sand passing Number 50 sieve, and 1/8 part hydrated lime.
- B. Tuck Pointing Mortar for Repair Work: Tuck pointing mortar specified in Section 04 05 01 – MASONRY TUCK POINTING.
- C. Masonry Mortar: ASTM C270.
  - 1. Admixtures:
    - a. Do not use mortar admixtures, and color admixtures unless approved by Contracting Officer's Representative.
    - b. Do not use antifreeze compounds.
- D. Colored Mortar:
  - 1. Maintain uniform mortar color for exposed work, throughout.
  - 2. Match mortar color in approved sample.
  - 3. Alteration Work Mortar Color: Match existing mortar unless specified otherwise.
- E. Color Admixtures:
  - 1. Proportion as specified by manufacturer.

## **PART 3 - EXECUTION**

### **3.1 PREPARATION**

- A. Examine and verify substrate suitability for product installation.
- B. Protect existing construction and completed work from damage.

### **3.2 MIXING**

- A. Measure ingredients by volume using known capacity container.

- B. Mix for 3 to 5 minutes in a mechanically operated mortar mixer.
- C. Mix water with dry ingredients in sufficient amount to provide a workable mixture which will adhere to vertical surfaces of masonry units.
- D. Mortar Stiffened Because of Water Loss Through Evaporation:
  - 1. Re-temper by adding water to restore to proper consistency and workability.
  - 2. Discard mortar reaching initial set or unused within two hours of mixing.
- E. Pointing Mortar:
  - 1. Mix dry ingredients with enough water to produce damp mixture of workable consistency retaining shape when formed into ball.
  - 2. Allow mortar to stand in dampened condition for 60 to 90 minutes.
  - 3. Add water to bring mortar to a workable consistency before use.

### **3.3 MORTARING**

- A. Type M Mortar: Use for precast concrete panels, and parging below grade.
- B. Type S Mortar: Use for masonry containing vertical reinforcing bars (non-engineered), masonry below grade, masonry solar screens, and setting cast stone.
- C. Brick Veneer Over Frame Back Up Walls: Use Type S Portland cement-lime mortar.
- D. Type N Mortar: Use for other masonry work.
- E. Type N Mortar: Use for pointing items and tuck pointing specified.

**END SECTION 04 05 13**

**06 10 00**  
**ROUGH CARPENTRY**

**PART 1 GENERAL**

**1.01 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

**AMERICAN FOREST FOUNDATION (AFF)**

ATFS STANDARDS      American Tree Farm System Standards of Sustainability 2015-2020

**AMERICAN HARDBOARD ASSOCIATION (AHA)**

AHA A135.4              Basic Hardboard

**AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC)**

AITC 111                  Recommended Practice for Protection of Structural Glued Laminated Timber During Transit, Storage and Erection

AITC TCM                Timber Construction Manual, 5th Edition

ANSI/AITC A190.1      American National Standard, Structural Glued Laminated Timber

**AMERICAN LUMBER STANDARDS COMMITTEE (ALSC)**

ALSC PS 20              American Softwood Lumber Standard

**AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (AREMA)**

AREMA Eng Man        Manual for Railway Engineering

**AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)**

ASME B18.2.1           Square and Hex Bolts and Screws (Inch Series)

ASME B18.2.2           Nuts for General Applications: Machine Screw Nuts, and Hex, Square, Hex Flange, and Coupling Nuts (Inch Series)

ASME B18.5.2.1M       Metric Round Head Short Square Neck Bolts

ASME B18.5.2.2M       Metric Round Head Square Neck Bolts

ASME B18.6.1           Wood Screws (Inch Series)

**AMERICAN WOOD COUNCIL (AWC)**

AWC NDS                National Design Specification (NDS) for Wood Construction

AWC WFCM              Wood Frame Construction Manual for One- and Two-Family Dwellings

**AMERICAN WOOD PROTECTION ASSOCIATION (AWPA)**

AWPA BOOK              AWPAs Book of Standards

AWPA M2                Standard for the Inspection of Preservative Treated Wood Products for Industrial Use

AWPA M6                Brands Used on Preservative Treated Materials

AWPA P5                Standard for Waterborne Preservatives

AWPA P18               Nonpressure Preservatives

AWPA P49               Standard for Fire Retardant FR-1

AWPA T1                Use Category System: Processing and Treatment Standard

AWPA U1                Use Category System: User Specification for Treated Wood

**APA - THE ENGINEERED WOOD ASSOCIATION (APA)**

APA E30                Engineered Wood Construction Guide

APA E445               Performance Standards and Qualification Policy for Structural-Use Panels (APA PRP-108)

APA EWS R540          Builder Tips: Proper Storage and Handling of Glulam Beams

APA EWS T300          Technical Note: Glulam Connection Details

APA F405               Product Guide: Performance Rated Panels

APA L870               Voluntary Product Standard, PS 1-09, Structural Plywood

APA S350               PS 2-10, Performance Standard for Wood-Based Structural-Use Panels

ASTM INTERNATIONAL (ASTM)

|            |   |
|------------|---|
| ASTM A153  | Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware  |
| ASTM A307  | Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength  |
| ASTM A653  | Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process                        |
| ASTM C208  | Standard Specification for Cellulosic Fiber Insulating Board  |
| ASTM C1136 | Standard Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation   |
| ASTM C1396 | Standard Specification for Gypsum Board   |
| ASTM D198  | Standard Test Methods of Static Tests of Lumber in Structural Sizes   |
| ASTM D696  | Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between - 30 degrees C and 30 degrees C With a Vitreous Silica Dilatometer |
| ASTM D1435 | Standard Practice for Outdoor Weathering of Plastics  |
| ASTM D1972 | Standard Practice for Generic Marking of Plastic Products   |
| ASTM D2344 | Standard Test Method for Short-Beam Strength of Polymer Matrix Composite Materials and Their Laminates  |
| ASTM D2898 | Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing  |
| ASTM D3498 | Standard Specification for Adhesives for Field-Gluing Wood Structural Panels (Plywood or Oriented Strand Board) to Wood Based Floor System Framing      |
| ASTM D6108 | Standard Test Method for Compressive Properties of Plastic Lumber and Shapes  |
| ASTM D6109 | (2013) Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastic Lumber and Related Products                                 |
| ASTM D6111 | Standard Test Method for Bulk Density and Specific Gravity of Plastic Lumber and Shapes by Displacement   |
| ASTM D6112 | Compressive and Flexural Creep and Creep-Rupture of Plastic Lumber and Shapes   |
| ASTM D6117 | Standard Test Methods for Mechanical Fasteners in Plastic Lumber and Shapes   |
| ASTM E96   | Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials   |
| ASTM F547  | Standard Terminology of Nails for Use with Wood and Wood-Base Materials   |
| ASTM F1667 | Standard Specification for Driven Fasteners: Nails, Spikes, and Staples   |

COMPOSITE PANEL ASSOCIATION (CPA)

|            |               |
|------------|---------------|
| CPA A208.1 | Particleboard |
|------------|---------------|

CSA GROUP (CSA)

|             |                               |
|-------------|-------------------------------|
| CSA Z809-08 | Sustainable Forest Management |
|-------------|-------------------------------|

FM GLOBAL (FM)

|         |                         |
|---------|-------------------------|
| FM 4435 | Roof Perimeter Flashing |
|---------|-------------------------|

FOREST STEWARDSHIP COUNCIL (FSC)

|                |  |
|----------------|--|
| FSC STD 01 001 | Principles and Criteria for Forest Stewardship |
|----------------|--|

GREEN SEAL (GS)

|       |                              |
|-------|------------------------------|
| GS-36 | Adhesives for Commercial Use |
|-------|------------------------------|

INTERNATIONAL CODE COUNCIL (ICC)

|         |                             |
|---------|-----------------------------|
| ICC IBC | International Building Code |
|---------|-----------------------------|

NATIONAL HARDWOOD LUMBER ASSOCIATION (NHLA)

|            |  |
|------------|--|
| NHLA Rules | Rules for the Measurement & Inspection of Hardwood & Cypress |
|------------|--|

NORTHEASTERN LUMBER MANUFACTURERS ASSOCIATION (NELMA)

|                     |  |
|---------------------|--|
| NELMA Grading Rules | Standard Grading Rules for Northeastern Lumber |
|---------------------|--|

PROGRAMME FOR ENDORSEMENT OF FOREST CERTIFICATION (PEFC)

PEFC ST 2002:2013 PEFC International Standard Chain of Custody of Forest Based Products Requirements

REDWOOD INSPECTION SERVICE (RIS) OF THE CALIFORNIA REDWOOD ASSOCIATION (CRA)

RIS Grade Use Redwood Lumber Grades and Uses

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)

SCAQMD Rule 1168 Adhesive and Sealant Applications

SOUTHERN CYPRESS MANUFACTURERS ASSOCIATION (SCMA)

SCMA Spec Standard Specifications for Grades of Southern Cypress

SOUTHERN PINE INSPECTION BUREAU (SPIB)

SPIB 1003 Standard Grading Rules for Southern Pine Lumber

SUSTAINABLE FOREST INITIATIVE (SFI)

SFI 2015-2019 Standards, Rules for Label Use, Procedures and Guidance

TRUSS PLATE INSTITUTE (TPI)

TPI 1 National Design Standard for Metal Plate Connected Wood Truss Construction, Including  
Commentary and Appendices

TPI HIB Commentary and Recommendations for Handling, Installing and Bracing Metal Plate  
Connected Wood Trusses

U.S. DEPARTMENT OF COMMERCE (DOC)

DOC/NIST PS56 Structural Glued Laminated Timber

DOC/NIST PS58 Basic Hardboard (ANSI A135.4)

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

CID A-A-1923 Shield, Expansion (Lag, Machine and Externally Threaded Wedge Bolt Anchors)

CID A-A-1924 Shield, Expansion (Self Drilling Tubular Expansion Shell Bolt Anchors)

CID A-A-1925 Shield Expansion (Nail Anchors)

FS UU-B-790 Building Paper Vegetable Fiber: (Kraft, Waterproofed, Water Repellent and Fire  
Resistant)

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 770 Formaldehyde Standards for Composite Wood Products

UNDERWRITERS LABORATORIES (UL)

UL 2818 GREENGUARD Certification Program For Chemical Emissions For Building Materials,  
Finishes And Furnishings

WEST COAST LUMBER INSPECTION BUREAU (WCLIB)

WCLIB 17 Standard Grading Rules

WESTERN WOOD PRODUCTS ASSOCIATION (WWPA)

WWPA G-5 Western Lumber Grading Rules

1.02 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

A. Shop Drawings

1. Structural Glued Laminated Members
2. Trussed Rafters
3. Trussed Joists
4. Fabricated Structural Members
5. Modifications of Structural Members

6. Drawings of structural laminated members, fabricated wood trusses, engineered wood joists and rafters, and other fabricated structural members indicating materials, shop fabrication, and field erection details; including methods of fastening.
  7. Nailers and Nailing Strips
  8. Drawings of field erection details, including materials and methods of fastening nailers in conformance with Factory Mutual wind uplift rated systems specified in other Sections of these specifications.
- B. Product Data
1. Salvaged Lumber
  2. Recovered Lumber
  3. Underlayment
  4. Plastic Lumber
  5. Fiberboard Wall Sheathing
  6. Cellulose Honeycomb Panels
  7. Fire-retardant Treatment
  8. Structural-use and OSB Panels
  9. Oriented Strand Board
  10. Adhesives
  11. Biobased Content for Strawboard Panels
  12. Biobased Content for Cork Underlayment
  13. Recycled Content for Plastic Lumber
  14. Recycled Content for Fiberboard Underlayment
  15. Recycled Content for Cork Underlayment
  16. Recycled Content for Fiberboard Wall Sheathing
  17. Recycled Content for Cellulose Honeycomb Panels
- C. Design Data
1. Modifications of Structural Members
  2. Design analysis and calculations showing design criteria used to accomplish the applicable analysis.
- D. Test Reports
1. Preservative-treated Lumber and Plywood
- E. Certificates
1. Certificates of Grade
  2. Certified Sustainably Harvested Virgin Lumber
  3. Certified Sustainably Harvested Natural-decay and Insect-resistant Wood
  4. Certified Sustainably Harvested Framing Lumber
  5. Certified Sustainably Harvested Structural Glued Laminated Timber
  6. Certified Sustainably Harvested Plywood Subflooring
  7. Certified Sustainably Harvested Structural-use and OSB Panel Subfloor Sheathing
  8. Certified Sustainably Harvested Plywood Combination Subfloor Underlayment
  9. Certified Sustainably Harvested Plywood Wall Sheathing
  10. Certified Sustainably Harvested Structural-use and OSB Panel Wall Sheathing
  11. Certified Sustainably Harvested Plywood Roof Sheathing
  12. Certified Sustainably Harvested Plywood Diaphragm
  13. Certified Sustainably Harvested Structural-use and OSB Panel Diaphragm
  14. Certified Sustainably Harvested Plywood Shear Wall
  15. Certified Sustainably Harvested Structural-use and OSB Panel Shear Wall
  16. Certified Sustainably Harvested Plywood for Other Uses
  17. Certified Sustainably Harvested Structural-use and OSB Panels for Other Uses
  18. Certified Sustainably Harvested Plywood Underlayment
  19. Preservative Treatment
  20. Indoor Air Quality for Particleboard Underlayment
  21. Indoor Air Quality for Fiberboard Underlayment
  22. Indoor Air Quality for Strawboard Panels
  23. Indoor Air Quality for Fiberboard Wall Sheathing
  24. Indoor Air Quality for Aerosol Adhesives
  25. Indoor Air Quality for Non-aerosol Adhesives
- F. Operation and Maintenance Data
1. Plastic



2. When not labeled, identify types in Operation and Maintenance Manual.
3. Take-back Program
4. Include contact information, summary of procedures, and the limitations and conditions applicable to the project. Indicate manufacturer's commitment to reclaim materials for recycling or reuse.

### 1.03 DELIVERY AND STORAGE

Deliver materials to the site in an undamaged condition. Store, protect, handle, and install prefabricated structural elements in accordance with manufacturer's instructions and as specified. Store materials off the ground to provide proper ventilation, with drainage to avoid standing water, and protection against ground moisture and dampness. Store materials with a moisture barrier at both the ground level and as a cover forming a well-ventilated enclosure. Store wood I-beams and glue-laminated beams and joists on edge. Adhere to requirements for stacking, lifting, bracing, cutting, notching, and special fastening requirements. Handle and store laminated timber in accordance with AITC 111 or APA EWS R540. Do not use materials that have visible moisture or biological growth. Remove defective and damaged materials and provide new materials. Store separated reusable wood waste convenient to cutting station and area of work.

### 1.04 GRADING AND MARKING

#### A. Lumber

Mark each piece of framing and board lumber or each bundle of small pieces of lumber with the grade mark of a recognized association or independent inspection agency. Such association or agency must be certified by the Board of Review, American Lumber Standards Committee, to grade the species used. Surfaces that are to be exposed to view must not bear grademarks, stamps, or any type of identifying mark. Hammer marking will be permitted on timbers when all surfaces will be exposed to view.

#### B. Structural Glued Laminated Timber

Mark each member with the mark of a recognized association or independent inspection agency that maintains continuing control over the quality of structural glued laminated timber products. The marking must indicate compliance with ANSI/AITC A190.1 and must include all identification information required by ANSI/AITC A190.1. Structurally end-jointed lumber must also be certified and grade marked in accordance with ANSI/AITC A190.1.

#### C. Plywood

Mark each sheet with the mark of a recognized association or independent inspection agency that maintains continuing control over the quality of the plywood. The mark must identify the plywood by species group or span rating, exposure durability classification, grade, and compliance with APA L870. Surfaces that are to be exposed to view must not bear grademarks or other types of identifying marks.

#### D. Structural-Use and OSB Panels

Mark each panel with the mark of a recognized association or independent inspection agency that maintains continuing control over the quality of the panel. The mark must indicate end use, span rating, and exposure durability classification. Oriented Strand Board (OSB), APA F405.

#### E. Preservative-Treated Lumber and Plywood

The Contractor is responsible for the quality of treated wood products. Each treated piece must be inspected in accordance with AWP M2 and permanently marked or branded, by the producer, in accordance with AWP M6. The Contractor must provide Contracting Officer's Representative (COR) with the inspection report of an approved independent inspection agency that offered products comply with applicable AWP Standards. The appropriate Quality Mark on each piece will be accepted, in lieu of inspection reports, as evidence of compliance with applicable AWP treatment standards.

#### F. Fire-Retardant Treated Lumber

Mark each piece in accordance with AWP M6, except pieces that are to be natural or transparent finished. In addition, exterior fire-retardant lumber must be distinguished by a permanent penetrating blue stain. Labels of a nationally recognized independent testing agency will be accepted as evidence of conformance to the fire-retardant requirements of AWP M6.

#### G. Hardboard, Gypsum Board, and Fiberboard

Mark each sheet or bundle to identify the standard under which the material is produced and the producer.

#### H. Plastic Lumber

Label plastic products to be incorporated into the project in accordance with ASTM D1972 or provide product data indicating polymeric information in the Operation and Maintenance Manual.

a. Type 1: Polyethylene Terephthalate (PET, PETE).

b. Type 2: High Density Polyethylene (HDPE).

- c. Type 3: Vinyl (Polyvinyl Chloride or PVC).
- d. Type 4: Low Density Polyethylene (LDPE).
- e. Type 5: Polypropylene (PP).
- f. Type 6: Polystyrene (PS).
- g. Type 7: Other. Use of this code indicates that the package in question. is made with a resin other than the six listed above or is made of more than one resin listed above and used in a multi-layer combination.

#### 1.05 SIZES AND SURFACING

ALSC PS 20 for dressed sizes of yard and structural lumber. Lumber must be surfaced four sides. Size references, unless otherwise specified, are nominal sizes, and actual sizes must be within manufacturing tolerances allowed by the standard under which the product is produced. Other measurements are IP or SI standard.

#### 1.06 MOISTURE CONTENT

Air-dry or kiln-dry lumber. Kiln-dry treated lumber after treatment. Maximum moisture content of wood products must be as follows at the time of delivery to the job site:

- A. Framing lumber and board, 19 percent maximum
- B. Timbers 5 inches and thicker, 25 percent maximum
- C. Roof planking, 15 percent maximum
- D. Materials other than lumber; moisture content must be in accordance with standard under which the product is produced

#### 1.07 PRESERVATIVE TREATMENT

Treat wood products with waterborne wood preservatives conforming to AWPAP5. Pressure treatment of wood products must conform to the requirements of AWPAPBOOK Use Category System Standards U1 and T1. Pressure-treated wood products must not contain arsenic, chromium, or other agents classified as carcinogenic, probably carcinogenic, or possibly carcinogenic to humans (compounds in Groups 1, 2A, or 2B) by the International Agency for Research on Cancer (IARC), Lyon, France. Pressure-treated wood products must not exceed the limits of the U.S. EPA's Toxic Characteristic Leaching Procedure (TCLP) and must not be classified as hazardous waste. Submit certification from treating plant stating chemicals and process used and net amount of preservatives retained are in conformance with specified standards. In accordance with AWPAPU1 provide non-copper preservative treatment such as EL2, PTI or SBX, DOT for products in direct contact with sheet metal.

- A. 0.25 pcf intended for above ground use.
- B. 0.40 pcf intended for ground contact and freshwater use. 0.60 pcf intended for Ammoniacal Copper Quaternary Compound (ACQ)-treated foundations. 0.80 to 1.00 pcf intended for ACQ-treated pilings. All wood must be air or kiln dried after treatment. Specific treatments must be verified by the report of an approved independent inspection agency, or the AWPAPQuality Mark on each piece. Do not incise surfaces of lumber that will be exposed. Minimize cutting and avoid breathing sawdust. Brush coat areas that are cut or drilled after treatment with either the same preservative used in the treatment or with a 2 percent copper naphthenate solution. All lumber and woodwork must be preservative treated. Plastic lumber must not be preservative treated. The following items must be preservative treated:
  - 1. Wood framing, woodwork, and plywood up to and including the subflooring at the first-floor level of structures having crawl spaces when the bottoms of such items are 24 inches or less from the earth underneath.
  - 2. Wood members that are in contact with water.
  - 3. Exterior wood steps, platforms, and railings; and all wood framing of open, roofed structures.
  - 4. Wood sills, soles, plates, furring, and sleepers that are less than 24 inches from the ground, furring and nailers that are set into or in contact with concrete or masonry.
  - 5. Nailers, edge strips, crickets, curbs, and cants for roof decks.
- C. Existing Structures
 

Use borate, permethrin, or a sodium silicate wood mineralization process to treat wood. Use borate for interior applications only.
- D. New Construction
 

Use a boron-based preservative conforming to AWPAP18, sodium silicate wood mineralization process, or Ammoniacal Copper Quaternary Compound to treat wood. Use boron-based preservatives for above-ground applications only.

#### 1.08 FIRE-RETARDANT TREATMENT

Fire-retardant treated wood must be pressure treated with fire retardants conforming to AWPAC P49. Fire retardant treatment of wood products must conform to the requirements of AWPAC U1, Commodity Specification H and AWPAC T1, Section H. Treatment and performance inspection must be by an independent and qualified testing agency that establishes performance ratings. Each piece or bundle of treated material must bear identification of the testing agency to indicate performance in accordance with such rating. Treated materials to be exposed to rain wetting must be subjected to an accelerated weathering technique in accordance with ASTM D2898 prior to being tested. Such items which will not be inside a building, and such items which will be exposed to heat or high humidity, must receive exterior fire-retardant treatment. Fire-retardant-treated wood products must be free of halogens, sulfates, ammonium phosphate, and formaldehyde.

#### 1.09 QUALITY ASSURANCE

##### A. Drawing Requirements

For fabricated structural members, trusses, glulam members, indicate materials, details of construction, methods of fastening, and erection details. Include reference to design criteria used and manufacturers design calculations. Submit drawings for all proposed modifications of structural members. Do not proceed with modifications until the submittal has been approved.

##### B. Data Required

Submit calculations and drawings for all proposed modifications of structural members. Do not proceed with modifications until the submittal has been approved.

##### C. Humidity Requirements

Sequence work to minimize use of temporary HVAC to dry out building and control humidity.

##### D. Plastic Lumber Performance

Plastic lumber intended for use in exterior applications must have no fading or discoloration and no change in dimensional stability as tested in accordance with ASTM D1435 for a period of 5 years.

#### 1.10 ENVIRONMENTAL REQUIREMENTS

During and immediately after installation of treated wood, engineered wood products, and laminated wood products at interior spaces, provide temporary ventilation.

#### 1.11 CERTIFICATIONS

##### A. Certified Wood Grades

Provide certificates of grade from the grading agency on graded but unmarked lumber or plywood attesting that materials meet the grade requirements specified herein.

##### B. Certified Sustainably Harvested Wood

Provide wood certified as sustainably harvested by FSC STD 01 001. Provide a letter of Certification of Sustainably Harvested Wood signed by the wood supplier. Identify certifying organization and their third-party program name and indicate compliance with chain-of-custody program requirements. Submit sustainable wood certification data; identify each certified product on a line-item basis. Submit copies of invoices bearing certification numbers.

##### C. Indoor Air Quality Certifications

Submit required indoor air quality certifications in one submittal package.

###### 1. Adhesives and Sealants

Provide products certified to meet indoor air quality requirements by UL 2818 (Greenguard) Gold, SCS Global Services Indoor Advantage Gold or provide certification or validation by other third-party programs that products meet the requirements of this Section. Provide current product certification documentation from certification body. When product does not have certification, provide validation that product meets the indoor air quality product requirements cited herein.

###### 2. Composite Wood, Wood Structural Panel and Agrifiber Products

For purposes of this specification, composite wood and agrifiber products include particleboard, medium density fiberboard (MDF), strawboard, panel substrates, and door cores. Provide products certified to meet requirements of both 40 CFR 770 and CARB 93120. Provide current product certification documentation from certification body.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

#### **A. Virgin Lumber**

Lumber fabricated from old growth timber is not permitted. Avoid companies who buy, sell, or use old growth timber in their operations, when possible. Provide certified sustainably harvested virgin lumber.

#### **B. Salvaged Lumber**

Provide salvaged lumber where specified. Unless otherwise noted, salvaged lumber must be delivered clean, denailed, and free of paint, finish materials, and other contamination. Lumber must meet the other criteria within this section. Provide documentation certifying products are from salvaged lumber sources.

#### **C. Recovered Lumber**

Use recovered lumber where practical. Unless otherwise noted, recovered lumber must be delivered clean and free of contamination. Provide grading certificates for any recovered wood materials used in structural applications. Lumber must meet the other criteria within this section. Provide documentation certifying products are from recovered lumber sources.

#### **D. Natural Decay- and Insect-Resistant Wood**

Naturally durable wood must be certified sustainably harvested natural-decay and insect-resistant wood. An occasional piece with corner sapwood is permitted if 90 percent or more of the width of each side on which the sapwood occurs is heartwood. The primary species to use on this project is redwood.

#### **E. Plastic Lumber**

HDPE lumber must contain a minimum of 90 percent total recycled content. Mixed plastics and cellulose lumber must contain a minimum of 100 percent total recovered materials content, with a minimum of 50 percent post-consumer recycled content. HDPE/fiberglass lumber must contain a minimum of 95 percent total recovered materials content with a minimum of 75 percent post-consumer recycled content. Other mixed resin lumber must contain a minimum of 95 percent total recovered materials content with a minimum of 50 percent post-consumer recycled content. Provide data identifying percentage of recycled content for plastic lumber.

##### **1. Shear Parallel to Length**

Maximum 1,000 psi in accordance with ASTM D2344/D2344M.

##### **2. Density**

ASTM D6111.

##### **3. Compressive Strength**

a. Secant Modulus: Minimum 70,000 psi in accordance with ASTM D6108.

b. Stress at 3 percent strain: Minimum 1,500 psi in accordance with ASTM D6108.

c. Compression Parallel to Grain: Minimum 3,000 psi in accordance with ASTM D6112.

d. Compression Perpendicular to Grain: Minimum 1,000 psi in accordance with ASTM D6112.

##### **4. Flexural Strength**

Minimum 2,000 psi in accordance with ASTM D6109.

##### **5. Tensile Strength**

Minimum 1,250 psi in accordance with ASTM D198.

##### **6. Coefficient of Thermal Expansion**

Maximum 0.000080 in/in/degree F in accordance with ASTM D696.

##### **7. Screw Withdrawal**

350 lbs in accordance with ASTM D6117.

##### **8. Nail Withdrawal**

150 lbs in accordance with ASTM D6117.

### **2.02 LUMBER**

#### **A. Structural Lumber**

Any of the species and grades listed in AWC NDS that have allowable unit stresses in pounds per square inch (psi) not less than allowable unit stresses indicated. Use for joists, rafters, headers, trusses, beams (except collar beams), columns, posts, stair stringers, girders, and all other members indicated to be stress rated. Structural lumber exposed to view must be appearance grade of any species meeting the allowable unit stresses specified. Design of members and fastenings must conform to AITC TCM. Other stress graded or dimensioned items such as blocking, carriages, and studs must be standard or No. 2 grade except that studs may be Stud grade.

B. Framing Lumber

Framing lumber such as studs, plates, caps, collar beams, can't strips, bucks, sleepers, nailing strips, and nailers and board lumber such as subflooring and wall and roof sheathing must be one of the species listed in the table below. Minimum grade of species must be as listed. Provide certified sustainably harvested framing lumber.

C. Structural Glued Laminated Timber

ANSI/AITC A190.1, allowable working stress values for loads of normal duration in pounds per square inch (psi) not less than the following:

Bending Members, [ ] Fb, [ ] Fv, [ ] E.

Compression Members, [ ] Fc, [ ] E.

Tension Members, [ ] Ft, [ ] E.

Fabricated with wet-use adhesives. Beams must use glue-laminated and laminated-veneer lumber. Posts and studs must use laminated-strand lumber. Joists must use laminated-veneer lumber. Members must be Architectural Appearance Grade, sealed with a penetrating sealer, and bundle wrapped as standard with the manufacturer and approved. Members must be complete with hardware for joining laminated members and for their connection to other construction. Provide certified sustainably harvested structural glued laminated timber. When located on the interior of buildings, provide products with no added urea-formaldehyde resins.

2.03 PLYWOOD, STRUCTURAL-USE, AND ORIENTED STRAND BOARD (OSB) PANELS

APA L870, APA S350, APA E445, and APA F405 respectively.

A. Subflooring

1. Plywood

C-D Grade, Exposure 1 durability classification, Span rating of 24/16 or greater. Provide certified sustainably harvested plywood subflooring.

2. Structural-Use and OSB Panels

Sheathing grade with durability equivalent to Exposure 1, Span Rating of 48/24 or greater. OSB, APA E445, Rated Sturd-I-Floor. Provide certified sustainably harvested structural-use and OSB panel subfloor sheathing.

B. Combination Subfloor-Underlayment

1. Plywood

Exterior Type, C-C (Plugged) Grade. Provide certified sustainably harvested plywood combination subfloor underlayment. Minimum thickness must be as listed below except where indicated to have greater thickness.

| Table of Grades for Framing and Board Lumber |   |  |                           |
|--|---|--|---------------------------|
| Grading Rules                                | Species   | Framing  | Board Lumber              |
| WWPA G-5 standard grading rules              | Aspen, Douglas Fir-Larch, Douglas Fir South, Engelmann Spruce-Lodgepole Pine, Engelmann Spruce, Hem-Fir, Idaho White Pine, Lodgepole Pine, Mountain Hemlock, Mountain Hemlock-Hem-Fir, Ponderosa Pine-Sugar Pine, Ponderosa Pine-Lodgepole Pine, Subalpine Fir, White Woods, Western Woods, Western Cedars, Western Hemlock | All Species: Standard Light Framing or No. 3 Structural Light Framing (Stud Grade for 2x4 nominal size, 10 feet and shorter) | All Species: No. 3 Common |
| WCLIB 17 standard grading rules              | Douglas Fir-Larch, Hem-Fir, Mountain Hemlock, Sitka Spruce, Western Cedars, Western Hemlock   | All Species: Standard Light Framing or No. 3 Structural Light Framing (Stud Grade for 2x4 nominal size, 10 feet and shorter) | All Species: Standard     |

| Table of Grades for Framing and Board Lumber                                       |  |  |   |
|--|--|--|---|
| Grading Rules  | Species  | Framing  | Board Lumber  |
| SPIB 1003 standard grading rules   | Southern Pine  | All Species: Standard Light Framing or No. 3 Structural Light Framing (Stud Grade for 2x4 nominal size, 10 feet and shorter) | No. 2 Boards  |
| SCMA Spec standard specifications  | Cypress  | No. 2 Common   | No. 2 Common  |
| NELMA Grading Rules standard grading rules   | Balsam Fir, Eastern Hemlock-Tamarack, Eastern Spruce, Eastern White Pine, Northern Pine, Northern Pine-Cedar | All Species: Standard Light Framing or No. 3 Structural Light Framing (Stud Grade for 2x4 nominal size, 10 feet and shorter) | All Species: No. 3 Common except Standard for Eastern White and Northern Pine |
| RIS Grade Use standard specifications  | Redwood  | All Species: Standard Light Framing or No. 3 Structural Light Framing (Stud Grade for 2x4 nominal size, 10 feet and shorter) | Construction Heart  |
| NHLA Rules rules for the measurement and inspection of hardwood and cypress lumber | Cypress  | No. 2 Dimension  | No. 2 Common  |

2. Structural-Use Panel  
Combination subfloor-underlayment grade with durability equivalent to Exterior plywood, Span Rating of 24 or greater.
- C. Wall Sheathing
  1. Plywood  
C-D Grade, Exposure 1, and a minimum thickness of 1/2 inch, except where indicated to have greater thickness. Provide certified sustainably harvested plywood wall sheathing. Provide exterior grade material with phenol resin for interior and exterior applications.
  2. Structural-Use and OSB Panels  
Sheathing grade with durability equivalent to Exposure 1, Span Rating of 24/0 or greater. OSB, APA Rated Sheathing. OSB must be a phenolic-glued board. Provide certified sustainably harvested structural-use and OSB panel wall sheathing.
- D. Roof Sheathing
  1. Plywood  
C-D Grade, Exposure 1, with an Identification Index of not less than 24/0. Provide certified sustainably harvested plywood roof sheathing. Provide exterior grade material with phenol resin for all applications.
  2. Structural-Use Panel  
Sheathing grade with durability equivalent to Exposure 1, Span Rating of 24/0 or greater.
- E. Diaphragms
  1. Plywood  
Structural I, C-C grade, Exposure 1, and a minimum thickness of 3/4 inch. Provide certified sustainably harvested plywood diaphragm.
  2. Structural-Use and OSB Panels  
Sheathing grade with durability equivalent to Exposure 1 and a minimum thickness of 3/4 inch. Provide certified sustainably harvested structural-use and OSB panel diaphragm.
- F. Shear Walls
  1. Plywood  
Structural I, C-C Grade and a minimum thickness of 3/4 inch. Provide certified sustainably harvested plywood shear wall.

2. Structural-Use and OSB Panels  
Sheathing grade with durability equivalent to Interior plywood with Exterior glue (Exposure 1) and a minimum thickness of 3/4 inch. Provide certified sustainably harvested structural-use and OSB panel shear wall.
- G. Other Uses
  1. Plywood  
C-D Grade, Exposure 1. Provide certified sustainably harvested plywood for other uses.
  2. Structural-Use and OSB Panels  
Sheathing grade with durability equivalent to Exposure 1 and a minimum thickness of 1/2 inch. Provide certified sustainably harvested structural-use and OSB panels for other uses.

## 2.04 UNDERLAYMENT

Underlayment must conform to one of the following:

- A. Hardboard  
AHA A135.4 service class, sanded one side, 1/4 inch thick, 4 feet wide.
- B. Particleboard  
CPA A208.1, Grade 1-M-1, 1/4 inch thick, 4 by 4 feet. Compressed fibers with polymeric methylene diisocyanate (PMDI) resin binder. Products must contain no added urea-formaldehyde resins. For products located on the interior of the building (inside of the weatherproofing system), provide certification of indoor air quality for particleboard underlayment.
- C. Plywood  
Plywood must conform to APA L870, underlayment grade with exterior glue, or C-C (Plugged) exterior grade 11/32 inch thick, 4 feet wide. Provide certified sustainably harvested plywood underlayment.
- D. Oriented Strand Board  
OSB underlayment grade 0.225 inch.
- E. Fiberboard  
Use structural fiberboard, minimum 80 percent recycled newspaper. Provide data identifying percentage of recycled content for fiberboard underlayment. Products must contain no added urea-formaldehyde resins. For products located on the interior of the building (inside of the weatherproofing system), provide certification of indoor air quality for fiberboard underlayment.
- F. Strawboard Panels  
Minimum 70 percent agricultural waste straw with no added formaldehyde binders. Submit data identifying percentage of biobased content for strawboard panels. Products must contain no added urea-formaldehyde resins. For products located on the interior of the building (inside of the weatherproofing system), provide certification of indoor air quality for strawboard panels.
- G. Cork  
Minimum 85 percent total recycled content. Provide data identifying percentage of recycled content for cork underlayment. Minimum 85 percent biobased content. Provide data identifying percentage of biobased content for cork underlayment.

## 2.05 OTHER MATERIALS

- A. Hardboard Underlayment  
DOC/NIST PS58, service class, sanded on one side, 1/4 inch thick 4 feet wide.
- B. Fiberboard Wall Sheathing  
ASTM C208, 2 feet wide by 1/2 inch thick for supports 16 inches (o.c.) or 4 feet wide by 3/4 inch thick for supports 24 inches o.c., except only 4 feet wide by 1/2-inch-thick sheathing over supports at 16 inches o.c. may be applied without corner bracing of framing. Sheathing must be asphalt impregnated or asphalt coated to render the sheathing water resistant but vapor permeable. Structural fiberboard must contain a minimum of 80 percent recycled content. Non-structural fiberboard must contain a minimum of 100 percent post-consumer recycled content. Provide data identifying percentage of recycled content for fiberboard wall sheathing. Products must contain no added urea-formaldehyde resins. For products located on the interior of the building (inside of the weatherproofing system), provide certification of indoor air quality for fiberboard wall sheathing.
- C. Gypsum Wall Sheathing  
ASTM C1396/C1396M, 1/2-inch-thick fire retardant (Type X) 5/8 inch thick; 4 feet wide with square edge for supports 16 inches o.c. with or without corner bracing of framing or for supports 24 inches o.c. with corner

bracing of framing; 2 feet wide with V-tongue and groove (T&G) edge for supports 16 inches o.c. with corner bracing of framing.

D. Foil-Faced Insulative Sheathing

Wood fiber core, chemically treated for water resistance, with aluminum foil laminated under pressure to both sides with water-resistant adhesive; 48 inches or 48 3/4 inches wide; 0.078 inch thick when used with corner bracing, 0.115 inch thick with studs up to 16 inches o.c. without corner bracing, or 0.137 inch thick with studs up to 24 inches o.c. without corner bracing. The sheathing and installation must have been accepted by ICC as conforming to ICC IBC. The sheathing alone must have a thermal resistance value (R value) of not less than 0.20.

E. Cellulose Honeycomb Panels

ASTM C208. Panels must be made of fire-retardant paper and must be impregnated with phenolic resins for moisture resistance. Panels must contain a minimum of 100 percent post-consumer recycled content. Provide data identifying percentage of recycled content for cellulose honeycomb panels.

F. Building Paper

FS UU-B-790, Type I, Grade D, Style 1.

G. Trussed Rafters

Metal plate connected trusses designed in accordance with TPI 1 and TPI HIB and fabricated in accordance with TPI 1.

H. Trussed Joists

Metal plate connected parallel chord wood trusses designed and fabricated in accordance with TPI 1.

I. Roof Decking

Roof decking must be commercial grade with minimum design value of 130 psi in bending. Decking must be 2 inches thick with single tongue and groove; V-jointed, matched and dressed. As an option, fabricated laminated lumber decking with interlocking tongue and groove joints may be provided.

J. Miscellaneous Wood Members

1. Nonstress Graded Members

Members must include bridging, corner bracing, furring, grounds, and nailing strips. Members must be in accordance with TABLE I for the species used. Sizes must be as follows unless otherwise shown:

| Support Spacing | Underlayment Minimum Thickness       |
|-----------------|--------------------------------------|
| 16 inches       | 1/2 inch for Group 1 species         |
|                 | 19/32 inch for Group 2 and 3 species |
|                 | 23/32 inch for Group 4 species       |
| 24 inches       | 23/32 inch for Group 1 species       |
|                 | 7/8 inch for Group 2 and 3 species   |
|                 | 1 inch for Group 4 species           |

2. Wood Bumpers

AREMA Eng Man, Industrial grade cross ties

3. Sill Plates

Sill plates must be standard or number 2 grade.

4. Blocking

Blocking must be standard or number 2 grade.

5. Rough Bucks and Frames

Rough bucks and frames must be straight standard or number 2 grade.

K. Adhesives

Comply with applicable regulations regarding toxic and hazardous materials and as specified. Provide non-aerosol adhesive products used on the interior of the building (defined as inside of the weatherproofing system) meeting either emissions requirements of CDPH SECTION 01350 (limit requirements for either office or classroom spaces regardless of space type) or VOC content requirements of SCAQMD Rule 1168. Provide aerosol adhesives used on the interior of the building meeting either emissions requirements of CDPH SECTION 01350 (limit requirements for either office or classroom spaces regardless of space type) or VOC content requirements of GS-36. Provide certification or validation of indoor air quality for non-aerosol adhesives applied on the interior of the building (inside of the weatherproofing system). Provide certification



or validation of indoor air quality for aerosol adhesives used on the interior of the building (inside of the weatherproofing system).

## 2.06 ROUGH HARDWARE

Unless otherwise indicated or specified, rough hardware must be of the type and size necessary for the project requirements. Sizes, types, and spacing of fastenings of manufactured building materials must be as recommended by the product manufacturer unless otherwise indicated or specified. Rough hardware exposed to the weather or embedded in or in contact with preservative treated wood, exterior masonry, or concrete walls or slabs must be hot-dip zinc-coated in accordance with ASTM A153/A153M. Nails and fastenings for fire-retardant treated lumber and woodwork exposed to the weather must be copper alloy or hot-dipped galvanized fasteners as recommended by the treated wood manufacturer.

- A. Bolts, Nuts, Studs, and Rivets  
ASME B18.2.1, ASME B18.5.2.1M, ASME B18.5.2.2M and ASME B18.2.2.
- B. Anchor Bolts  
ASTM A307, size as indicated, complete with nuts and washers.
- C. Expansion Shields  
CID A-A-1923, CID A-A-1924, and CID A-A-1925. Except as shown otherwise, maximum size of devices must be 3/8 inch.
- D. Lag Screws and Lag Bolts  
ASME B18.2.1.
- E. Wood Screws  
ASME B18.6.1.
- F. Nails and Staples  
ASTM F547, size and type best suited for purpose; staples must be as recommended by the manufacturer of the materials to be joined. For sheathing and subflooring, length of nails must be sufficient to extend 1 inch into supports. In general, 8-penny or larger nails must be used for nailing through 1-inch-thick lumber and for toe nailing 2 inch thick lumber; 16-penny or larger nails must be used for nailing through 2 inch thick lumber. Nails used with treated lumber and sheathing must be hot-dipped galvanized in accordance with ASTM A153/A153M. Nailing must be in accordance with the recommended nailing schedule contained in AWC WFCM. Where detailed nailing requirements are not specified, nail size and spacing must be sufficient to develop an adequate strength for the connection. The connection's strength must be verified against the nail capacity tables in AWC NDS. Reasonable judgment backed by experience must ensure that the designed connection will not cause the wood to split. If a load situation exceeds a reasonable limit for nails, a specialized connector must be used.
- G. Wire Nails  
ASTM F1667/F1667M.
- H. Timber Connectors  
Unless otherwise specified, timber connectors must be in accordance with TPI 1, APA EWS T300 or AITC TCM.
- I. Clip Angles  
Steel, 3/16 inch thick, size best suited for intended use; or zinc-coated steel or iron commercial clips designed for connecting wood members.
- J. Joist Hangers  
Steel or iron, zinc coated, sized to fit the supported member, of sufficient strength to develop the full strength of the supported member in accordance with ICC IBC, and furnished complete with any special nails required.
- K. Tie Straps  
For joists supported by the lower flange of steel beams, provide 1/8 by 1-1/2 inch steel strap, 2 feet long, except as indicated otherwise.
- L. Joist Anchors  
For joists supported by masonry walls, provide anchors 3/16 by 1 1/2-inch steel tee or strap, bent and of length to provide 4 inches embedment into wall and 12 inches along joist except as indicated otherwise. For joists parallel to masonry or concrete walls, provide anchors 1/4 by 1-1/4-inch minimum cross-sectional area, steel strap, length as necessary to extend over top of first three joists and into wall 4 inches, and with wall end of bend or pin type, except as indicated otherwise.

- M. Door Buck Anchors  
Metal anchors, 1/8 by 1-1/4-inch steel, 12 inches long, with ends bent 2 inches, except as indicated otherwise. Anchors must be screwed to the backs of bucks and built into masonry or concrete. Locate 8 inches above sills and below heads and not more than 24 inches intermediately between. Anchorage of bucks to steel framing must be as necessary to suit the conditions.
- N. Metal Bridging  
Where not indicated or specified otherwise, No. 16 U.S. Standard gage, cadmium-plated or zinc-coated.
- O. Toothed Rings and Shear Plates  
AWC NDS.
- P. Beam Anchors  
Steel U-shaped strap anchors 1/4 inch thick by 1-1/2 inches wide, except as indicated otherwise.
- Q. Metal Framing Anchors  
Construct anchors to the configuration shown using hot dip zinc-coated steel conforming to ASTM A653/A653M, G90. Except where otherwise shown, Steel must be not lighter than 18 gage. Special nails supplied by the manufacturer must be used for all nailing.
- R. Panel Edge Clips  
Extruded aluminum or galvanized steel, H-shaped clips to prevent differential deflection of roof sheathing.

## 2.07 AIR INFILTRATION BARRIER

Air infiltration barrier must be building paper meeting the requirements of ASTM C1136, Type IV, style optional or a tear and puncture resistant olefin building wrap (polyethylene or polypropylene) with a moisture vapor transmission rate of 125g per square meter per 24 hours in accordance with ASTM E96/E96M, Desiccant Method at 23 degrees C or with a moisture vapor transmission rate of 670g per square meter per 24 hours in accordance with ASTM E96/E96M, Water Method at 23 degrees C.

## PART 3 EXECUTION

### 3.01 INSTALLATION

Do not install building construction materials that show visual evidence of biological growth. Conform to AWC WFCM and install in accordance with the National Association of Home Builders (NAHB) Advanced Framing Techniques: Optimum Value Engineering, unless otherwise indicated or specified. Select lumber sizes to minimize waste. Fit framing lumber and other rough carpentry, set accurately to the required lines and levels, and secure in place in a rigid manner. Space plastic lumber boards as necessary to allow for lengthwise expansion and contraction. Do not splice framing members between bearing points. Set joists, rafters, and purlins with their crown edge up. Frame members for the passage of pipes, conduits, and ducts. Provide adequate support as appropriate to the application, climate, and modulus of elasticity of the product. Do not cut or bore structural members for the passage of ducts or pipes without approval. Reinforce all members damaged by such cutting or boring by means of specially formed and approved sheet metal or bar steel shapes, or remove and provide new, as approved. Provide as necessary for the proper completion of the work all framing members not indicated or specified. Spiking and nailing not indicated or specified otherwise must be in accordance with the Nailing Schedule contained in ICC IBC; perform bolting in an approved manner. Spikes, nails, and bolts must be drawn up tight. Install plastic lumber with screws or bolts; if nails are used, use ring shank or spiral shank nails. Timber connections and fastenings must conform to AWC NDS. Provide 2 inch minimum clearance between chimneys and wood framing; provide 4 inch minimum clearance at fireplaces. Fill the spaces with strips of approved noncombustible material. Use slate or steel shims when leveling joists, beams, and girders on masonry or concrete. Do not use shimming on wood or metal bearings. When joists, beams, and girders are placed on masonry or concrete, a wood base plate must be positioned and leveled with grout. The joist, beam, or girder must then be placed on the plate. When joists, beams, and girders are set into masonry or concrete, a pocket must be formed into the wall. The joist, beam, or girder must then be placed into the pocket and leveled with a steel shim.

#### A. Sills

Set sills level and square and wedge with steel or slate shims; point or grout with non-shrinking cement mortar to provide continuous and solid bearing. Anchor sills to the foundations as indicated. Where sizes and spacing of anchor bolts are not indicated, provide not less than 5/8 inch diameter bolts at all corners and splices and space at a maximum of 6 feet o.c. between corner bolts. Provide at least two bolts for each sill member. Lap and splice sills at corners and bolt through the laps or butt the ends and through-bolt not more than 6 inches from the ends. Provide bolts with plate washers and nuts. Bolts in exterior walls must be zinc-coated.

1. Anchors in Masonry  
Embed anchor bolts not less than 15 inches in masonry unit walls and provide each with a nut and a 2 inch diameter washer at bottom end. Fully grout bolts with mortar.
2. Anchors in Concrete  
Embed anchor bolts not less than 8 inches in poured concrete walls and provide each with a nut and a 2 inch diameter washer at bottom end. A bent end may be substituted for the nut and washer; bend must be not less than 90 degrees. Powder-actuated fasteners spaced 3 feet o.c. may be provided in lieu of bolts for single thickness plates on concrete.
- B. Beams and Girders  
Set beams and girders level and in alignment and anchor to bearing walls, piers, or supports with U-shaped steel strap anchors. Embed anchors in concrete or masonry at each bearing and through-bolt to the beams or girders with not less than two bolts. Provide bolts not less than 1/2 inch in diameter and with plate washers under heads and nuts. Install beams and girders with 8-inch minimum end bearing on walls or supports. Install beams and girders into walls with 1/2-inch clearance at the top, end, and sides or standard steel wall-bearing boxes. Provide joints and splices over bearings only and bolt or spike together.
- C. Roof Framing or Rafters  
Tops of supports or rafters must form a true plane. Valley, ridge, and hip members must be of depth equal to cut on rafters where practicable, but in no case less than depth of rafters and nominally 2 inches thick. Rafters must have full and solid bearing on plates. Valleys, hips, and ridges must be straight and true intersections of roof planes. Necessary crickets and watersheds must be formed. Rafters, except hip and valley rafters, must be bolted by angles. Rafters must be toe-nailed to ridge, valley, or hip members with at least three 8-penny nails. Rafters must be braced to prevent movement until permanent bracing, decking or sheathing is installed. Hip and valley rafters must be secured to wall plates by clip angles. Openings in roof must be framed with headers and trimmers. Unless otherwise indicated, headers carrying more than two rafters and trimmers supporting headers carrying more than one rafter must be double. Hip rafters longer than the available lumber must be butt jointed and scabbed. Valley rafters longer than the available lumber must be double, with pieces lapped not less than 4 feet and well spiked together. Install trussed rafters in accordance with TPI HIB. Install engineered wood joists in accordance with distributor's instructions.
- D. Joists  
Provide joists of the sizes and spacing indicated, accurately and in alignment, and of uniform width. Joists must have full bearing on sills, plates, beams, girders, and trusses; provide laps over bearing only and spike. Where joists are of insufficient length to produce a 12 inch lap, butt joists over bearing and provide wood scabs 2 nominal inches thick by depth of joists by 24 inches long or metal straps 1/4 by 1 1/2 inch by not less than 18 inches long nailed to each joist with not less than four 10-penny nails, or approved sheet metal connectors installed in accordance with the manufacturer's recommendations. Provide joists built into masonry with standard steel wall bearing boxes. Provide metal hangers for joists framing into the side of headers, beams, or girders. When a portion of the joist extends above the top flange of a steel beam or girder, provide a 3/8 inch space between the top flange and the extended portion of the joists to allow for shrinkage of joists. The minimum joist end bearing must be 4 inches, and joists built into concrete or masonry must have a 1/2 inch minimum clearance at the top, end, and sides. For joists approved to be bored for the passage of pipes or conduits, bore through the neutral axis of the joist. Provide steel joist hangers of proper size and type to receive the ends of all framed joists.
  1. Floor (Ceiling) Framing  
Except where otherwise indicated joists must have bearings not less than 4 inches on concrete or masonry and 1-1/2 inches on wood or metal. Joists, trimmers, headers, and beams framing into carrying members at the same relative levels must be carried on joist hangers. Joists must be lapped and spiked together at bearings or butted end-to-end with scab ties at joint and spiked to plates. Openings in floors must be framed with headers and trimmers. Headers carrying more than two tail joists and trimmers supporting headers carrying more than one tail joist must be doubled, unless otherwise indicated. Joists built into masonry must be provided with standard steel wall bearing boxes. Install engineered wood joists in accordance with distributor's instructions.
  2. Doubled Joists  
Provide under bearing walls and partitions running parallel with the floor joists, around stairways, chimneys, fireplaces, and at other openings where joists are cut and framed. Double, space for clearance, block apart 4 feet on center, rigidly frame, and spike together joists under partitions that are to receive ducts, pipes, and conduits.

3. Tie Straps  
For joists supported by the lower flange of steel beams, provide straps at every fourth joist and the corresponding fourth joist on the opposite side. Tie joists across the top of the steel beam with a steel strap. Form straps to lie flat across the top of the beam and twist at the ends to provide flat contact with the side of each joist. Nail each strap at each end with three 10-penny nails spaced 2 inches o.c.
4. Joist Anchors  
Provide anchors for each fourth joist supported by a masonry wall. Build wall end of anchors into the wall. Nail anchor to the joist with three 10-penny nails spaced 2 inches o.c. Anchor the first three joists parallel to concrete or masonry walls at bridging points, but not less than 8 feet o.c. from end walls. Let anchors into the tops of each joist and spike to the top of joist with one 10-penny nail. Extend anchors at least 4 inches into the wall.
- E. Bridging  
Provide bridging for floor and ceiling joists and for roof rafters having slopes of less than 1/3. Locate bridging as indicated and as specified herein. Provide bridging for spans greater than 6 feet, but do not exceed 8 feet maximum spacing between rows of bridging. Install rows of bridging uniformly. Provide metal or wood cross-bridging, except where solid bridging is indicated. Do not nail the bottom end of cross-bridging until the subfloor has been laid.
  1. Wood Cross-Bridging  
Provide wood cross-bridging not less than 2 by 4 nominal size. Nail wood cross-bridging at each end with three 8-penny nails for 2 by thick material.
  2. Metal Cross-Bridging  
Must be the manufacturer's standard product, not less than 16 gage before forming and coating. Metal bridging must be the compression type, lodged into or nailed to the wide faces of opposite joists at points diagonally across from each other near the bottoms and tops of joists.
- F. Subflooring
  1. Plywood, Structural-Use, and OSB Panels  
Apply best side up with the grain of outer plies or the long dimension at right angles to joists. Stagger end joints and locate over the centerline of joists. Support panel edges by nominal 2 by 4 members framed between joists so the edge joints of subfloor occur over the centerline of blocking. Allow 1/8 inch spacing at panel ends and 1/4 inch at panel edges. Panels must be continuous over two or more spans. Nail panels 6 inches o.c. at supported edges and 10 inches o.c. over intermediate bearing. Nails must be 8-penny common or 6-penny threaded. Provide at least 1/2 inch clearance between subflooring and masonry or concrete walls. Subflooring may be installed with adhesive conforming to ASTM D3498 and nails spaced at 12 inches on center unless otherwise shown.
  2. Combination Subfloor-Underlayment  
Apply with the grain of the face plies or the long dimension at right angles to joists. Panels must be continuous over two or more spans. Stagger end joints of adjacent panels. Panel edges must be T&G or supported by 2 by 4 members framed between joists so the edge joints of subfloor-underlayment occur over the centerline of blocking. Provide end joints of panels over the centerline of joists. Allow 1/8 inch spacing between panel edge and end joints. Nail panels 6 inches o.c. at ends and edges and 10 inches o.c. along intermediate bearings unless they are glue-nailed in accordance with APA E30. Nails must be 8-penny coated common or 6-penny threaded. Provide at least 1/2 inch clearance between subfloor-underlayment and masonry or concrete walls. Lightly sand all joints to receive resilient flooring.
  3. Wood  
Subflooring must be applied diagonally with end joints made over supports. Each board must bear on at least three supports and must be nailed at each support using two nails for boards 6 inches and less in width and three nails for boards more than 6 inches in width.
  4. Depressed Subfloors  
Provide depressed subfloors to receive ceramic and quarry tile floors. Nail cleats or ledgers of one by four material to the sides of joists to support the flooring material. Place the cleats at a depth below the top of the joists sufficient to allow the installation of the subflooring below the tops of joists. Snugly fit subflooring as specified herein between joists.
- G. Underlayment  
Install underlayment over subfloor just prior to laying of resilient flooring and protect from water and physical damage. Stagger end joints of underlayment with respect to each other and stagger all joints with respect to paralleling panel joints in subfloor. Space panels 1/16 inch apart at ends and 1/8 inch apart at edges and at least 1/2 inch from concrete or masonry walls. Nail panels 6 inches o.c. along edges and 6 inches o.c. each

way throughout panel, but not closer than 3/8 inch to panel edges. Nails must be 4-penny annular ring or screw type and must be countersunk 1/16 inch. Lightly sand all joints to receive resilient flooring.

#### H. Columns and Posts

Set columns and posts, plumb, in alignment, and with full and uniform bearing. Do not embed the bottom and bearing surfaces of posts in concrete or set in direct contact with concrete slabs on grade. Provide post and beam construction with steel post caps in such a manner that the post above will tier directly over the one below; fabricate the assembly in a rigid and substantial manner using bolts or lag screws.

#### I. Wall Framing

##### 1. Studs

Select studs for straightness and set plumb, true, and in alignment. In walls and partitions more than 8 feet tall, provide horizontal bridging at not more than 8 feet o.c. using nominal 2-inch material of the same width as the studs; install the bridging flat. Sizes and spacing of studs must be as indicated. Double studs at jambs and heads of openings and triple at corners to form corner posts. Frame corner posts to receive sheathing, lath, and interior finish. Truss over openings exceeding 4 feet in width or use a header of sufficient depth. Toe-nail studs to sills or sole plates with four 8-penny nails or fasten with metal nailing clips or connectors. Anchor studs abutting concrete or masonry walls thereto near the top and bottom and at midheight of each story using expansion bolts or powder-actuated drive studs.

##### 2. Plates

Use plates for walls and partitions of the same width as the studs to form continuous horizontal ties. Splice single plates; stagger the ends of double plates. Double top plates in walls and bearing partitions, built up of two nominal 2 inch thick members. Top plates for nonbearing partitions must be single or double plates of the same size as the studs. Nail lower members of double top plates and single top plates to each stud and corner post with two 16-penny nails. Nail the upper members of double plates to the lower members with 10-penny nails, two near each end, and stagger 16 inches o.c. intermediately between. Nail sole plates on wood construction through the subfloor to each joist and header; stagger nails. Anchor sole plates on concrete with expansion bolts, one near each end and at not more than 6 feet o.c., or with powder-actuated fasteners, one near each end and at not more than 3 feet o.c. Provide plates cut for the passage of pipes or ducts with a steel angle as a tie for the plate and bearing for joist.

##### 3. Firestops

Provide firestops for wood framed walls and partitions and for furred spaces of concrete or masonry walls at each floor level and at the ceiling line in the top story. Where firestops are not automatically provided by the framing system used, they must be formed of closely fitted wood blocks of nominal 2 inch thick material of the same width as the studs and joists. Lightweight concrete units may be used at the first-floor level to serve jointly as firestopping and ratproofing.

##### 4. Diagonal Bracing

Provide diagonal bracing at all external corners and internal angles and at maximum 40 foot centers in stud walls, except that bracing may be omitted where diagonally applied wood sheathing, plywood or structural-use panel sheathing, 4 by 8 foot fiberboard sheathing, or gypsum board sheathing is used. Bracing must be of 1 by 6 material, let into the exterior face of studs. Extend bracing from top plates to sill at an angle of approximately 45 degrees and double nail at each stud. When openings occur near corners, provide diagonal knee braces extending from the corner post above headers to top plates and from below window sills to the main sill. Nail bracing at each bearing with two 8-penny nails.

#### J. Wall Sheathing

##### 1. Plywood, Structural-Use, and OSB Panel Wall Sheathing

Apply horizontally or vertically. Extend sheathing over and nail to sill and top plate. Abut sheathing edges over centerlines of supports. Allow 1/8 inch spacing between panels and 1/8 inch at windows and doors. If sheathing is applied horizontally, stagger vertical end joints. Nail panels with 6-penny nails spaced 6 inches o.c. along edges of the panel and 12 inches o.c. over intermediate supports. Keep nails 3/8 inches away from panel ledges. Provide 2 by 4 blocking for horizontal edges not otherwise supported.

##### 2. Fiberboard Wall Sheathing

Apply fiberboard wall sheathing allowing a 1/8 inch joint at edges to permit expansion, except at frames and openings where sheathing must be fitted snugly. Pre-expand sheathing before application, allowing sheathing to condition for humidity as recommended by the sheathing manufacturer. Provide 2 by 4 blocking for horizontal edges not otherwise supported.

##### a. Fiberboard wall sheathing used with diagonal-braced framing must be either 2 or 4 feet wide.

Sheathing 2 feet wide must have T&G or shiplapped edges and must be applied horizontally with vertical joints staggered. Apply sheathing with tongued edge up and nail at edges and intermediate

- bearings with 1-3/4 inch long, zinc-coated steel roofing nails spaced on maximum 4-1/2 inch centers. Apply sheathing 4 feet wide either horizontally or vertically. Nail sheathing with 1-3/4 inch long, zinc-coated steel roofing nails spaced 4 inches maximum o.c. at edges and 8 inches maximum o.c. at intermediate bearings.
- b. Fiberboard wall sheathing used with unbraced framing must be 4 feet wide. Apply sheathing vertically. Extend sheathing over and nail to sill and top plates. Locate joints over centerlines of supports. Nail sheathing with 1-1/2 inch long, zinc-coated steel roofing nails with 3/8 inch diameter heads. Space nails 3 inches o.c. at edges and ends and 6 inches o.c. at intermediate bearings.
3. Gypsum Sheathing Board
 

Apply gypsum sheathing board either horizontally or vertically. Butt joints and locate over the centerlines of supports. Horizontally applied sheathing must be T&G, applied with tongued edge up. Stagger vertical joints and abut sheet closely to frames of openings. Nail sheathing with 11 gage, 3/8 inch head, zinc-coated nails 1-1/2 inches long for 1/2 inch sheathing and 1-3/4 inches long for 5/8 inch sheathing, spaced 3/8 inch minimum from edges. Provide 2 by 4 blocking for horizontal edges of 4 foot wide panels not otherwise supported.

    - a. Gypsum Sheathing Board Used with Diagonal-Braced Framing: Sheathing must be either 2 or 4 feet wide. Apply sheathing 2 feet wide horizontally. Nail 4 inches maximum o.c. at edges and over intermediate bearings. Apply sheathing 4 feet wide either horizontally or vertically. Nail 4 inches maximum o.c. at edges and 8 inches maximum o.c. at intermediate bearings.
    - b. Gypsum Sheathing Board Used with Unbraced Frames: Sheathing must be 4 feet wide and applied vertically. Extend sheathing over and nail to both sill and top plates. Nail 4 inches maximum o.c. at edges and 8 inches maximum o.c. at intermediate bearings.
  4. Foil-Faced Insulative Sheathing
 

Apply sheathing vertically. Butt or overlap joints and locate over centerline of supports. Attach sheathing to framing with 1-1/4 inch, large, flat-head, 11 gage, galvanized roofing nails or 16 gage, 7/16 inch minimum crown, galvanized staples with 1-1/4 inch legs. For nonstructural application (with corner bracing), space fasteners 6 inches o.c. on all panel edges and 12 inches o.c. on intermediate supports, regardless of sheathing thickness, for studs not more than 24 inches o.c. For structural application (without corner bracing), for studs not more than 16 inches o.c., space fasteners 3 inches o.c. on all edges and 6 inches o.c. on intermediate members using minimum 0.115 inch thickness; for studs up to 24 inches o.c., space fasteners 3 inches o.c. on all edges and 3 inches o.c. on intermediate supports using minimum 0.137 inch thickness.
  5. Particleboard
 

Install according to manufacturer's instructions and accepted industry standards.
  6. Cellulose Honeycomb Panels
 

Install according to manufacturer's instructions and accepted industry standards.
  - K. Wood Sheathing
 

Sheathing end joints must be made over framing members and so alternated that there will be at least two boards between joints on the same support. Each board must bear on at least three supports. Boards must be nailed at each support using two nails for boards 6 inches and less in width and three nails for boards more than 6 inches in width. Roof sheathing must not be installed where roof decking is installed.
  - L. Building Paper
 

Provide building paper on wood board sheathing for all types of exterior siding. Apply paper shingle fashion, horizontally, beginning at the bottom of the wall. Lap edges 4 inches, and nail with one inch, zinc-coated roofing nails, spaced 12 inches o.c. and driven through tin discs.
  - M. Ceiling Joists
 

Size as indicated and set accurately and in alignment. Toe-nail joists to all plates with not less than three 10-penny nails. Frame openings in ceilings with headers and trimmers.
  - N. Metal Framing Anchors
 

Provide framing anchors at every other rafter to fasten to plates and studs against uplift movement and forces as indicated. Anchors must be punched and formed for nailing so that nails will be stressed in shear only. Nails must be zinc-coated; drive a nail in each nail hole provided in the anchor.
  - O. Trusses
 

Metal plate connected wood trusses must be handled, erected, and braced in accordance with TPI HIB and as indicated.

- P. Structural Glued Laminated Timber Members  
Brace members before erection. Align members and complete all connections before removal of bracing. Unwrap individually wrapped members only after adequate protection by a roof or other cover has been provided. Treat scratches and abrasions of factory applied sealer with two brush coats of the same sealer used at the factory.
- Q. Plywood and Structural-Use Panel Roof Sheathing  
Install with the grain of the outer plies or long dimension at right angles to supports. Stagger end joints and locate over the centerlines of supports. Allow 1/8 inch spacing at panel ends and 1/4 inch at panel edges. Nail panels with 8-penny common nails or 6-penny annular rings or screw-type nails spaced 6 inches o.c. at supported edges and 12 inches o.c. at intermediate bearings. Do not use staples in roof sheathing. Where the support spacing exceeds the maximum span for an unsupported edge, provide adequate blocking, tongue-and-groove edges, or panel edge clips, in accordance with APA E30.
- R. Stair Framing  
Cut carriages to exact shape required to receive treads and risers, with risers of uniform height and treads of uniform width. Provide trimmers, nailers, and blocking as required to support finish materials.

### 3.02 MISCELLANEOUS

- A. Wood Roof Nailers, Edge Strips, Crickets, Curbs, and Cants  
Provide sizes and configurations indicated or specified and anchored securely to continuous construction.
  - 1. Roof Nailing Strips  
Provide roof nailing strips for roof decks as indicated and specified herein. Apply nailing strips in straight parallel rows in the direction and spacing indicated. Strips must be surface applied.
    - a. Surface-Applied Nailers: Must be 3 inches wide and of thickness to finish flush with the top of the insulation. Anchor strips securely to the roof deck with powder actuated fastening devices or expansion shields and bolts, spaced not more than 24 inches o.c. On decks with slopes of one inch or more, provide surface applied wood nailers for securing insulation and for nailing of roofing felts.
    - b. Embedded Nailers: Must be nominal 2 by 3 with 2 inch sides beveled. Set and anchor nailers to finish flush with the roof deck surface.
  - 2. Roof Edge Strips and Nailers  
Provide at perimeter of roof, around openings through roof, and where roofs abut walls, curbs, and other vertical surfaces. Except where indicated otherwise, nailers must be 6 inches wide and the same thickness as the insulation. Anchor nailers securely to underlying construction. Anchor perimeter nailers in accordance with FM 4435
  - 3. Crickets, Cants, and Curbs  
Provide wood saddles or crickets, cant strips, curbs for scuttles and ventilators, and wood nailers bolted to tops of concrete or masonry curbs and at expansion joints, as indicated, specified, or necessary and of lumber.
- B. Rough Wood Bucks  
Size as indicated. Set wood bucks true and plumb. Anchor bucks to concrete or masonry with steel straps extending into the wall 8 inches minimum. Place anchors near the top and bottom of the buck and space uniformly at 2-foot maximum intervals.
- C. Wood Blocking  
Provide proper sizes and shapes at proper locations for the installation and attachment of wood and other finish materials, fixtures, equipment, and items indicated or specified.
- D. Wood Grounds  
Provide for fastening wood trim, finish materials, and other items to plastered walls and ceilings. Install grounds in proper alignment and true with an 8-foot straightedge.
- E. Wood Furring  
Provide where shown and as necessary for facing materials specified. Except as shown otherwise, furring strips must be nominal one by 3, continuous, and spaced 16 inches o.c. Erect furring vertically or horizontally as necessary. Nail furring strips to masonry. Do not use wood plugs. Provide furring strips around openings, behind bases, and at angles and corners. Furring must be plumb, rigid, and level and must be shimmed as necessary to provide a true, even plane with surfaces suitable to receive the finish required. Form furring for offsets and breaks in walls or ceilings on 1 by 4 wood strips spaced 16 inches o.c.
- F. Wood Bumpers  
Dress to the sizes indicated, and bevel edges. Bore, countersink, and bolt bumpers in place.

- G. Temporary Closures  
Provide with hinged doors and padlocks and install during construction at exterior doorways and other ground level openings that are not otherwise closed. Cover windows and other unprotected openings with polyethylene or other approved material, stretched on wood frames. Provide dustproof barrier partitions to isolate areas as directed.
- H. Temporary Centering, Bracing, and Shoring  
Provide for the support and protection of masonry work during construction. Forms and centering for cast-in-place concrete work are specified in Section 03 30 00 CAST-IN-PLACE CONCRETE.
- I. Wood Sleepers  
Run wood sleepers in lengths as long as practicable and stagger end joints in adjacent rows. Sleepers for gymnasium floors are specified in Section 09 64 66 WOOD ATHLETIC FLOORING.
- J. Diaphragms  
Install plywood, structural-use, or OSB panels with the long dimension parallel to supports. End joints must be staggered and located over the centerline of supports. Longitudinal joints must be staggered and provided with blocking. Nail panels with 8-penny nails spaced not more than 12 inches on centers around the diaphragm boundaries and along continuous panel edges and 12 inches on centers at all other supported edges and 12 inches o.c. over intermediate bearings.
- K. Shear Walls  
Install plywood or structural-use panels with long dimension parallel or perpendicular to supports. Provide blocking behind edges not located over supports. Nail panels with 8-penny nails spaced not more than 12 inches on centers along panel edges and 6 inches o.c. over intermediate bearings.
- L. Bridging  
Wood bridging must have ends accurately bevel-cut to afford firm contact and must be nailed at each end with two nails. Install metal bridging as recommended by the manufacturer. The lower ends of bridging must be driven up tight and secured after subflooring or roof sheathing has been laid and partition framing installed.
- M. Corner Bracing  
Install corner bracing when required by type of sheathing used or when siding, other than panel siding, is applied directly to studs. Corner bracing must be let into the exterior surfaces of the studs at an angle of approximately 45 degrees, must extend completely over wall plates, and must be secured at each bearing with two nails.
- N. Sill Plates  
Sill plates must be set level and square and anchor bolted at not more than 6 feet on centers and not more than 12 inches from end of each piece. A minimum of two anchors must be used for each piece.

### 3.03 INSTALLATION OF TIMBER CONNECTORS

Install timber connectors in conformance with requirements of AWC NDS.

### 3.04 ERECTION TOLERANCES

- A. Framing members which will be covered by finishes such as wallboard, plaster, or ceramic tile set in a mortar setting bed, must be within the following limits:
  - 1. Layout of walls and partitions: 1/4 inch from intended position;
  - 2. Plates and runners: 1/4 inch in 8 feet from a straight line;
  - 3. Studs: 1/4 inch in 8 feet out of plumb, not cumulative; and
  - 4. Face of framing members: 1/4 inch in 8 feet from a true plane.
- B. Framing members which will be covered by ceramic tile set in dry-set mortar, latex-portland cement mortar, or organic adhesive must be within the following limits:
  - 1. Layout of walls and partitions: 1/4 inch from intended position;
  - 2. Plates and runners: 1/8 inch in 8 feet from a straight line;
  - 3. Studs: 1/8 inch in 8 feet out of plumb, not cumulative; and
  - 4. Face of framing members: 1/8 in 8 feet from a true plane.

### 3.05 WASTE MANAGEMENT OF WOOD PRODUCTS

In accordance with the Waste Management Plan and as specified. Separate and reuse scrap sheet materials larger than 2 square feet, framing members larger than 16 inches, and multiple offcuts of any size larger than 12 inches. Clearly separate damaged wood and other scrap lumber for acceptable alternative uses on site, including bracing, blocking, cripples, ties, and shims.



Separate composite wood from other wood types and recycle or reuse. Set aside scrap plastic lumber and return to manufacturer for recycling into new product. When such a service is not available, local recyclers must be sought after to reclaim the materials. Fold up metal banding, flatten, and recycle. Separate treated, stained, painted, and contaminated wood and place in designated area for hazardous materials. Dispose of according to local regulations. Do not burn scrap lumber that has been pressure treated, or lumber that is less than one year old.

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**AGGREGATE MATERIALS**

**PART 1 - GENERAL**

**1.1 DESCRIPTION OF WORK:**

- A. This section specifies the requirements for furnishing and placing aggregate materials.

**1.2 MEASUREMENT AND PAYMENT FOR AGGREGATE MATERIALS:**

- A. Measurement is based on end area calculations of placed and compacted material.
- B. Payment:
1. Payment will be based on identified plans quantity.
  2. No additional compensation shall be made without written documentation of unforeseen conditions.

**1.3 SUBMITTALS:**

1. Contractor shall provide source information for all aggregate materials to be used within the project. This information shall include, but is not limited to: Supplier/Owner, Pit Name & Location, Material Origins, Method used for manufacturing to meet specifications, etc.
2. Contractor shall allow the Owners materials testing agency to obtain aggregate samples for verification of compliance with these specifications.
  - a. Contractor will not be permitted to place materials that have not been approved by the AE/Owner.
3. Pre-construction photographs and videotape in the vicinity of the project site to document existing site features, including surfaces finishes, cracks, or other structural blemishes that might be misconstrued as damage caused by earthwork operations, and verification of existing utility markings.

**1.4 APPLICABLE PUBLICATIONS:**

- A. South Dakota Department of Transportation, Standard Specifications for Roads and Bridges, Current Edition (SD DOT SSRB)
- B. American Association of State Highway and Transportation Officials (AASHTO):
- T99-10 ..... Standard Method of Test for Moisture-Density Relations of Soils Using a 5.5 lb Rammer and a 12 inch Drop
  - T180-10 ..... Standard Method of Test for Moisture-Density Relations of Soils using a 10 lb Rammer and a 18 inch Drop
- C. American Society for Testing and Materials (ASTM):
- C33-03 ..... Concrete Aggregate
  - D448-08 ..... Standard Classification for Sizes of Aggregate for Road and Bridge Construction
  - D698-07e1 ..... Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft. lbf/ft<sup>3</sup>)
  - D1140-00 ..... Amount of Material in Soils Finer than the No. 200 Sieve
  - D1556-07 ..... Standard Test Method for Density and Unit Weight of Soil in Place by the Sand Cone Method
  - D1557-09 ..... Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup>)
  - D2167-08 ..... Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method
  - D2487-11 ..... Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)
  - D2940-09 ..... Standard Specifications for Graded Aggregate Material for Bases or Subbases for Highways or Airports
  - D6938-10 ..... Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
- D. Society of Automotive Engineers (SAE):
- J732-07 ..... Specification Definitions - Loaders
  - J1179-08 ..... Hydraulic Excavator and Backhoe Digging Forces

**PART 2 - PRODUCTS**

**2.1 MATERIALS:**

- A. General: Provide borrow soil material when sufficient satisfactory soil materials are not available from excavations.
- B. Aggregate materials shall conform to the requirements established by SD DOT SSRB sections indicated for each item.
1. Fine Aggregate for use in Portland Cement Concrete: Section 800.

2. Coarse Aggregate for Use in Portland Cement Concrete: Section 820.
3. Riprap: Section 830.
4. Select Granular Backfill: Section 850.
5. Blotting Sand: Section 879.
6. Aggregates for Asphalt Concrete: Section 880.
7. Subbase: Section 882
8. Base Course: Section 882
9. Gravel Cushion: Section 882
10. Gravel Surfacing: Section 882.
11. Clay Binder (when required for gravel surfacing): Section 883.
12. Milled, Reclaimed, and Salvaged Material: Section 884.
  - a. Cold Milled Asphalt Concrete
  - b. Cold Milled Asphalt Concrete and Placing Cold Milled Material
  - c. Reclaimed Asphalt Pavement (RAP)
  - d. Subbase, Salvaged
  - e. Base Course, Salvaged
  - f. Base Course, Salvaged Asphalt Mix Material
  - g. Gravel Cushion, Salvaged
  - h. Gravel Surfacing, Salvaged
  - i. Full Depth Reclamation (FDR)

## **PART 3 – EXECUTION**

### **3.1 CONSTRUCTION REQUIREMENTS**

#### **A. Proof-rolling:**

1. After rough grade has been established in cut areas and prior to placement of fill in fill areas under building and pavements, proof-roll exposed subgrade with a fully loaded dump truck to check for pockets of soft material.
2. Proof rolling shall be done on an exposed subgrade free of surface water (wet conditions resulting from rainfall) which would promote degradation of an otherwise acceptable subgrade.
3. Proof roll the subgrade with six passes of a dump truck loaded with 15 ton, pneumatic-tired roller.
4. Operate the truck in a systematic manner to ensure the number of passes over all areas, and at speeds between 2 to 5 mph.
5. Notify the Engineer a minimum of 3 days prior to proof rolling.
6. Proof rolling shall be performed in the presence of the Engineer. Rutting or pumping of material shall be undercut and replaced. Existing subgrade material shall be replaced with Subbase fill material.
7. Maintain subgrade until succeeding operation has been accomplished.

#### **B. Filling and Backfilling:**

1. Do not fill or backfill until all debris, water, unsatisfactory soil materials, obstructions, and deleterious materials have been removed from excavation.
2. For fill and backfill, use materials meeting the criteria specified herein, as applicable. Only use approved materials.
3. Do not backfill until foundation walls have been completed above grade and adequately braced, waterproofing or damp proofing applied, foundation drainage, and pipes coming in contact with backfill have been installed and work inspected and approved by Engineer.
4. Placing: Place materials in horizontal layers not exceeding 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers and then compacted.
5. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
6. Place no material on surfaces that are muddy, frozen, or contain frost.
7. Compaction:
  - a. Compact with approved tamping rollers, sheepfoot rollers, pneumatic tired rollers, steel wheeled rollers, vibrator compactors, or other approved equipment (hand or mechanized) well suited to soil being compacted.
  - b. Do not operate mechanized vibratory compaction equipment within 10 feet of new or existing building walls without prior approval of Engineer.
  - c. Moisten or aerate material as necessary to provide moisture content that will readily facilitate obtaining specified compaction with equipment used.

- d. Backfill adjacent to any and all types of structures shall be placed and compacted to at least 90 percent laboratory maximum density for cohesive materials or 95 percent laboratory maximum density for cohesionless materials to prevent wedging action or eccentric loading upon or against the structure.
  - e. Compact soil to not less than the following percentages of maximum dry density, according to ASTM D698 or ASTM D1557 as specified below:
    - 1) Fills, Embankments, and Backfill
      - i. Under proposed structures, building slabs, steps, and paved areas, scarify and re-compact top 12 inches of existing subgrade to 95 percent laboratory maximum density.
      - ii. Under Sidewalks, scarify and re-compact top 6 inches below subgrade and compact each layer of backfill or fill material to 95 percent laboratory maximum density.
      - iii. Landscaped areas, top 8 inches, to 80 percent laboratory maximum density.
    - 2) Natural Ground (Cut or Existing), if deemed suitable by geotechnical engineer
      - i. Under building slabs, steps and paved areas, scarify and re-compact top 18 inches, to 95 percent laboratory maximum density.
      - ii. Under sidewalks, scarify and re-compact top 6 inches to 95 percent laboratory maximum density.
- C. BUILDING SITE GRADING:**
- 1. Uniformly grade the areas within the limits of this section, including adjacent transition areas. Smooth the finished surface within specified tolerance. Provide uniform levels or slopes between points where elevations are indicated, or between such points and existing finished grades. Provide a smooth transition between abrupt changes in slope.
  - 2. Cut rough or sloping rock to level beds for foundations. In pipe spaces or other unfinished areas, fill low spots and level off with subbase.
  - 3. Finish grade for footings, building slabs, etc. to the satisfaction of the Engineer. Maintain finished subgrade in a smooth and compacted condition until succeeding operation has been accomplished. Finish of subgrade shall be within  $\pm 0.05$  feet of design grade.
  - 4. Slope backfill outside building away from building walls at a minimum 1 percent grade for a minimum distance of 20 feet.
  - 5. Finished grade of topsoil shall be at least 6 inches below bottom line of window or other building wall openings (weep holes, etc.) unless greater depth is shown.
- D. ROADWAY, DITCH, AND PARKING LOT GRADING**
- E. **Road Mix Method** - Prior to placement, the Contractor shall windrow and equalize the materials, including water, to the satisfaction of the Engineer. The Contractor shall use a blade or other suitable equipment to spread the materials. The Contractor shall windrow granular materials dumped on the prepared surface prior to incorporating additives.
  - F. **Central Plant Mix Method** -Prior to placement, the Contractor shall process and uniformly feed materials, including water, into the mixer at a predetermined rate. The plant shall be equipped with positive proportioning devices and shall thoroughly mix the materials.
  - G. Processed granular material shall be placed in accordance with the following requirements.
    - 1. **Mainline:** Granular material placed on the mainline portion of the roadway shall be processed by either road mix method or central plant mix method. When the material is laid by a spreader, the material shall have been previously processed by the central plant mix method. The material placed shall be limited to the quantity necessary to construct a maximum of a 4 inch compacted layer.
    - 2. **Shoulders:** Granular material placed on the shoulder portion of the roadway shall be processed and placed in accordance with the following:
      - a. Adjacent to PCC Pavement: Granular material placed adjacent to Portland cement concrete pavement shall be processed by the central plant mix method and placed with a spreader approved by the Engineer. The material placed shall be limited to the quantity necessary to construct a maximum of a 4 inch compacted layer.
      - b. Adjacent to AC Pavement: Granular material placed adjacent to asphalt concrete pavement shall be processed and placed by one of the following methods:
        - 1) Granular material shall be processed by the central plant mix method and placed with a spreader approved by the Engineer. The material placed shall be limited to the quantity necessary to construct a maximum of a 4 inch compacted layer.
        - 2) Granular material shall be placed on the shoulder and processed by the road mixed method. The material placed shall be limited to the quantity necessary to construct a maximum of a 2 inch compacted layer.

When granular material is placed on the shoulder and the final finished surface is to remain granular surface next to either PCC pavement or AC pavement, the Contractor may use either of the methods described in 260.3 A.2.b.

- H. The granular material shall be spread evenly to the specified width. Watering shall be accomplished during the spreading operation.
- I. The final rolling of the top surface of the granular material shall embed as many loose stones as possible. The finished surface shall be smooth and free from waves and the Contractor shall finish the surfacing materials to within  $\pm 0.5\%$  of the typical section cross slope.
- J. The quarter crown within any 12 foot transverse length (or actual lane width paved with a single paver pass) shall not exceed 0.04 feet when measured with a straight edge, string line, or other suitable equipment. The centerline shall be finished to a transverse distance within  $\pm 0.25$  feet of the plans shown location of centerline.
- K. Granular material used for backfilling unclassified excavation dig outs, intersecting roads, and entrances shall be compacted to the satisfaction of the Engineer. RCA shall not be used in areas where drainage fabric, edge drains, or other similar drainage systems are present except RCA will be allowed where approach drains and transverse drains are present.
- L. **Subbase, Base Course and Select Granular Fill:**
  - 1. Each layer shall be compacted to the specified density before the next lift is placed and shall be rolled until a uniform and stable surface is obtained.
    - a. Subbase shall be compacted to 95% of the maximum dry density.
    - b. Base Course shall be compacted to 97% of the maximum dry density.
    - c. The maximum dry density will be determined by SD 104 Method 4. The percent of the maximum dry density will be determined by SD 105, SD 110, or SD 114.
- M. **Subbase, Salvaged and Base Course, Salvaged:**
  - 1. Compaction and density requirements shall be a minimum of 95% of the target dry density established by SD 219 and compacted under the following conditions:
    - a. Material shall have a minimum of 4% moisture uniformly blended throughout the depth of the lift of material. The percent moisture may be adjusted by the Engineer.
    - b. A minimum of 1 test strip for each lift placed shall be completed to determine the target dry density and optimum rolling sequence. The test strips will remain in place as part of the completed work.
    - c. The depth of the test strip lift shall be representative of the project.
    - d. When there is a significant change in mix proportions, weather conditions, equipment, or other controlling factors, the Engineer may require construction of another test strip to check target density.
    - e. Pneumatic tired rollers shall have an effective roller weight of at least 250 pounds per inch of roller width or satisfactory vibratory compaction equipment. Tires shall be uniformly inflated so their air pressures will not vary by more than 5 psi. Rollers shall be operated with tire pressures and wheel loads within the manufacturer's recommended range for the size and ply of the tire being used.
    - f. Steel face rollers shall furnish a minimum rolling weight of 275 pounds per inch of rolling width.
- N. **Gravel Cushion and Gravel Cushion, Salvaged:**
  - 1. Compaction to a specified density is not required.
  - 2. Rolling shall proceed simultaneously with the spreading and watering and continue in overlapping strips until a uniform, stable surface is obtained. Pneumatic tired rollers shall have an effective roller weight of at least 250 pounds per inch of roller width or satisfactory vibratory compaction equipment. Tires shall be uniformly inflated so their air pressures will not vary by more than 5 psi. Rollers shall be operated with tire pressures and wheel loads within the manufacturer's recommended range for the size and ply of the tire being used.
  - 3. Steel face rollers shall furnish a minimum rolling weight of 275 pounds per inch of rolling width.
- O. **Gravel Surfacing and Gravel Surfacing, Salvaged:**
  - 1. Compaction to a specified density is not required.
  - 2. Rolling shall proceed simultaneously with the spreading and watering and continue in overlapping strips until a uniform, stable surface is obtained.
  - 3. Pneumatic tired rollers shall have an effective roller weight of at least 250 pounds per inch of roller width or satisfactory vibratory compaction equipment. Tires shall be uniformly inflated so their air pressures will not vary by more than 5 psi. Rollers shall be operated with tire pressures and wheel loads within the manufacturer's recommended range for the size and ply of the tire being used.
  - 4. Steel face rollers shall furnish a minimum rolling weight of 275 pounds per inch of rolling width.
- P. **Full Depth Reclamation (FDR)**

1. Compaction and density requirements shall be a minimum of 95% of the target dry density established by SD 219 and compacted under the following conditions:
2. Material shall have a minimum of 4% moisture uniformly blended throughout the depth of the lift of material. The percent moisture may be adjusted by the Engineer.
3. A minimum of 1 test strip for each lift placed shall be completed to determine the target dry density and optimum rolling sequence. The test strips will remain in place as part of the completed work.
4. The depth of the test strip lift shall be representative of the project.
5. When there is a significant change in mix proportions, weather conditions, equipment, or other controlling factors the Engineer may require construction of another test strip to check target density.

**Q. Rip Rap**

1. Slopes to be protected by riprap shall be free of brush, trees, stumps, and other objectionable material and shall be dressed to a smooth surface. Soft or spongy material shall be removed to the specified depth and replaced with approved material. Filled areas shall be thoroughly compacted. All excavation required to construct the slope to the configuration detailed in the plans shall be incidental to the payment for riprap.
2. When drainage fabric is specified on the plans, the surface to be covered shall be smooth, free of obstructions, and shall conform to plan shown dimensions prior to placement of the drainage fabric. The drainage fabric shall be placed under and along all sides of the riprap that are in contact with earth, unless otherwise shown on the plans. Lapped joints in the drainage fabric shall be placed transverse to the direction of flow with the overlap in the direction of flow. All lapped joints shall be lapped a minimum of 1 foot. Vehicles and equipment shall not be operated directly on the drainage fabric.
3. Protection for structure foundations shall be provided as early as the foundation construction permits. The area to be protected shall be cleaned of waste materials.
4. Riprap shall be placed in a manner which will produce a reasonably well graded mass of stone with the minimum practicable percentage of voids. Riprap shall be placed to its full course thickness in one operation without displacing the underlying material. Bridge berms, channel slopes/bottoms, and other surfaces that will be covered with riprap shall be finished to an elevation that will permit the placement of the required depth of riprap and match plan elevations or existing channels. Placing of riprap in layers, or by dumping into chutes, or similar methods likely to cause segregation will not be permitted. The larger stones shall be well distributed and the entire mass of stone shall conform to the gradation specified.
5. In order to produce a compact riprap protection in which all sizes of material are placed in their proper proportions, hand placing or rearranging of individual stones by mechanical equipment may be required.
6. The riprap protection shall be placed in conjunction with the construction of the embankment. To prevent mixture of embankment and riprap, sufficient lag in construction of the riprap may be necessary. The Contractor shall maintain the riprap protection until accepted. Material displaced by any cause shall be replaced.

**3.2 DISPOSAL OF UNSUITABLE AND EXCESS EXCAVATED MATERIAL:**

- A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off property.
- B. Remove from site and dispose of any excess excavated materials after all fill and backfill operations have been completed.
- C. Segregate all excavated contaminated soil designated by the Resident Engineer from all other excavated soils, and stockpile on site on two 6 mil polyethylene sheets with a polyethylene cover. A designated area shall be selected for this purpose. Dispose of excavated contaminated material in accordance with State and Local requirements.

**3.3 CLEAN UP:**

- A. Upon completion of earthwork operations, clean areas within contract limits, remove tools, and equipment.
- B. Provide site clear, clean, free of debris, and suitable for subsequent construction operations.
- C. Remove all debris, rubbish, and excess material from property.

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**SECTION 32 92 00  
TURF AND GRASSES**

**PART 1 – GENERAL**

**1.1 SUMMARY**

- A. Work consists of preparing a seedbed, furnishing and planting seed on disturbed areas within limits of the work, and maintaining turf areas until acceptable. Items included but not limited to, are Seed, Fertilizer, Mulch, Watering, and Turf Maintenance.

**1.2 REFERENCES**

- A. South Dakota Department of Transportation Standard Specifications for Roads and Bridges, Current Edition, and all Supplemental Specifications and all Supplemental Specifications for Errata (SD DOT SSRB).
  - 1. Section 230 – Salvaging, Stockpiling and Placing Topsoil
  - 2. Section 730 – Seeding
  - 3. Section 731 – Fertilizing
  - 4. Section 732 – Mulching
  - 5. Section 733 – Sodding
  - 6. Section 734 – Erosion Control and Water Pollution Control

**1.3 SUBMITTALS**

- A. Topsoil nutrients test results.
- B. Seed mix: Certification in accordance with SD DOT SSRB Section 730.2.C.
- C. Fertilizer: Certification in accordance with SD DOT SSRB Section 731.2.C.
- D. Sod: Certification of grasses comprising of proposed sod.

**1.4 SEASONAL LIMITATIONS**

- A. Permanent seeding and sodding shall not be done between June 1 and August 1 without written authorization.
- B. After October 15, dormant seeding may be done when the ground is not frozen and condition of the soil permits preparation of a satisfactory seedbed.

**PART 2 –PRODUCTS**

**2.1 MATERIALS**

- A. Seed
  - 1. Seed furnished shall be the best quality seed available for the kind and variety specified.
  - 2. Seed shall comply with the requirements of the South Dakota Seed Law and be "Blue Tag" certified, governed by Federal Regulations.
  - 3. Origin Limitations – Seed furnished shall have been grown in South Dakota or an area comparable to South Dakota's growing conditions.
  - 4. Seed Testing
    - a. Seed shall be tested within nine (9) months prior to the planting date.
    - b. Testing shall be, performed by a commercial seed testing lab or a registered member of the Society of Commercial Seed Analysts (Registered Seed Technologist).
    - c. Contractor shall furnish the Engineer with a certified test report prior to the start of seeding operations.
    - d. Seed not planted within the nine (9) month period shall be retested for dormant seed, hard seed, and germination. A new certified test report shall be furnished.
    - e. Testing shall be the responsibility of the Contractor.
  - 5. Labeling
    - a. Contractor shall notify Engineer a minimum of 72 hours before seeding begins.
    - b. Contractor shall ensure seed delivered to project site is accessible for Engineer to verify each bag of seed delivered to the project bears a tag, which shows the following information:
      - 1) Name and address of supplier.
      - 2) Project number for which the seed is to be used.
      - 3) Suppliers lot number for each kind of seed in the mixture.
      - 4) Origin (where grown) for each kind of seed.

- 5) Purity, germination, and other information required by South Dakota Seed Law for each kind of seed.
  - 6) Pounds of bulk seed of each kind of seed in each bag.
  - 7) Total pounds of bulk seed mixture in each bag.
  - 8) Pounds of pure live seed (PLS) of each kind of seed in each bag.
  - 9) Total pounds of pure live seed (PLS) mixture in each bag.
  - 10) Dormant seed and hard seed.
5. Permanent Seed Mix:
- 20% Blue Fescue
  - 20% Chewings Fescue
  - 20% Creeping Red Fescue
  - 20% Hard Fescue
  - 10% Perennial Ryegrass
  - 10% NuBlue Kentucky Bluegrass
6. Permanent seed mix rate of application: 200# per acre
7. Cover Crop Seeding
- a. Cover crop seeding is required when permanent seeding is not permitted.
  - b. Cover crop seeding shall be used only between June 1 and August 1 as a means for temporary ground cover for soil stabilization.
  - c. Seed mixture shall be in accordance with SD DOT SSRB Section 730.3.D.
  - d. Cover crop seeding is not a substitution of permanent seeding. Contractor shall plant permanent seed mixture when seasonal limitations are lifted.
  - e. Contractor shall complete cover crop seeding, if required per this specification, at no additional cost.
- B. Sod
1. Shall conform to the requirements established within SD DOT SSRB Section 733.2.
  2. Original seed mixture shall match the seed mixture identified in Section 2.1.A.5 of this specification or Pre-approved in writing by the Engineer.
- C. Fertilizer
1. Fertilizer shall be a dry, standard commercial product conforming to the South Dakota Fertilizer Law and subsequent amendments or revisions.
  2. Each bag or other container shall clearly show:
    - a. Net weight of the contents
    - b. Name and address of the manufacturer
    - c. Brand and grade
    - d. Guaranteed analysis of the contents showing the minimum percentages of total nitrogen available, phosphoric acid, and water soluble potash, in that order.
  3. Fertilizer shall be 18-46-0.
- D. Mulch
1. Fiber Mulch (Preferred)
    - a. Shall conform to the requirements established within SD DOT SSRB Section 732.2
    - b. Water for fiber mulch shall be considered incidental to the mulch and no measurement or payment will be made.
  2. Grass Hay or Straw Mulch
    - a. Shall conform to the requirements established within SD DOT SSRB Section 732.2.A.
    - b. Mulch shall have been baled dry, in bales of approximately equal weight and shall be relatively dry when applied.

## **PART 3 — EXECUTION**

### **3.1 PLANTING REQUIREMENTS**

- A. Topsoil
1. Areas to be seeded shall have a minimum depth of 6 inches.
  2. Contractor shall prepare topsoil for planting operations by loosening, fine grading, rolling, etc.
  3. Contractor shall take samples of topsoil material and test soil for proper nutrients. Costs for testing shall be the Contractor's responsibility.
  4. Contractor shall incorporate nutrient supplements as necessary to condition soil for optimal growing conditions.

- B. Fertilizer
  - 1. Apply not more than forty-eight (48) hours prior to seeding or sodding.
  - 2. Apply at a rate of 200# per acre
  - 3. Fertilizer shall be applied in accordance with SD DOT SSRB Section 731.3.A.
- C. Within seasonal limitations, seeding shall be done as soon as finish grading of topsoil has been completed.
- D. Seed shall not be sown when the wind is strong enough to interfere with uniform seed application.
- E. Seed shall not be sown on areas under water.
- F. Equipment and Methods
  - 1. Seedbed Preparation
    - a. Lumps or clods exposed by the initial pass of tillage equipment over three (3) inches in diameter shall be broken up. The number of additional passes required breaking up lumps or clods shall be kept to a minimum. Working the soil to a fine, pulverized condition shall be avoided.
    - b. After seedbed preparation has been completed, the Contractor shall pick up and dispose of all loose stones or boulders having a vertical projection above the soil surface. Logs, stumps, brush, weeds, cables, or other foreign material, which might interfere with the proper operation of drills, mowers, or other implements, shall be disposed of by the Contractor.
  - 2. Drilling
    - a. Provide a loose planting depth of one to one and one-half (1 - 1 ½) inches before compaction and a final planting depth of three-fourths (¾") to one (1") inch.
    - b. On areas where a press drill cannot be operated satisfactorily, hydraulic, cyclone, knapsack hand-operated, or other broadcast type seeders may be used, when approved by the Engineer.
- G. Placing Mulch
  - 1. Fiber Mulch (Preferred)
    - a. Rate of application shall be 2000 lbs. per acre unless otherwise specified by the Engineer.
    - b. Excessive thickness of mulch, which will smother grass seedlings, shall be avoided.
    - c. Mulch shall be placed on a given area as soon as possible, or within 48 hours after seeding.
  - 1. The rate of application shall be 4000 lbs. per acre unless otherwise specified by the Engineer.
  - 2. The mulch shall be placed within forty-eight (48) hours after the seeding has been completed.
  - 3. Mulching operations shall not be performed during periods of high winds, which preclude the proper placing of the mulch. The placing of mulch shall begin on the windward side of the areas to be covered.
  - 4. Mulch shall be blown from a machine designed for that purpose and uniformly distributed over the seeded areas.
  - 5. Mulch containing excessive moisture, which prevents uniform feeding through the machine, shall not be used.
  - 6. Bales shall be broken up and loosened as they are fed into the blower to avoid placing of matted or unbroken lumps.
  - 7. Mulch shall be placed uniformly over the seeded areas with a maximum of approximately ten percent (10%) of the soil surface visible through the mulch blanket prior to mulch tiller (punching) operation.
  - 8. Excessive cover, which will smother seedlings of small seeded grasses, shall be prohibited. The Engineer may order the placement of mulch on any area where protection is considered necessary to forestall erosion or encourage turf establishment.
  - 4. Punching Mulch
    - a. Immediately following application, the mulch shall be punched into the soil
    - b. Push mulch into soil approximately three (3) inches with ends exposed above the soil surface.
- H. Contractor shall return to site in April/May of following year to verify growth, over-seeding will be required if ground cover is not more than 75%.

### **3.2 SODDING**

- A. Topsoil
  - 1. Areas to be seeded shall have a minimum depth of 6 inches.
  - 2. Contractor shall prepare topsoil for planting operations by loosening, fine grading, rolling, etc.
  - 3. Contractor shall take samples of topsoil material and test soil for proper nutrients. Costs for testing shall be the Contractor's responsibility.
  - 4. Contractor shall incorporate nutrient supplements as necessary to condition soil for optimal growing conditions.
  - 5. Sodding shall be done as soon as finish grading of topsoil has been completed.
- B. Fertilizer
  - 1. Apply not more than forty-eight (48) hours prior to seeding or sodding.

2. Apply at a rate of 200# per acre
  3. Fertilizer shall be applied in accordance with SD DOT SSRB Section 731.3.A.
- C. Sodding
1. Conform to the requirements established within SD DOT SSRB Section 733.3.

### **3.3 TURF MAINTENANCE**

- A. Establishment of Planted Turf
1. Following completion of seeding operations, foot, vehicular, or equipment traffic over the seeded area shall be kept to a minimum. Areas damaged from such traffic shall be reworked and reseeded as determined by the Engineer.
  2. Contractor shall conduct turf maintenance until a minimum 75% ground cover has been established.
  3. Contractor and Engineer shall periodically review turf condition until established ground cover is acceptable.
  4. Maintenance shall consist of Watering, Mowing, Trimming, Weeding, Rock or Impervious Debris Removal, Topsoil Recovery and Placement, Over-Seeding, Fertilizing, and Mulching.
- B. Establishment of Sod
1. Contractor shall conduct turf maintenance for a period of not less than 60 days. Should a period of 60 days not be reached due to seasonal changes the Contractor shall continue turf maintenance the following spring.
  2. Maintenance shall consist of Watering, Mowing, Trimming, Erosion Corrections, Sod Replacement, and Fertilizing.
- C. Watering
1. Contractor shall conduct watering on a regular basis to ensure underlying soil bed remains in a moist condition for optimum vegetation growth.
- D. Mowing and Trimming
1. Contractor shall maintain vegetation height at 3 inches. Vegetation shall not exceed 5 inches.
  2. Contractor shall keep planted areas in a neat and clean appearance.
  3. Contractor shall collect grass clippings, remove from property, and properly dispose when clippings will result in a dense mulch that will prevent the growth of grass.
- E. Weeding
1. Contractor shall remove weeds within seeded and/or sodded areas to the satisfaction of the Engineer and Owner until minimum ground coverage has been obtained and accepted in writing by Engineer.
- F. Rock or Impervious Debris Removal
1. Contractor shall remove rocks and other impervious debris  $\frac{3}{4}$  inch or larger in bare areas until minimum ground coverage has been obtained and accepted in writing by Engineer.
- G. Topsoil Recovery, Placement, and Erosion Corrections
1. Contractor shall recovery any topsoil that has eroded due to no vegetation or mulch coverage.
  2. Contractor shall fill in ruts or washouts caused by erosion of topsoil. Surface condition shall be restored to a smooth mowable surface.
  3. Contractor shall re-install topsoil washed out from under sod, ensure sod is properly positioned, and re-pin as needed to ensure topsoil and sod remain in place.
- H. Over-Seeding
1. Contractor shall reseed any area on which the original seed has been lost or displaced.
  2. Contractor shall conduct reseeding of bare areas as needed at the original rate of application.
- I. Fertilizing
1. Contractor shall conduct fertilizing of planted areas every four (4) weeks, at the original rate of application, until minimum ground coverage has been obtained and accepted in writing by Engineer.
- J. Sod Replacement
1. Contractor shall replace any section of sod that is determined to not be actively growing, as agreed upon by Contractor and Engineer, at no additional cost to the owner.
- K. Mulching
1. Contractor shall re-mulch any area on which the original mulch has been displaced as a result of excessive wind, water, or other causes and topsoil is subject to erosion.

**END SECTION 32 92 00**