

La Presa Community Park – Youth Baseball Field

WEBB COUNTY



M. A. Peña

Architect's Project #: 1204

Date Issued: November 16, 2016

SPECIFICATIONS

Project Directory

ARCHITECT:
Hickey Peña Architects
919 Victoria
Laredo, TX 78040
956.722.8186

CIVIL ENGINEERING:
Slay Engineering
9901 McPherson Rd.
Laredo, TX 78045
956.791.0405

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DIVISION A

Request For Proposals



Request for Competitive Sealed Proposals (RFP)
RFP # 2016-007
“La Presa Community Park – Youth Baseball Field Project”
Due: December 5, 2016 at 2pm or before

Notice is hereby given that Webb County is currently accepting Sealed RFP from qualified Contractors through a formal Request for Competitive Sealed Proposal delivery method in accordance with the Texas Government Code; Chapter 2269 (Contracting and Delivery Procedures for Construction Projects) to construct a youth baseball field at La Presa Community Park. All RFP are subject to the terms and conditions of this formal solicitation.

The accompanying RFP with its terms, conditions, attachments and all other forms in this RFP package are due by or before 2 p.m. (Central Time) on Monday, December 5, 2016. ***RFP received after the due date and time will not be accepted.*** All RFP meeting the required deadline will be read publicly at the following location in accordance with Webb County Purchasing Policies and Procedures:

Please Mail or Hand Deliver RFP Proposals to:

Webb County Clerk’s Office
1110 Victoria Street, 2nd Floor, Suite 201
Laredo, Texas 78040

Copies of the RFP package are available on our website:

<http://www.webbcountytexas.gov/PurchasingAgent/PublicNoticeRFP/>

Please submit (1) original RFP package and (8) copies in a sealed envelope clearly marked on the outer front lower left corner as follows:

RFP 2016-007 “La Presa Community Park - Youth Baseball Field Project”.

The Contract Performance for this project shall be **60 Calendar Days** as defined in Draft Contract A101-2007 and A201-2007 included in the Specifications manual.

The scope of work involves construction of a new youth baseball field as per plans and specifications prepared by Hickey Peña Architects dated November 16, 2016. Proposers should make note of all Alternates proposed for the project.

Only proposals and proposal guaranties actually in the hands of the designated official at the time set in this Notice to Proposers shall be considered. Proposals submitted by telephone, telegraph, or fax, will not be considered.

Contractors are expected to inspect the site of the work and inform themselves regarding all local conditions.

Copies of the plans and specifications may be reviewed free of charge at the office of the Owner – Webb County or copies may be obtained upon a fee of \$75.00 for each set of documents

Webb County reserves the right to reject any and all RFP proposals, to waive informalities in the RFP process, or to terminate the RFP process at any time, if deemed in the best interest for Webb County.

INSTRUCTIONS TO PROPOSERS

Article I. Examination of Contract Documents and Site:

1. Each proposer, before submitting his proposal, shall fully examine and acquaint himself with the contract documents and the site of the proposed project. he shall make such investigation as he may deem necessary to fully inform himself of the existing conditions, facilities, difficulties, restrictions and requirements incident to completion of the project under the terms of the contract.
2. Failure of the proposer to acquaint himself adequately with the site and such conditions, facilities, difficulties, restrictions and requirements will not relieve him of his obligation to perform the entire contract at the price set forth in his proposal.

Article II. Contract Documents:

1. Drawing and specifications are on file at the offices of the Webb County.
2. If any proposer is in doubt as to the meaning of any part of the drawings, specifications, or other contract documents, or if he discovers what he considers to be a discrepancy, omission or conflict in such contract documents, he shall immediately call architect's attention to same by written notice or request for an interpretation of same. Any opinion expressed by architect in interpreting the contract documents shall not be binding upon owner, nor does architect warrant that the owner will accept his interpretation of such document.

Article III. Conditions of the Contract:

The conditions of the contract consisting of the general conditions and the supplementary general conditions shall govern the construction of the entire project, in the event of conflict between the provisions of the general conditions and the supplementary general conditions, **the provisions of the general conditions shall control.**

General Conditions

The standard form promulgated by the American Institute of Architects, AIA document no. A-201, 2007 edition entitled " the General Conditions of the contract for the construction of buildings" shall constitute the general conditions of the contract. The terms of such documents are incorporated herein by Draft Documents.

Article 1. Definitions

The term "owner" refers to **Webb County** the term "Architect" refers to Hickey Peña Architects and the architect's authorized representative. The term "project" refers to **La Presa Park – Youth Baseball Field** the scope of which is set forth below.

The term "Contractor" refers to the person or firm to whom owner has awarded the contract for the completion of the project.

The term "Contract Documents" refers to and consists of the instructions to proposers, the proposal, the agreement (also referred to as the construction contract), the general and supplementary general conditions of the contract, and the drawings and specifications for the general construction of the above referenced-project in accordance with the plans and specifications dated November 16, 2016.

Article 2. Scope of Work:

Unless otherwise specified in the contract documents, contractor shall furnish all labor, services, materials, tools, equipment and supervision necessary to the full and final completion of the project, and everything incidental there to, as shown on the drawings, stated in the specifications, or reasonably inferable therefrom, all in accordance with the contract documents.

Article 3. Constructing the Contract Documents:

In the event of ambiguity or conflict in the contract documents: supplementary general conditions take precedence over general conditions; figures take precedence over scale dimensions; and descriptive notes take precedence over general notes or code indications; **unless the contrary intention is apparent.**

Except as provided above, changes in contract documents made with the consent of all parties in ink control those printed or typed, and type written provisions control over printed, or mimeographed provisions. In the event errors, conflicts, omissions or discrepancies are noted in the contract documents or in the work done by other affecting his work, contractor shall notify architect at once and architect will issue instructions to correct such errors, conflicts or discrepancies. This includes typographical errors in the specifications and notional errors on the drawings, where doubtful interpretation. If, after such errors, conflicts, omissions or

discrepancies have been noted, contractor proceeds with the work so affected without instructions from the Architect, he shall make good any resulting damage or defect.

Article 4. Drawings and Specifications:

Architect has arranged the drawing and specifications into designated sections and divisions for convenience of reference only. such arrangement is not to be considered as a complete segregation of all the work required to be performed, or materials to furnished, by a given contractor, sub-contractor or material man. each contractor, sub-contractor or material man must review and consider the contract documents in their entirety.

In general, the drawings will indicate dimensions, positions, and this kind of construction. Work not particularly detailed, marked, or specified shall be the same as similar parts that are detailed, marked or specified.

There are certain intricacies of construction that are impracticable to specify in detail or to fully cover on the drawings, but all such details are to be worked out along the lines of good practice, and in compliance with the ordinances covering such work.

Contractor, upon completion of the project, shall furnish architect with "as-built" drawings showing actual location in line and elevation of all new exterior utility lines within the limits of site and of any relocation from that shown on the drawings of concealed piping or conduit within lines of the building.

Article 5. Contractor's Schedule:

Within one (1) week after the effective day of the construction contract, contractor shall furnish Architect a complete schedule of anticipated job progress, schedule of order placement for materials, and schedule for material delivery. Contractor shall immediately notify architect of the occurrence or anticipated occurrence of any deviation therefrom.

Article 6. Materials:

Unless otherwise indicated in the contract' documents, all materials shall be new, in strict compliance with the specifications and the best of their respective kinds. Before ordering any materials or doing any work, contractor shall note and review all pertinent measurements at the site and shall be responsible for the correctness of same no extra charge or compensation will be allowed on account of any difference between actual dimensions and the measurements indicated on the drawings. Any differences which may be found shall be submitted to architect for his consideration and instructions before proceeding with the work.

Materials shall be furnished at such times and in such quantities as to insure the uninterrupted progress of the work according to schedule. materials stored shall be properly protected from weather or damage.

Upon receipt of notice from architect that any material placed in the project or on the site is not of the quality specified or has been improperly placed, contractor shall remove same from the site or have same replaced, as the case ,may be, within 24 hours after receipt of such notice.

Article 7. Handling Materials:

Contractor shall be responsible for the proper care and protection of all materials, tools and equipment delivered to the site for his use.

When any existing or constructed area of the project is used as a shop, storeroom, or otherwise, the contractor will be held responsible for any repairs, patching or cleaning arising from such use. Contractor shall protect and be responsible for any damage to his work or material, from the date of the contract until the final payment is made, and shall make good without cost to owner, any damage or loss that may occur during this period.

Contractor shall handle all materials as directed, so that they may be inspected by architect. should any material be found defective or in any way not' in accordance with contract, such material, without regard to the stage of completion, may be rejected by architect and, if so rejected, shall be removed at once from the premises by contractor installing same.

Article 8. Substituted Materials, Products, Methods or Services:

In certain instances specific materials, products, methods and services have been specified by brand or trade-name partly for the purpose of establishing the effect or standard of quality desired. upon the prior written approval of architect, substitutions for such specifically named materials, products, methods or services may be made provided the materials, products, methods or services desired to be substituted have been proven to architect to provide the effect or standard of quality desired. The decision of the architect is absolute and final.

Article 9. Inspection and Testing of Materials:

All materials and equipment used in the construction of the project shall be adequately inspected and tested in accordance with accepted standards at no expense to owner, unless otherwise specifically provided in the contract documents.

Article 10. Laying out Building:

Contractor shall employ an experienced and competent civil engineer to establish a permanent bench mark to which easy access may be had during the progress of the work, determine all lines and grades, and verify same from time to time during the progress of the work.

Article 11. Temporary Facilities:

Contractor shall make temporary connections for all utilities necessary during construction and shall remove them after completion of the project.

Contractor shall provide and maintain sanitary facilities for workmen at the job in accordance with the laws of Texas and the code ordinances of the city and county at location of construction. Contractor shall completely remove such facilities upon direction of the architect when the project is completed.

During construction, contractor shall provide and erect at the project site according to the instructions of architect a sign approximately 4 feet high and 8 feet long. No other signs will be erected without the prior approval of architect and owner.

Article 12. Cooperation with owner and city building officials:

When required, contractor shall notify the proper official of the county and/or the city in advance of all stopping and starting of construction. contractor shall cooperate with the officials at all times. If any authorized official, or authorized representative of owner, should deem an inspection necessary, contractor shall provide the proper facilities to insure that such official, or representative, can conveniently examine and inspect the work.

Article 13. Risk of Loss and Protection of Work:

Prior to acceptance by owner, contractor shall bear all risk of loss to the project from any and all causes, whether within or without contractor's control, save and except any damage, injury or loss which may be caused by the negligence of owner, or his employees.

Contractor shall continuously maintain adequate protection of all the work from damage and shall protect the owner's property from injury or loss arising in connection with contract. Contractor shall, at his own expense, replace or repair any such damage, injury or loss, or the same may be done at his expense by owner.

Contractor shall adequately protect adjacent property as provided by law and the contract documents.

Article 14. Re-examination of Questionable Work:

Re-examination of questionable work may be ordered by the architect, and if so ordered, the work must' be uncovered by the contractor. contractor shall pay all costs of uncovering or replacing any questionable work unless the work was covered after the inspection and approval of architect and, upon uncovering, is found to be in accordance

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with the contract documents, in which event such costs of uncovering shall be borne by owner.

Article 15. Periodic Payment on the Contract:

On or before the 15th day of each month, owner will pay to contractor the sum equal to 90% of the cost to owner of the labor performed, materials suitably stored on the site and materials built into the project during the preceding calendar month based on estimates timely certified by contractor and approved by the architect, in no event however, shall owner pay to contractor partial payments totaling more than 95% of the contract price until the final completion and acceptance of the project. upon completion and acceptance of the project architect shall issue a "certificate of substantial completion" within thirty (30) days thereafter, owner shall pay to contractor the balance due on the contract price calculated in accordance with the terms and provisions of the contract documents.

Article 16. Payments Withheld and Applied by Owner:

Contractor shall pay promptly when due all lawful demands of sub-contractors, laborers, workmen, mechanics, material man, and persons who furnish machinery or parts thereof, equipment, power tools, or any other supplies whatsoever for debts incurred in the furtherance of the performance of this contract, and shall save owner harmless from all claims growing out of such demands. Upon request by owner or architect, contractor shall furnish satisfactory evidence that all such obligations have been paid, discharged or waived. In the event contractor fails to do so, owner may, at will, after having served written notice on contractor, either pay unpaid bills of which owner has written notice or withhold from contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims. When satisfactory evidence has been received by owner that all such liabilities have been fully discharged, owner shall resume payment in accordance with the terms of the contract. In no event shall the provisions of this paragraph be construed to impose any obligation upon the owner to either contractor or his surety. In paying any unpaid bills under the contract, owner shall be deemed the agent of contractor, and any payment so made by owner, shall be considered as a payment made under the contract by owner to contractor and owner shall not be liable to contractor for any such payment made in good faith.

The provisions of this article shall be deemed as alternative to the provisions of state law relating to the matters dealt with herein, and in no event shall they be deemed do alter, amend, or change the same, nor as an attempt do so.

Article 17. Liquidated Damages and Time of Completion:

- A. After the required completion date, the contractor will be charged liquidated damages as per Division B of this manual
- B. The contractor shall plan his Proposal to include labor, materials, equipment, etc., costs that will be necessary to facilitate completion on the required date.
- C. If delays occur due to government orders, acts of the owner, or unusual acts of god, the contractor shall submit in writing within thirty days after the delay, a request for extension of time. If such request is denied by the architect, an appeal may be made to a board of arbitration as outlined in section i, general conditions, "arbitration".

Article 18. Insurance:

Contractor shall purchase and maintain in force at all times during the term of the contract, until the project is finally completed and accepted by owner, the insurance required in article 11.1.1 of the general conditions as well as the following:

A. Bodily injury and property damage liability insurance in at least the following types with the minimum limits hereafter indicated, to-wit:

<u>Bodily Injury</u>			<u>Property Damage</u>
Each			Each
<u>Person Accident</u>			<u>Accident Aggregate</u>
1. Worker's Compensation			Statutory
2. Contractor's Comprehensive			
\$500,000 \$1,000,000	\$500,000	\$599,000	
General and Protective Liability Covering:			
Premises-operations			
Independent Contractors			
Products			
Contractual			
3. Automobile Liability			
\$500,000 \$1,000,000	\$500,000	\$599,000	

Covering:

Owned Automobiles: Non-owned automobiles including hired auto mobiles and those of independent contractors.

4. Umbrella (excess liability policy) or additional limits foregoing risks \$5,000,000 limits

B. builder's risk insurance written on the Texas standard form for actual completed value, covering fire, extended coverage, vandalism and malicious mischief is to be performed to the extent of 100% of the insurable value thereof, including items of labor and material connected therewith whether in or adjacent to the structure insured, materials in place or to be used as a part of the permanent construction, and temporary structures, miscellaneous materials and supplies incident to the work.

No policy shall contain any exclusion for explosion, collapse, or underground coverage.

The loss, if any, is to be made adjustable with and payable to the owner as trustee for the insured and contractor and sub-contractor as their interests may appear.

Trustee shall deposit any money received from insurance in an account separate from all its other funds and shall distribute it in accordance with such agreement as the parties in interest may reach, or under an award of arbitrators appointed, one by the owner, another by joint action of the other parties in insert, all other procedure being as provide elsewhere in the contract for arbitration.

The trustee shall have power to adjust and settle any loss with the insurers unless one of the contractors interested shall object in writing within three working days of the occurrence of loss, and thereupon arbitrators shall be chosen as above. the trustee shall in that case make settlement with the insurers in accordance with the directors of such arbitrators, who shall also, if distribution by arbitration is required, direct such distribution.

No work shall be commenced by contractor until after the policy, or policies, evidencing the insurance coverage herein required, or certificates of such insurance providing that the insurer shall give owner fifteen (15) days written notice prior to cancellation, material revision or intention not to renew, have been filed with owner.

Article 19. Use and/or Occupancy by Owner prior to Acceptance:

After written notice to contractor, owner may use and/or occupy, before final acceptance of the project, the whole or any part of the project for the purpose for which the project is intended, provided that such proposed use and/or occupancy will not, in contractor's opinion, interfere with the completion of the work. should contractor consider that owner's proposed use and/or occupancy would interfere with the completion of the work, contractor shall, within 48 hours after receiving notice of such intended use and/or occupancy, notify owner thereof in writing if contractor does not timely object to owner's proposed use and/or occupancy it shall be conclusively presumed that contractor has no objection to such use and/or occupancy by owner, and that such use and/or occupancy will not interfere with, hinder or delay contractor in the completion of such project such use and/or occupancy shall not be considered as owner's acceptance of the project, or any part thereof, nor shall such use and/or occupancy in any way prejudice owner's right to assert any claim against contractor to which owner would have been entitled to assert in absence of any such use and/or occupancy

Article 20. Royalties and Patents:

The contractor shall pay all royalties and license fees. he shall defend all suits or claims for infringement or any patent rights and shall save the owner harmless from loss on account thereof.

Criteria for Selection of Contractor

Interested Firms shall familiarize themselves with conditions relating to the scope, specifications, and restrictions regarding the execution of work to be performed under the contract. It is the firm's responsibility to obtain any additional information it deems necessary to submit in its competitively sealed proposal, as well as in the performance of the contract. Information contained in this document should not be considered all-inclusive.

All questions or clarification regarding this CSP request must be submitted in writing to Hickey Peña Architects via email to Mr. Mario Peña, AIA (mario@hickypena.com) or Mr. Ricardo Solis, AIA (ricardo@hickypena.com)

Each question, along with the County's response will be provided in writing to all prospective providers and included as an addendum to CSP document. Any verbal communication regarding this request for qualifications will be considered non-binding on either party. Questions and answers will be posted on the website for the benefit of all interested contractors. The selected contractor will have to provide payment and performance bonds before the Letter to Proceed is issued.

CSP Evaluation

CSP will be evaluated as follows:

- | | |
|--|------------------|
| ▪ Proposal Amount | 35 points |
| ○ Use Price Form to indicate proposed price | |
| ▪ Experience | 45 points |
| ○ List completed jobs | |
| ○ List jobs currently ongoing | |
| ○ List of Webb County Projects | |
| ▪ Subcontractor list | 15 points |
| ○ List all subcontractors proposed to be used | |
| ▪ References | 5 points |
| ○ Provide list of 5 references | |
| ○ including name, tel. number, and email address of each | |

The evaluation committee may conduct the following tasks but is not an all-inclusive list of tasks that may be conducted by committee:

- Review all CSPs received for compliance with CSP terms and conditions.
- Prepare a comparative summary of proposals.
- Prepare a preliminary ranking of CSPs using a quantitative method based on the criteria presented in the RFP document and other criteria as directed by committee.
- Conduct reference checks.
- Request clarification from contractors.
- Prepare a final ranking of CSPs proposals.

Selection Team:

The following Webb County employees are involved in the selection process for this procurement:

- Mr. Luis Perez Garcia III, Webb County Engineer
- Mr. Joe Lopez, Webb County Purchasing Agent
- Mr. Leroy Medford, Executive Administrator to the Court
- Mr. Lalo Uribe, Executive Administrator to the County Judge
- Mr. Frank Sciaraffa, Webb County Commissioner, Pct. 1

Note: Do not contact these individuals about this solicitation. Since the solicitation process has started, these Webb County employees will not respond to questions about this solicitation.

PROPOSAL SCHEDULE

Activity	Time	Date	Responsible Party
Public Notice/newspaper	n/a	Nov. 20 th , 27 th	Webb Co. Purchasing Dept.
Public Notice on website	n/a	Until award is completed	Webb Co. Purchasing Dept.
Questions Due to County	No later than 12 pm	Dec. 1 st	Proposer/Contractor
Posting of answers	By 5 pm	Dec. 1 st	Webb Co. Purchasing Dept.
Sealed Proposals due	By 2pm	Dec. 5 th	Proposer/Contractor
Evaluation of Proposals	TBD	TBD	Webb Co. Evaluation Team
Award of Contract	TBD	TBD	Governing Body
Finalization of contract doc	TBD	TBD	Webb County/Contractor
Commencement of service	TBD	TBD	Webb County/Contractor

Footnote: County reserves the right to adjust time and dates on above projected schedule if it's in the best interest for Webb County.

Competitive Sealed Proposal Checklist

THIS FORM MUST BE INCLUDED WITH RFP PACKAGE; PLEASE CHECK OFF EACH ITEM INCLUDED WITH RFP PACKAGE AND SIGN BELOW TO CONFIRM SUBMITTAL OF EACH REQUIRED ITEM.

RFP # 2016-007

“La Presa Community Park - Youth Baseball Field Project”

Public Notice

Proposer may use their own format for the following required information:

~~Evidence that Contractor has provided solid waste collection service in the State of Texas for at least five (5) years or more.~~

~~Evidence that Contractor has all of the required licenses and permits to transport and dispose of non-hazardous, non-infectious solid waste in Webb County and the State of Texas.~~

~~Evidence that Contractor has necessary financial, personnel, and equipment resources necessary to perform the services required in this document.~~

Proposer must use the attachments included in this RFP for the following requirements:

A minimum of five (5) references in the State of Texas with whom the Contractor has performed substantially similar services described in this document.

General Terms & Conditions

Proposed pricing sheet

Conflict of Interest form (Form CIQ)

Certification regarding Debarment (Form H2048)

Certification regarding Federal lobbying (Form 2049)

Proposer Information

Proof of No Delinquent Tax Owed to Webb County

Webb County

Conflict of Interest Disclosure

Effective January 1, 2006, Chapter 176 of the Texas Local Government Code requires that any vendor or person considering doing business with a local government entity disclose in the Questionnaire Form CIQ, the vendor or person's affiliation or business relationship that might cause a conflict of interest with a local government entity. By law, this questionnaire must be filled with the records administrator of Webb County no later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.006, Local Government Code. A person commits an offense if the person violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor. The questionnaire may be viewed and printed by following the link before:

By submitting a response to this request, the vendor represents that it is in compliance with the requirements of Chapter 176 of the Texas Local Government Code.

The Webb County Officials who come within Chapter 176 of the Local Government Code relating to filing of Conflict of Interest Questionnaire (Form CIQ) include:

1. Webb County Judge Tano Tijerina
2. Commissioner Frank Sciaraffa
3. Commissioner Rosaura "Wawi" Tijerina
4. Commissioner John Galo
5. Commissioner Jaime Canales
6. Judge Joe Lopez, 49th Judicial District Court
7. Judge Becky Palomo, 341st Judicial District Court
8. Judge Oscar Hale 406th Judicial District Court

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 1491, 80th Leg., Regular Session. This questionnaire is being filed in accordance with Chapter 176, Local Government Code by a person who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the person meets requirements under Section 176.005(a). By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.008, Local Government Code. A person commits an offense if the person knowingly violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor.

OFFICE USE ONLY

Date Received

1) Name of person who has a business relationship with local governmental entity.

2) Check this box if you are filing an update to a previously filed questionnaire.

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date the originally filed questionnaire becomes incomplete or inaccurate.)

3) Name of local government officer with whom filer has employment or business relationship.

Name of Officer

This section (Item 3 including subjects A, B, C & D) must be completed for each officer with whom the filer has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the filer of the questionnaire?

Yes No

B. Is the filer of the questionnaire receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

Yes No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of 10 percent or more?

Yes No

D. Describe each employment or business relationship with the local government officer named in this section.

4) _____
Signature of person doing business with the governmental entity

Date

Adopted 06/28/2007

CERTIFICATION
REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY
EXCLUSION FOR COVERED CONTRACTS

PART A.

Federal Executive Orders 12549 and 12689 require the Texas Department of Agriculture (TDA) to screen each covered potential contractor to determine whether each has a right to obtain a contract in accordance with federal regulations on debarment, suspension, ineligibility, and voluntary exclusion. Each covered contractor must also screen each of its covered subcontractors.

In this certification “contractor” refers to both contractor and subcontractor; “contract” refers to both contract and subcontract.

By signing and submitting this certification the potential contractor accepts the following terms:

1. The certification herein below is a material representation of fact upon which reliance was placed when this contract was entered into. If it is later determined that the potential contractor knowingly rendered an erroneous certification, in addition to other remedies available to the federal government, the Department of Health and Human Services, United States Department of Agriculture or other federal department or agency, or the TDA may pursue available remedies, including suspension and/or debarment.
2. The potential contractor will provide immediate written notice to the person to whom this certification is submitted if at any time the potential contractor learns that the certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
3. The words “covered contract”, “debarred”, “suspended”, “ineligible”, “participant”, “person”, “principal”, “proposal”, and “voluntarily excluded”, as used in this certification have meanings based upon materials in the Definitions and Coverage sections of federal rules implementing Executive Order 12549. Usage is as defined in the attachment.
4. The potential contractor agrees by submitting this certification that, should the proposed covered contract be entered into, it will not knowingly enter into any subcontract with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the Department of Health and Human Services, United States Department of Agriculture or other federal department or agency, and/or the TDA, as applicable.

Do you have or do you anticipate having subcontractors under this proposed contract?

- Yes
 No

5. The potential contractor further agrees by submitting this certification that it will include this certification titled "Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion for Covered Contracts" without modification, in all covered subcontracts and in solicitations for all covered subcontracts.
6. A contractor may rely upon a certification of a potential subcontractor that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered contract, unless it knows that the certification is erroneous. A contractor must, at a minimum, obtain certifications from its covered subcontractors upon each subcontract's initiation and upon each renewal.
7. Nothing contained in all the foregoing will be construed to require establishment of a system of records in order to render in good faith the certification required by this certification document. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
8. Except for contracts authorized under paragraph 4 of these terms, if a contractor in a covered contract knowingly enters into a covered subcontract with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the federal government, Department of Health and Human Services, United States Department of Agriculture, or other federal department or agency, as applicable, and/or the TDA may pursue available remedies, including suspension and/or debarment.

PART B. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION FOR COVERED CONTRACTS

Indicate in the appropriate box which statement applies to the covered potential contractor:

- The potential contractor certifies, by submission of this certification, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this contract by any federal department or agency or by the State of Texas.
- The potential contractor is unable to certify to one or more of the terms in this certification. In this instance, the potential contractor must attach an explanation for each of the above terms to which he is unable to make certification. Attach the explanation(s) to this certification.

Name of Contractor	Vendor ID No. or Social Security No.	Program No.
--------------------	--------------------------------------	-------------

Signature of Authorized Representative

Date

Printed/Typed Name and Title of Authorized Representative

CERTIFICATION REGARDING FEDERAL LOBBYING
(Certification for Contracts, Grants, Loans, and Cooperative Agreements)

PART A. PREAMBLE

Federal legislation, Section 319 of Public Law 101-121 generally prohibits entities from using federally appropriated funds to lobby the executive or legislative branches of the federal government. Section 319 specifically requires disclosure of certain lobbying activities. A federal government-wide rule, “New Restrictions on Lobbying”, published in the Federal Register, February 26, 1990, requires certification and disclosure in specific instances.

PART B. CERTIFICATION

This certification applies only to the instant federal action for which the certification is being obtained and is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$100,000 for each such failure.

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No federally appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, or the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.
2. If any funds other than federally appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with these federally funded contract, subcontract, subgrant, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying”, in accordance with its instructions. (If needed, contact the Texas Department of Agriculture to obtain a copy of Standard Form-LLL.)

3. The undersigned shall require that the language of this certification be included in the award documents for all covered subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all covered subrecipients will certify and disclose accordingly.

Do you have or do you anticipate having covered subawards under this transaction?

- Yes
- No

Name of Contractor/Potential Contractor	Vendor ID No. or Social Security No.	Program No.
--	---	--------------------

Name of Authorized Representative	Title
--	--------------

Signature – Authorized Representative

Date

PROOF OF NO DELINQUENT TAXES OWED TO WEBB COUNTY

Name _____ owes no delinquent property taxes to Webb County.

_____ owes no property taxes as a business in Webb County.
(Business Name)

_____ owes no property taxes as a resident of Webb County.
(Business Owner)

Person who can attest to the above information

*** SIGNED NOTORIZED DOCUMENT AND PROOF OF NO DELINQUENT TAXES TO WEBB COUNTY.**

The State of Texas

County of Webb

Before me, a Notary Public, on this day personally appeared _____, know to me (or proved to me on the oath of _____ to be the person whose name is subscribed to the forgoing instrument and acknowledged to me that he executed the same for the purpose and consideration therein expressed.

Given under my hand and seal of office this ____ day of _____ 2014.

Notary Public, State of Texas

My commission expires the ____ day of _____ 20__

(Print name of Notary Public here)

Proposer Information



Name of Company: _____

Address: _____

City and State _____

Phone: _____

Email Address: _____

Signature of Person Authorized to Sign:

Signature

Print Name

Title

Indicate status as to "Partnership", "Corporation", "Land Owner", etc.

(Date)

Note:

All submissions relative to these RFP shall become the property of Webb County and are nonreturnable.

If any further information is required please call the Webb County Contract Administrator, Leticia Gutierrez, at (956)523-4125.

References

Name of Local / State government or private company	Address	Phone	Name of Contact	Contract Active, if not when did it expire

COUNTY OF WEBB

Terms and Conditions of Invitations for Bids/Proposals

1. GENERAL CONDITIONS:

Proposers/Bidders are required to submit their proposals upon the following expressed conditions:

- (A) Proposers shall thoroughly examine the scope of work and layouts, instructions and all other contract documents.
- (B) Proposers shall make all investigations necessary to thoroughly inform themselves regarding plant and facilities for delivery of materials and equipment as required by the bid conditions. No plea of ignorance by the bidder of conditions that exist or that may hereafter exist as a result of failure to fulfill in every detail the requirements of the contract documents of the County or the compensation of the vendor.
- (C) Proposers is advised that all County contracts are subject to all legal requirements provided for in county, state and federal statutes and regulations.

2. PREPARATION OF BIDS/PROPOSALS:

Proposals will be prepared in accordance with the following:

- (A) Unit prices shall be shown and where there is an error in extension of prices, the unit price shall govern.
- (B) Alternate bids will not be considered unless specifically requested within the proposal package.
- (C) Proposed Period of Performance (POP) must be shown and shall include Sundays and holidays.
- (D) Bidders will not include Federal taxes or State of Texas limited sales excise and use taxes in bid prices since the County of Webb is exempt from payment of such taxes. An exemption certificate will be signed where applicable upon request.

3. DESCRIPTION OF SUPPLIES:

Any catalog or manufacturer's reference used in describing an item is merely descriptive, and not restrictive, unless otherwise noted, and is used only to

indicate type and quality of material. Bidders are required to state exactly what they intend to furnish otherwise they shall be required to furnish the items as specified.

4. SUBMISSION OF BIDS/PROPOSALS:

- (A) Bids/Proposals and changes thereto shall be enclosed in sealed envelopes addressed to the Webb County Clerk. The name and address of the bidder, the date of the proposal opening and the material or service bid on shall be placed on the outside of the envelope.
- (B) Bids/Proposals must be submitted in the forms furnished. Electronic bids/proposals will not be considered. Bids/Proposals, however, may be modified by written notice provided such notice is received at the County Clerk's Office before the time and date set for the proposal opening.
- (C) Samples, when required, must be submitted within the time specified, at no expense to the County of Webb. If not destroyed or used up during testing, samples will be returned upon request at the proposer expense.

5. REJECTION OF BIDS/PROPOSALS:

- (A) The Purchasing Agent may reject a bid/proposal if it is deemed to be non responsive and/or provided by not responsible bidder/proposer.
- (B) No bid/ proposal submitted herein shall be considered if the proposer owes any delinquent taxes to the County of Webb at the time proposals are opened. In the event that the successful proposer herein subsequently becomes delinquent in the payment of his or its County taxes, such fact shall constitute grounds for cancellation of the contract.
- (C) No bid/proposal submitted herein shall be considered unless the bidder/proposer warrants that upon execution of a contract with the County of Webb, the bidder/ proposer will not engage in employment practices which have the effect of discriminating against employees or prospective employees because of race, color, sex, creed, disability, or national origin and will submit such report as the County may thereafter require to assure compliance.
- (D) The County may, however, reject all proposals whenever it is deemed in the best interest of the County to do so, and may reject any part of a bid. County may also waive any minor informalities or irregularities in any bid.

6. WITHDRAWAL OF BIDS/PROPOSALS:

Bids/Proposals may not be withdraw after the closing time and date.

7. LATE BIDS/PROPOSALS OR MODIFICATIONS:

Bids/Proposals and modifications received after the time set for the proposal submission will not be considered.

8. CLARIFICATIN OR OBJECTION TO PROPOSAL SPECIFICATIONS:

If any person contemplating submitting a proposal for this contract is in doubt as to the true meaning of the specifications, or other bid/proposal documents or any part thereof, the bidder/proposer may submit to the Purchasing Agent on or before five days prior to scheduled opening a request for clarification. All such requests for information shall be made in writing and the person submitting the request will be responsible for its prompt delivery. Any interpretation of Webb County proposal package specification instructions, if made, will be made only by Addendum duly issued. A copy of such Addendum will be posted on the web-site and email to the vendors list that have received email copy of package. The County will not be responsible for any other explanation or interpretation made or given prior to the award of the contract. Any objections to the specifications and requirements as set forth in this proposal must be filed in writing with the Purchasing Agent on or before five days prior to the scheduled opening.

Where there is a question that will not lead to an addendum, the questions will be made in writing to the Purchasing Department. The answer will be in writing posted on the website for everyone to receive the same response.

9. DELINQUENT TAXES:

All vendors seeking to do business with Webb County must owe no delinquent taxes to the County. Attestation of owing no delinquent taxes will be required. If a vendor owes taxes to Webb County, those taxes should be paid before submitting a proposal.

10. AWARD OF CONTRACT:

- (A) The contract will be awarded to the best qualified according to the bid/proposal criteria and a written award letter will be issue.
- (1) Award of a bid/proposal requires formal approval by the Commissioners Court.
 - (2) Bid/Proposal contract must also be approved by the Commissioners Court.
 - (3) The written notice to proceed will be for construction contracts provided after all contract documents are signed.

- (D) Prices must be quoted F.O.B. Webb County with all transportation charges prepaid, unless otherwise specified in the Invitation for Bids/Proposals.
- (E) Delivery time will be considered in breaking of tie proposals.
- (F) Period of Performance will commence with written Notice to Proceed.

11. BID BOND

A bid bond in the amount of 5% of the Bid/Proposal issued by an acceptable surety company shall be submitted with each bid. A certified check or Bank Draft payable to the Webb County may be submitted in lieu of the Bid Bond. All such bonds, cashier checks shall be drawn payable to Webb County.

12. PERFORMANCE AND PAYMENT BOND

A Performance Bond is require for construction work if the contract is in excess of \$100,000; and a Payment Bond is require if the construction contract is in excess of \$25,000. The requirement is for all prime contractors which enter into a formal contract with the State, any department, board, agency, municipality, county, school district or any division or subdivision. The failure of the successful bidder/proposer to execute the agreement and supply the required bonds within ten (10) days after the award or within such extended period as Webb County may grant, shall constitute a default and Webb County may, at its option either award the contract to next lowest responsible bidder, or re-advertise for bids/proposals. In either case, Webb County may charge against the bidder the difference between the amount of the bid, and the amount for which a contract is subsequently executed irrespective of whether this difference exceeds the amount of the bid bond. If a more favorable bid is received through re-advertisement, the defaulting bidder shall have no claim against Webb County for a refund.

13. WORKERS' COMPENSATION INSURANCE COVERAGE:

The Workers' Compensation Commission has adopted Rule 110.110 effective with all bids advertised after September 1, 1994. The TWCC has stated that it is aware that a statutory requirement for workers' compensation insurance coverage is not being met. Therefore, Rule 110.110 requires that all bidders be covered under workers' compensation insurance to achieve compliance from both contractor(s) and governmental entities. **Attachment A** is provided in accordance with the requirements on governmental entities. Please read carefully and prepare your bid in full compliance to TWCC Rule 110.110. Failure to provide the required certificates upon submission of a bid could result in your bid being declared non-responsive.

14. REFERENCES:

Webb County requires proposer to supply with this proposal, a list of at least three (3) references where like services have been supplied by their firm. Include name of firm, address, telephone number and name of representative.

15. STATEMENTS:

No oral statement of any person shall modify or otherwise change, or affect the terms conditions, plans and/or specifications stated in the bid/proposal packages.

16. ETHICS:

The proposer shall not accept or offer gifts or anything of value nor enter into any business arrangement with any employee, of the Webb County Purchasing Department.

17. PROPRIETARY INFORMATION:

All materials submitted to the County become public property and are subject to the Texas Open Records Act upon receipt. If a proposer does not desire proprietary information in the proposal to be disclosed, each page must be identified and marked proprietary a time of submittal. The County will, to the extent allowed by law, endeavor to protect such information from disclosure. The final decision as to what information must be disclosed, however, lies with the Texas Attorney General. Failure to identify proprietary information will result in all unmarked sections being deemed non-proprietary and available upon public request.

(Revised 2013)

PROJECT: La Presa Community Park – Youth Baseball Field

Form of Non-Collusive Affidavit

AFFIDAVIT

STATE OF TEXAS {}
COUNTY OF WEBB {}

Being first duly sworn, deposes and says

That he is _____
(A Partner or Officer of the firm of, etc.)

The party making the foregoing proposal or bid, that such proposal or Proposal is genuine and not collusive or sham; that said Proposer has not colluded, conspired, connived or agreed, directly or indirectly, with any Proposer or Person, to put in a sham Proposal or to refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the Proposal price or affiant or of any other Proposer, or to fix any overhead, profit or cost element of said Proposal price, or of that of any other Proposer, or to secure any advantage against the owner or any person interested in the proposed Contract; and that all statements in said proposal or Proposal are true.

Signature of

Proposer, if the Proposer is an individual
Partner, if the Proposer is a Partnership
Officer, if the Proposer is a Corporation

Subscribed and sworn before me this ____ day of _____, 200__

Notary Public

My Commission expires

PROPOSAL SCHEDULE

Date: _____, 2016

PROPOSAL OF:

(Name of Offeror)

TO: Webb County Clerk's Office
1110 Victoria Street, 2nd Floor, Suite 201
Laredo, Texas 78040

RE: La Presa Community Park – Youth Baseball Field Project

Dear Owner:

The Offeror named herein (hereinafter called "Offeror"), in compliance with the Invitation to Offerors and Instructions to Offerors for the LA PRESA COMMUNITY PARK – YOUTH BASEBALL FIELD ("Project") for the Webb County, State of Texas ("Owner"), having inspected the Project site and carefully examined the Project Drawings, Specifications, Addenda, and all other Contract Documents (as such term is defined in the Instructions to Offerors), hereby offers to enter into a contract to furnish all labor, materials, tools, equipment, transportation, machinery, supplies, insurance, permits, taxes and services necessary to complete the Work in accordance with the Contract Documents, within the time set forth herein, and at the prices stated herein. The Offeror fully understands the intent and purpose of the Contract Documents and the conditions of offer as set forth herein and in the Invitation to Offerors and the Instructions to Offerors. The Offeror hereby covenants and agrees that claims for additional compensation or extensions of time because of Offerors failure to familiarize itself with the Contract Documents or any condition at the Project site, which might affect the Work, will not be allowed.

The undersigned acknowledges receipt of the following Addenda to the Construction Documents and the provisions and requirements of which Addenda have been taken into consideration in the preparation of this Proposal:

NO. _____ NO. _____ NO. _____ NO. _____ NO. _____

The Owner may elect to award the Contract in whole or in part in any combination based on the following separate Base Proposal scope and amount items, and separate the award of Contract in any manner of its own choosing.

PROJECT: La Presa Park – Youth Baseball Field

Base Proposal shall consist of a lump sum.

All work covered by these documents is to be included under one or more General Contracts with bidding conditions as described in the INSTRUCTIONS TO PROPOSERS.

TOTAL BASE Price: \$ _____

TOTAL BASE Price (WRITTEN IN WORDS): _____

Allowances: Base Proposal includes an Allowance total of \$12,500 for signage, park furnishings, and ADA improvements. (Refer to Section 01020 for Allowances included in the Base Proposal).

Alternates: (Ref: Section 01030) The Owner reserves the right to accept or reject any alternate in the order of the Owner's choosing.

ALTERNATE NO. 1: ADD JOGGING TRAILS (1/4 MILE WALKING).

ADD: _____ DOLLARS (\$ _____).

ALTERNATE NO. 2: ADD PAVILION

ADD: _____ DOLLARS (\$ _____).

ALTERNATE NO. 3: ADD PLAYGROUND & SWINGS AREA.

ADD: _____ DOLLARS (\$ _____).

ALTERNATE NO. 4: ADD SOCCER FIELD (WITH EQUIPMENT).

ADD: _____ DOLLARS (\$ _____).

Contractor

Signature _____ Title

Address _____ City/State _____ Zip Code _____

Telephone Number: (____) _____

Fax Number: (____) _____

NOTE: ALL PROPOSAL ITEMS WILL BE PAID FOR WHEN COMPLETE IN PLACE, TESTED, AND ACCEPTED BY THE OWNER.

SCHEDULE OF VALUES

All Proposals shall include a Schedule of Values (SOV) to be used as a tool in evaluating the bids. All contractors shall submit the SOV in order for their bid to be considered. Contractors are to review and consider the drawings and specifications in their entirety and shall then organize the bid into the divisions found in the SOV herein. The SOV costs and quantities found herein and/or submitted do not represent a bid schedule nor does it represent the entire detail of the scope of work. However, the sum of all the values stated in the SOV shall be equal to the total base bid. It shall not be used as a list of materials or services to be provided. Only the final executed Contract, Drawings, and Specifications, with the exception of the SOV, shall be considered the Construction Documents.

BASE PRICE			
	QTY	RATE	COST SUB TOTALS
GENERAL REQUIREMENTS			
Building Permit			
General Liability			
Bonds			
Temporary Facilities			
Clean Up and Close Out			
Equipment Rental			
Landscaping & Irrigation			
ADA Allowance			\$6,000
Exterior Signage Allowance (Metal Letters)			\$3,500
Park Furnishings Allowance			\$3,000
TOTAL:			
SITE WORK (GENERAL)			
Site Demolition			
Grading			
Stabilized Entrance			
Baseball Equipment (Foul Poles, Bases, etc...)			
Baseball Backstop			
Field Turf & Infield Sand			
TOTAL:			
SUBTOTAL			
Contractor's O.H. Profit			
TOTAL BASE PRICE ESTIMATE			
TOTAL:			

ADD ALTERNATES

ADD Alternate #1: Jogging Trails (1/4 Mile Walking)

ADD Alternate #2: Pavilion (including utilities)

ADD Alternate #3: Playground and Swings Area

ADD Alternate #4: Soccer Field

CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE

The Contractor shall not commence work under this Contract until he/she has obtained all the insurance required under this paragraph and such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work on his/her Sub-Contract until the insurance required of tile Subcontractor has been so obtained and approved.

a. Compensation Insurance: The Contractor shall procure and shall maintain during the life of this Contract Workmen's Compensation Insurance as required by applicable State or Territorial law for all of hisser employees to be engaged in work at the site of the project under this contract and, in case of any such work sublet, the Contractor shall requite the Subcontractor similarly to provide Workmen's Compensation Insurance for all of the latter's employees to be engaged in such work unless such employees are covered by the protection afforded by the Contractor's Workmen's Compensation Insurance. In the case where any class of employees engaged in hazardous work on the project under this Contract and is not protected under the Workmen Is Compensation Statute, The Contractor shall provide and shall cause each Subcontractor to provide adequate employee's liability insurance for the protection of such of his/her employee as are not otherwise protected.

b. Contractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance: The Contractor shall procure and shall maintain during the life of his Contract: Contractor's Public Liability Insurance, Contractor's Property Damage Insurance and Vehicle Liability Insurance in the amount of not less than \$200,000 for bodily injury, including accidental death, to any one person and an amount not less than \$300,000 on account of any one occurrence: Property Damage in the amount not less than \$100,000 per occurrence and \$200,000 aggregate; and Vehicle Liability of \$100,000 for any one person or \$200,000 for each occurrence.

c. Subcontractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance: The Contractor shall either (1) require each of his/her Subcontractor to procure and shall maintain during the life of his/her Subcontractor, Subcontractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance of the type and in the amount specified in Subparagraph b. above or, (2) insure the activities of his/her Subcontractors in his/her policy specified in Subparagraph b. above.

d. Scope of Insurance and Special Hazards: The insurance required under Subparagraph b. and c. above shall provide adequate protection for the Contractor and his/her Subcontractor's, respectively, against damage claims which may arise from operations under this Contract, whether such operations be by the insured or by any one directly or indirectly employed by him/her and also against any of the special hazard which may be encountered in the performance of this Contract.

e. Builder's Risk Insurance (Fire and Extended Coverage): Unless otherwise provided by the Owner, the Contractor shall procure and shall maintain during the life of this Contract Builder's Risk Insurance (Fire and Extended Coverage on a 100 percent (100%) completed value basis on the insurable portion of the project. The Owner, the Contractor, and Subcontractor (as their interests may appear), shall be named as the Insured.

f. Proof of Carriage of Insurance: The Contractor shall furnish the Owner with certificates showing the type, amount, class of operations covered, effective dates and dates of expiration of policies. Such certificates shall also contain substantially the following statement: "The Insurance covered by this certificate will not be cancelled or materially altered, except after ten (10) days written notice has been received by the Owner".

CERTIFICATE OF INSURANCE

To:

Date: _____

NOTICE OF AWARD

To: _____

Project: La Presa Park – Youth Baseball Field

The **Webb County** has considered the Proposals submitted for the above described project in response to its advertisement for Proposals dated _____ and _____ and related information to Proposers.

You are hereby notified that your Proposal in the amount of \$_____, has been favorably considered for the project by the Owner. Pursuant to the Information to Proposer you are asked to sign the proposed Contract (in three duplicate originals) and to return the same, along with the required Certificate of Insurance and Payment Bond and Performance Bond within ten (10) days of your receipt of this Notice, for the approval and signature of the Owner.

For the purpose of effective date of the Performance and Payment Bond, and the required Certificate of Insurance, the date of _____ may be considered the date of the Contract, if the Documents are approved by the Owner.

If you fail to submit the proposed Contract and the Performance and Payment Bonds and the Certificate of Insurance within ten (10) days from your receipt of this Notice, your Proposal will be considered as withdrawn and your Proposal bond will be forfeited.

You are asked to acknowledge receipt of this Notice by signing in the appropriate place below.

Dated this _____ day of _____

Owner

ACKNOWLEDGMENT:

Receipt of this Notice is hereby acknowledged

Dated this ____ day of _____

Authorized Signature
Title: _____

NOTICE TO PROCEED

To: _____ Date: _____

Project: La Presa Park – Youth Baseball Field

In accordance with the construction contract dated _____
you are hereby notified to commence work on _____
Contract time is _____

Owner

The above NOTICE TO PROCEED is hereby acknowledged by _____
on this the _____ day of _____.

Authorized Signature

Name: _____ Type _____

Title: _____

PERFORMANCE BOND

(To be Used in Texas under V.A.T.S. 5160)

THE STATE OF _____ }

COUNTY OF _____ }

KNOW ALL MEN BY THESE PRESENTS: That we (1)

_____ a

(2) _____ of

hereafter called Principal and (3) _____

of _____, State of _____, hereinafter called the

Surety, are held and firmly bound unto (4) _____ of

_____ hereinafter called Owner, in the penal sum of _____

(\$ _____) Dollars in lawful money of the United States, to be paid in (5) WEBB COUNTY, TEXAS _____ for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain Contract with (6) _____

the Owner, dated the _____ day of _____ a copy of which is hereto attached and made a part hereof for the Construction of:

_____ (hereinafter called the "Work")

These notes refer to the numbers in body of Contract above:

Date of Bond must not be prior to Date of Contract.

- (1) Correct name of Contractor.
- (2) A Corporation, or Partnership or an Individual, as case may be.
- (3) Correct name of Surety.
- (4) Correct name of Owner.
- (5) County and State.
- (6) Owner.

NOW THEREFORE, if the Principals shall well, truly and faithfully perform the work in accordance with the Plans, Specifications and Contract Documents during the original term thereof, and any extensions thereof which may be granted by the Owner with or without notice to the Surety, and if he shall satisfy all claims and demands incurred under such Contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED FURTHER, that if any legal action be filed upon this Bond, venue shall lie WEBB County, State of Texas, and that the

said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the Specifications accompanying the same shall in any wise affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

IN WITNESS WHEREOF, this Instrument is executed in six counterparts, each one of which shall be deemed an original, this the ____ day of _____.

ATTEST:

(Principal) Secretary

PRINCIPAL

By: _____

(SEAL)

Address (State and Zip Code)

Witness as to Principal

Telephone Number

Address (State and Zip Code)

PAYMENT BOND

(To be Used in Texas under V.A.T.S. 5160)

THE STATE OF _____ }

COUNTY OF _____ }

KNOW ALL MEN BY THESE PRESENTS: That we

(1) _____

(2) _____ of _____

hereinafter called Principal and (3) _____

of _____, State of _____

hereinafter called the Surety, are held and firmly bound unto (4) _____ of _____

hereinafter called Owner, and unto all Persons, Firms, and Corporations who may furnish materials for, or perform Labor upon the building or improvements hereinafter referred to in the penal sum of _____

_____ (\$ _____) Dollars in lawful money of the United States, to

be paid in (5) _____ for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain Contract with (6)

_____ the Owner, dated the _____ day of _____ a copy of which is hereto attached and made a part hereof for the construction of:

(hereinafter called the "Work")

These footnotes refer to the numbers in body of contract above:

Date of Bond must not be prior to Date of Contract.

- (1) Correct name of Contractor.
- (2) A Corporation, or Partnership or an Individual, as case may be.
- (3) Correct name of Surety.
- (4) Correct name of Owner.
- (5) County and State.
- (6) Owner.

NOW THEREFORE, if the Principals shall well, truly and faithfully perform the work in accordance with the Plans, Specifications and Contract Documents during the original term thereof, and any extensions thereof which may be granted by the Owner with or without notice to the Surety, and if he shall satisfy all claims and demands incurred under such Contract, then this obligation shall be null and void; otherwise to remain in full force and effect.

This Bond is made and entered into solely for the prosecution of all claimants supplying labor and material in the prosecution of the work provided for in said Contract, and all such claimants shall have a direct right of action under the Bond as provided in Article 5160, Revised Civil Statutes 1925, as amended by House Bill 344, Acts 46 Legislature, Regular Session, 1959.

PROVIDED FURTHER, that if any legal action be filed upon this Bond, venue shall lie WEBB County, State of Texas, and that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the Specifications accompanying the same shall in any wise affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

PROVIDED FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in six counterparts, each one of which shall be deemed an original, this the ____ day of _____.

ATTEST:

_____	PRINCIPAL
(Principal) Secretary	
	By: _____
(SEAL)	_____
	Address (State and Zip Code)
_____	_____
Witness as to Principal	Telephone Number
_____	_____
(SEAL)	Surety

ATTEST:

(Surety Secretary)

(SEAL)

By: _____

Address (State and Zip Code)

Telephone Number

NOTE: If Contractor is Partnership, all Partners should execute Bond.

PERFORMANCE - PAYMENT BOND FORM

M-24, 25, Attach. Sa

Address (State and Zip Code)

Telephone Number (Area Code)

ATTEST:

(State and Zip Code)

Address (State and Zip Code)

ATTEST:

(SEAL)

Individual Principal

Business - Address

Telephone Number (Area Code)

Corporate Principal

Business Address Name

Telephone Number (Area Code)

(Affix Corporate Seal)

By:

Address (State and Zip Code)

Corporate Surety

Business Address

(Affix Corporate Seal)

Telephone:

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the _____
Secretary of the Corporation named as Principal in the within Bond; that _____
_____, who signed the said Bond on behalf of the Principal was then _____
_____, of said Corporation; that I know his signature
thereof is genuine; and that said Bond was duly signed, sealed, attested for and in behalf of said Corporation by
authority of its governing body.

Title

Date: _____

(Affix Corporate Seal)

Telephone No.

The rate of premium on this Bond is _____ per thousand. Total of premium charge
\$ _____

NOTE: The above must be filled in by Corporate Surety. Power-of-Attorney of person signed for Surety company must be attached.

A101-2007: STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

DRAFT AIA Document A101™ - 2007

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the day of in the year
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

The Architect:
(Name, legal status, address and other information)

Hickey Peña Architects +
919 Victoria
Laredo, Texas 78040
Telephone Number: (956) 722-8186
Fax Number: (815) 846-1546

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA Standard form. An Additions and Deletions Report that notes added information as well as revisions to the standard form, if available, is available for the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or execution. AIA Document A101™ 2007, General Conditions of the Contract for Construction, is adopted in this Agreement by reference. Do not use with other general conditions unless this document is modified.

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Dear Member:

11234541301

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1 THE CONTRACT DOCUMENTS
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4 CONTRACT SUM
5 PAYMENTS
6 DISPUTE RESOLUTION
7 TERMINATION OR SUSPENSION
8 MISCELLANEOUS PROVISIONS
9 ENUMERATION OF CONTRACT DOCUMENTS
10 INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner. *(Insert the date of commencement if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)*

is

If, prior to the commencement of the Work, the Owner requires time to file mortgages and other security interests, the Owner's time requirement shall be as follows:

is

§ 3.2 The Contract Time shall be measured from the date of commencement.

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than () days from the date of commencement, or as follows: *(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)*

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§ 3.1

Portion of Work	Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents.
(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

§ 3.2

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be \$ [] (S []), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:
(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 4.3

§ 4.3 Unit prices, if any:
(Identify and state the unit price; state quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price Per Unit (\$0.00)

§ 4.4 Allowances included in the Contract Sum, if any:
(Identify allowance and state exclusions, if any, from the allowance price.)

Item	Price

ARTICLE 5 PAYMENTS

§ 5.1 PROGRESS PAYMENTS

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the [] day of a month, the Owner shall make payment of the certified amount to the Contractor not later than the [] day of the [] month. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner not later than [] ([]) days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form and supported

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by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- 1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of percent (%). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201TM-2007, General Conditions of the Contract for Construction;
- 2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of percent (%);
- 3 Subtract the aggregate of previous payments made by the Owner; and
- 4 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201-2007.

§ 5.1.7 The progress payment amount determined in accordance with Section 5.1.6 shall be further modified under the following circumstances:

- 1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and *(Section 9.8.5 of AIA Document A201-2007 requires release of applicable retainage upon Substantial Completion of Work with consent of surety, if any.)*
- 2 Add, if final completion of the Work is thereafter materially delayed through ~~no~~ fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of AIA Document A201-2007.

§ 5.1.8 Reduction or limitation of retainage, if any, shall be as follows:

(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.6.1 and 5.1.6.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

§ 5.1.9

Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 FINAL PAYMENT

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- 1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2.2 of AIA Document A201-2007, and to satisfy other requirements, if any, which extend beyond final payment; and
- 2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

§ 5.2.3

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Dear Sirs:

11206041201

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 INITIAL DECISION MAKER

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A201-2007, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker. *(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)*

Redacted area for Initial Decision Maker information.

§ 6.2 BINDING DISPUTE RESOLUTION

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A201-2007, the method of binding dispute resolution shall be as follows: *(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.)*

- Arbitration pursuant to Section 15.4 of AIA Document A201-2007
- Litigation in a court of competent jurisdiction
- Other (Specify)

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201-2007.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201-2007.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201-2007 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located. *(Insert rate of interest agreed upon, if any.)*

%

§ 8.3 The Owner's representative: *(Name, address and other information)*

Redacted area for Owner's representative information.

§ 8.4 The Contractor's representative: *(Name, address and other information)*

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§ 8.5
§ 8.6
§ 8.7
§ 8.8
§ 8.9

§ 8.5 Neither the Owner's nor the Contractor's representative shall be changed without ten days written notice to the other party.

§ 8.6 Other provisions:

§ 8.7

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A101-2007, Standard Form of Agreement Between Owner and Contractor.

§ 9.1.2 The General Conditions are AIA Document A201-2007, General Conditions of the Contract for Construction.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

§ 9.1.4 The Specifications:

(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

§ 9.1.5

Section	Title	Date	Pages

§ 9.1.5 The Drawings:

(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

§ 9.1.6

Number	Title	Date

§ 9.1.6 The Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 9.

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents:

- .1 AIA Document E201™-2007, Digital Data Protocol Exhibit, if completed by the parties, or the following:

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- 2 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201-2007 provides that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor's bid are not part of the Contract Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

ARTICLE 10 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A201-2007.
(State bonding requirements, if any, and limits of liability for insurance required in Article 11 of AIA Document A201-2007.)

Type of insurance or bond	Limit of liability or bond amount (\$0.00)

This Agreement entered into as of the day and year first written above.

OWNER (Signature)

 (Printed name and title)

CONTRACTOR (Signature)

 (Printed name and title)

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41200001201

DRAFT AIA® Document A201™ - 2007

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

THE OWNER:
(Name, legal status and address)

THE ARCHITECT:
(Name, legal status and address)

Hickey Peña Architects, s.c.
6919 Victoria
Laredo, Texas 78040

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Dear Member: 11032010001

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Dear Notice:

11832010011

2

Building Permit
3.7.1

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements.

§ 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

§ 1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 INSTRUMENTS OF SERVICE

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

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§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and 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.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 CAPITALIZATION

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 INTERPRETATION

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 GENERAL

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or

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the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 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 and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

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§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other

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facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 WARRANTY

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.6 TAXES

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions. If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume

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the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect these remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- 1 Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- 2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- 3 Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 SUPERINTENDENT

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

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§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be

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required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 CUTTING AND PATCHING

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

§ 3.15 CLEANING UP

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 ACCESS TO WORK

The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss or account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

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§ 3.18 INDEMNIFICATION

§ 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to segregate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

§ 4.1.3 If the employment of the Architect is terminated, the Owner shall employ a successor architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 4.2 ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

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§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect 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 Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

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the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a separate contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 OWNER'S RIGHT TO CLEAN UP

If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

§ 7.2 CHANGE ORDERS

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect stating their agreement upon all of the following:

- 1 The change in the Work;
- 2 The amount of the adjustment, if any, in the Contract Sum; and
- 3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- 1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- 2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- 3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

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4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

1. Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
2. Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
3. Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
4. Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
5. Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 MINOR CHANGES IN THE WORK

The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

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ARTICLE 8 TIME

§ 8.1 DEFINITIONS

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 PROGRESS AND COMPLETION

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner, or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

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§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- 1 defective Work not remedied;
- 2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;

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- 3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- 4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- 5 damage to the Owner or a separate contractor;
- 6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
- or
- 7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Architect will reflect such payment on the next Certificate for Payment.

§ 9.6 PROGRESS PAYMENTS

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.7 FAILURE OF PAYMENT

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect as awarded by binding dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner and Architect,

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stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 SUBSTANTIAL COMPLETION

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties 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.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

§ 9.10.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the

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Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

1. liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
2. failure of the Work to comply with the requirements of the Contract Documents; or
3. terms of special warranties required by the Contract Documents.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 SAFETY OF PERSONS AND PROPERTY

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

1. employees on the Work and other persons who may be affected thereby;
2. the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
3. other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

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§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, 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 sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect 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 the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 HAZARDOUS MATERIALS

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

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of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 PROPERTY INSURANCE

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10.2 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falloutwork, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or

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otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.2 BOILER AND MACHINERY INSURANCE

The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ 11.3.3 LOSS OF USE INSURANCE

The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 WAIVERS OF SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the

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Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to be uncovered prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

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§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 SUCCESSORS AND ASSIGNS

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval or acquiescence in a breach there under, except as may be specifically agreed in writing.

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§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.6 INTEREST

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

§ 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- 1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- 2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;

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- 3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- 4 The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- 1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- 2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- 3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- 4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- 1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- 2 Accept assignment of subcontracts pursuant to Section 5.4; and
- 3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

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§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

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§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 MEDIATION

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings, but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 ARBITRATION

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 CONSOLIDATION OR JOINDER

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an

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additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Contractor under this Agreement.

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DIVISION B

CONTRACT TIME & LIQUIDATED DAMAGES

PROJECT: La Presa Park – Youth Baseball Field

The Contract Performance for this project shall be 60 Calendar Days as defined in the Specifications under A101-2007 and A201-2007

The time set forth in the proposal for the completion of the work is an essential element of the Contract. For each working day under the conditions described in the preceding Paragraph that any work shall remain uncompleted after the expiration of the working days specified in the Contract, together with any additional working days allowed, the amount per day given in the following schedule will be deducted from the money due or to become due the Contractor, not as a penalty but as liquidated damages.

FOR AMOUNT OF CONTRACT		
From More Than	To and Including	Amount of Liquidated Damages Per Working Days
\$0	\$100,000	\$200
100,000	500,000	400
500,000	1,000,000	550
1,000,000	2,000,000	700
2,000,000	5,000,000	850
5,000,000	10,000,000	1,200
10,000,000	15,000,000	1,500
15,000,000	20,000,000	1,700
20,000,000	Over 20,000,000	2,500

EQUAL OPPORTUNITY CLAUSE

PROJECT: La Presa Park – Youth Baseball Field

1. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex or natural origin. The Contractor will take Affirmative action to insure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color or national origin. Such action shall include, but not limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection of training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the non-discrimination clause.
2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex or natural origin.
3. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or worker's representative of the Contractor's commitments under Section 202 of Executive Order No. 11246, as amended (3CFR 169 (1974) and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. The Contractor will comply with all provisions of Executive Order No. 11246, as amended, and of the rules, regulations and relevant orders of the Secretary of Labor.
5. The Contractor will furnish all information and reports required by Executive Order No. 11246, as amended, and by the rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.
6. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of such rules, regulations or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246, as amended, and such other sanctions may be imposed and remedies invoke as provided in Executive Order No. 11246, as amended or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by law.

7. The Contractor will include the Provisions of Paragraph 1 through 7 in every Subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246, as amended, so that such provisions will be binding upon each Subcontractor or Vendor. The Contractor will take such action with respect to any Subcontract or Purchase Order, as the contracting may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a Subcontractor or Vendor as a result of such direction by the contracting agency, the Contractor may request the United States to enter into such litigation to protect the interest of the United States.

INSPECTION BY COUNTY

PROJECT: La Presa Park – Youth Baseball Field

The work covered by these Specifications shall at all times be subject to inspection by Webb County authorized inspectors.

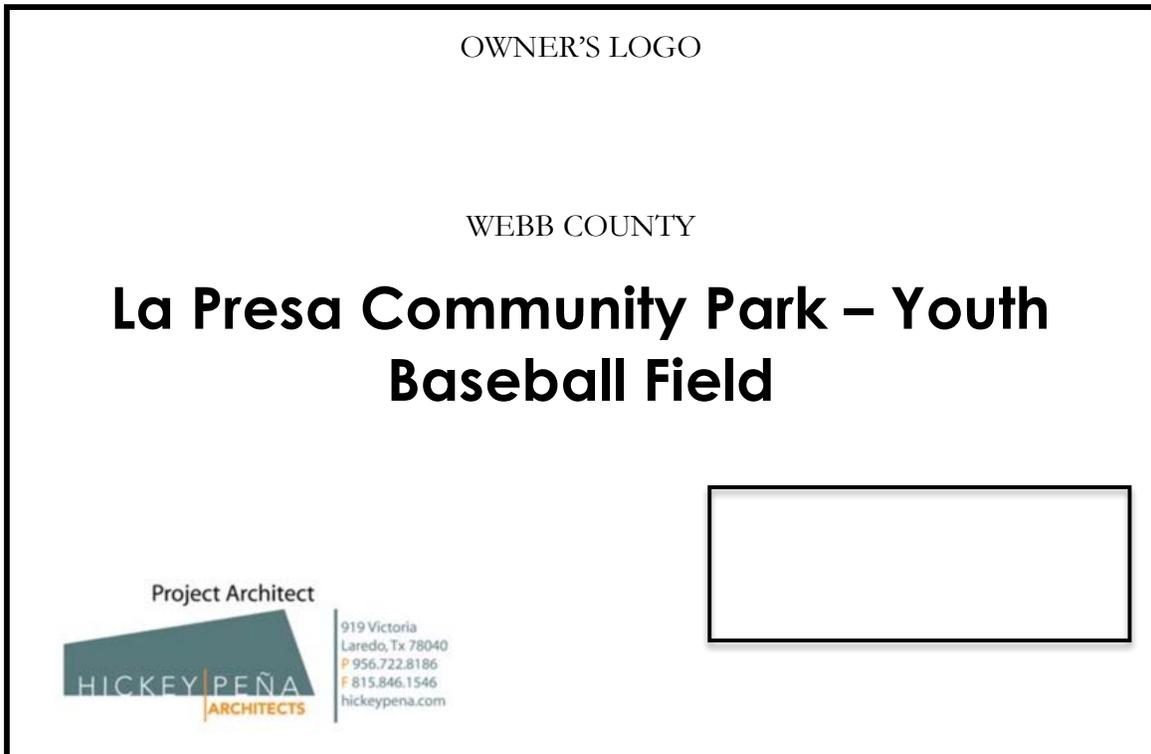
The Contractor shall furnish the City Inspector with every reasonable facility for ascertaining whether the work performed is substandard and deviates from the requirements of the plans and specifications. The City Inspector shall have the authority to halt the construction of any portion of the work not meeting requirements until such time as said work has been corrected to the satisfaction of the Inspector and the Architect/Engineer.

PROJECT SIGN

Contractor to provide and install a 4' x 8' project sign to remain throughout the construction phase. Coordinate with architect for location on the site. Sign should be made of exterior grade materials.

Coordinate final design with Architect and Owner. Submit a 16"x 24" sample layout for approval.

CONTRACTOR TO REMOVE SIGNS UPON COMPLETION OF PROJECT



DIVISION C

AWARD AND EXECUTION OF CONTRACT

C-4.01 CONSIDERATION OF PROPOSALS:

For the purpose of award, after the proposals are opened and read, the Proposals considered the most advantageous to the Owner would be carefully studied. The Proposals will then be compared and the results made public. Until the award of the Contract is made, the Owner reserves the right to reject any or all proposals, to waive technicalities, to advertise for new proposals, or to proceed to do the work otherwise when the best interests of the Owner will be thereby promoted.

C-4.02 AWARD TO CONTRACT:

Contract will not be awarded until the necessary investigations as to the competency of the low proposer are made. Award of Contract will be made by the Owner, upon recommendation by the Consultant to the best value responsible proposer meeting the requirements of the Owner. Award of Contract will be made within sixty (60) days after the opening of proposals, unless stated otherwise in the Notice to Proposers.

C-4.03 RETURN OF PROPOSAL GUARANTIES:

As soon as the proposal price has been compared the Engineer may, at his discretion, return the proposal guaranties accompanying in those proposals, which, in his judgment, will not be considered in making the award. When award is made, the successful proposer's proposal guaranty only will be retained until after Contract and Bond have been executed.

C-4.04 PERFORMANCE AND PAYMENT BOND:

With ten (10) days after Notification of Award of Contract, the successful proposer shall execute and file with the Owner a separate surety and payment bond as required by Chapter 93 of the Acts of the Regular Session of the 56th Legislature of Texas, in the full amount of the contract price as a guarantee of the faithful performance of the Contract and payment of all obligations which may be incurred for material and labor used in the work. Bonds shall be executed by a surety company authorized to do business in the State of Texas on the bond forms provided in these Documents. Any surety shall be subject to the approval of the Owner.

C-4.05 EXECUTION OF CONTRACT:

Within ten (10) days after Notification of Award of contract, the successful proposer shall sign and place in the hands of the Owner the necessary agreement entering into a Contract with the Owner.

C-4.06 NOTICE TO PROCEED:

The Notice to Proceed shall be issued within ten (10) days of the execution of the Agreement by the Owner provided that the Contractor has properly executed and submitted all Documents required by the Owner within the same period of time. Should there be reasons why the Notice to Proceed cannot be issued within such period, the time may be extended by mutual agreement between the Owner and Contractor.

If the Contractor has submitted all Documents required and the Notice to Proceed has not been issued within the ten (10) day period or within the time extension, the Contractor may terminate the Agreement without further liability on the part of either party. Furthermore, should the Contractor fail to execute all the requirements within this same ten (10) days period or within the time extension, the City may terminate the Agreement.

C-4.07

The Owner may make such investigations as he deems necessary to determine the ability of the Proposer to perform the work, and the Proposer shall furnish to **Webb County** all such information and data for this purpose as the Owner may request.

C-4.08 APPROVAL OF CONTRACT:

No Contract shall be binding upon the Owner until it has been signed by the Owner and returned to the Contractor.

C-4.09 FAILURE TO EXECUTE CONTRACT:

Failure to comply with any of the requirements of these Specifications, to execute Contract within ten (10) days after notification of work, or to furnish surety as required, shall be just cause for the annulment of the award. In case of annulment of award, the proposal guaranty shall become the property of the Owner, not as penalty, but as a liquidated damage.

C-4.10

After the Notice to Proceed is issued, the Owner shall provide the Contractor with three (3) complete sets of Plans and Specifications for Contractor's use during construction. In the case that additional sets are required, the Contractor shall make arrangements to obtain the extra sets at his own expense.

C-4.11 RESPONSE TIME DURING THE PROSECUTION OF THE PROJECT:

The contractor shall furnish the owner with three (3) local telephone numbers where contractor or a responsible representative of contractor can be reached at any and all time during the prosecution of this project, and especially during weekends or holidays. Failure of contractor to respond to any such emergency which causes Owner personnel, equipment and materials to be used in such emergency will result in the contractor being charged an amount which shall be twice the cost incurred by the Owner in using personnel, equipment and materials to handle such emergency due to failure of the contractor to do so, and, in addition, the contractor will be charged a penalty of \$500.00 for each emergency to which it does not respond. In this connection, "failure to respond" means the failure of the contractor to respond to telephone calls from the relevant staff or owner.

CONTROL OF WORK AND MATERIALS

C-6.01 AUTHORITY OF ENGINEER:

The work will be observed, tested and inspected by the Engineer, and performed to his satisfaction, in accordance with the Contract, Plans and Specifications. The Engineer will decide all questions which may arise as to the quality and acceptability of materials furnished and work performed, as to the manner of performance and rate of progress of said work, as to the interpretation of the Plans or Specifications relating to the work, as to the fulfillment of the Contract on the part of the Contractor and to the rights of different Contractors on the project.

The decisions of the City Engineer will be final.

C-6.02 COUNTY ENGINEER AS REFEREE:

The City Engineer will act as referee in all questions, arising under the terms of the Contract between the parties thereto, and his decisions shall be final and binding.

C-6.03 ADEQUACY OF DESIGN:

It is understood that the Owner selected the Engineer named herein to prepare the Plans and Specifications, and all supplements thereto, and it is agreed that the Owner will be responsible for the adequacy of the design, sufficiency of the Plans and Specifications, and safety of structures, provided the Contractor has complied with said Plans and Specifications, all modifications thereof, and additions and alterations thereto approved by the Engineer. The burden of proof shall be upon the contractor to show that he has fully complied with the Plans and Specifications, all modifications thereof, and all additions and alterations thereof.

C-6.04 PLANS:

Plans will show the lines, grades, cross sections, details and general features of the work. Where shop drawings or working drawings are required, they shall be furnished by the Contractor and approved by the Engineer. Authorized alterations to the Plans will be endorsed on approved copies of the Plans or shown on supplementary sheets.

The approval by the Engineer of the Contractor's shop drawings or working drawings will not relieve the Contractor of any responsibility under the Contract.

The Contractor shall furnish the Engineer with such blue print copies of shop drawings or working drawings as may be required for approval and for the purposes of supervision.

The contract price shall include the cost of furnishing all such prints.

C-6.05 CONFORMITY WITH PLANS:

The finished work shall conform with the lines, grades, cross sections, details and dimensions shown on the Plans. Such deviations from the Plans as may be required will, in all cases, be determined by the Engineer and authorized in writing.

C-6.06 COORDINATION OF PLANS AND SPECIFICATIONS AND SUPPLEMENTAL AGREEMENTS:

The Plans, Specifications, and supplemental agreements are essential parts of the Contract, and a requirement occurring in one is as binding as though occurring in all. In case of disagreement, Plans shall govern over "Technical Provisions," and "Special Provisions" shall govern over "Technical Provisions." The Contractor shall not take advantage of any apparent error or omission on the Plans or Specifications. In the event the Contractor discovers any apparent error or discrepancy, he shall immediately call upon the Engineer for his interpretation and decision, and such decision shall be final.

C-6.07 COOPERATION OF CONTRACTOR:

The Contractor shall give the work the constant attention necessary to facilitate the progress thereof and shall cooperate with the Engineer and with other Contractors in every way possible.

The Contractor shall have on the work at all times, a satisfactory and competent English-speaking Superintendent, authorized to receive order, and act for him as his agent. The Contractor shall designate to the Engineer in writing the name of such Superintendent, and the designated Superintendent may not be removed from the work without the written permission of the Engineer.

C-6.08 CONSTRUCTION STAKES:

The Contractor shall furnish and set at his own expense any and all construction stakes and blue tops as seems necessary for the satisfactory prosecution of the work.

Any missing construction stakes which have been destroyed by the different utility companies, vandals and/or the contractor at the time of construction will be replaced by the contractor at this own expense.

The Engineer may, at his option, make spot or complete checks on all construction alignment and grades to determine the accuracy of the contractor's survey work. These checks, however, will not relieve the Contractor of his responsibility of constructing the work to the lines and grades as shown on the plans or approved change orders. Computations, sketches, and other drawings used in the design and layout of this project will be made available to the Contractor, however these items will not relieve the contractor of his responsibility.

C-6.09 QUANTITIES OF MATERIALS:

It shall be the responsibility of the Contractor to verify all quantities of materials shown on the Plans before ordering such materials. Payment is provided for acceptable materials, and materials rejected due to improper fabrication or excess quantity or other reasons within the control of the Contractor will not be paid for regardless of the quantities or dimension shown on the Plans.

C-6.10 APPROVAL OF MATERIALS:

The sources of supply of materials shall be subject to the approval of the Engineer. Representative samples of materials proposed for use shall be submitted, if required, for examination and testing by an independent testing laboratory selected by the City.

Results obtained from testing such samples may be used for preliminary approval, but will not be used as final acceptance of materials. All materials proposed for use may be inspected or tested at any time during their preparation or use.

If at any time, it is found that sources of supply which have been approved do not furnish a product of uniform quality, or if the product becomes unacceptable at any time, the Contractor shall furnish approved material from another source.

Any material, which after approval has for any reason become unfit for use, shall not be incorporated into the work.

C-6.11 SAMPLES AND TESTS:

Samples and testing procedures shall conform to the requirements of appropriate designations of the American Association of State Highway Officials or the American Society for Testing Materials.

Test for determining the fitness of materials; tests for the purpose of obtaining preliminary approval of materials; tests for determining concrete mixes will be at the expense of the Contractor. Tests for the actual control of the work, such as soil compacting tests and concrete compressive strength test, will be at the expense of the Owner. Any and all retesting because of failure in soil compaction or concrete compressive strength tests shall be done at the expense of the Contractor. Tested and accepted subgrade shall be covered and protected with the flexible base within a maximum of seven (7) days. Tested and accepted flexible base shall be primed and cured a minimum of seventy two (72) hours and shall be cured with asphalt within seven (7) days. Failure to comply with the seven (7) days limitations may result in the need for re-testing at the Contractor's expense depending on weather conditions and at the discretion of the Engineer. The Contractor shall provide such facilities as the Engineer may require for conducting field tests and collecting and forwarding samples. All sampling and testing shall be under the control of the Engineer and shall be done in laboratories approved by him.

C-6.12 STORAGE:

Materials shall be stored as to insure the preservation of the quality and fitness for the work. Material which is not, in the opinion of the Engineer, properly stored and protected will not be included as material in hand in the estimates.

C-6.13 AUTHORITY AND DUTIES OF INSPECTORS:

Inspectors employed by the Owner shall be authorized to inspect all work done in any part of the project and all preparation, fabrication, or manufacturer of the materials to be used.

The Inspector shall be authorized to call to the attention of the Contractor any failure of the work or materials to conform to the Specifications or the Plans. He will in no case act as foreman or perform other duties for the Contractor, nor shall he interfere with the management of the work. In the event the Contractor does not comply with the requirements of the

Owner and the Engineer, he may stop all work until the non-compliance is corrected.

If the progress of the work becomes unduly delayed because of negligence on the part of the Contractor, the Inspector shall notify the Owner and the Engineer, who may require the Contractor to give reasons for the delay. If it is found that the Contractor is at fault, then it is the prerogative of the Owner to demand correction.

Inspection as provided herein shall not relieve the Contractor from any obligation to perform the work in conformity with the requirements of the Plan and Specifications. No Inspector shall be authorized to revoke, alter, enlarge or release any requirements of the Plans and Specifications, or to issue instructions contrary to the Plans and Specifications, or to approve or accept any portion of the work.

The Contractor shall furnish every reasonable facility for ascertaining whether or not the work is performed in accordance with the Plans and Specifications.

No backfill shall be made unless inspected by the Engineer or the City's representative designated in writing and verbal approval of field Engineer is given to such work; if the Contractor should backfill any work without such inspection and approval, the Contractor shall remove or uncover such portions of the finished work as may be directed. After examinations, the Contractor shall restore said portion of the work to the standard required by the Plans and Specifications. Should the work thus exposed and examined prove acceptable or unacceptable, the uncovering or removing and the replacing of the covering or making good of the parts removed shall be done at the Contractor's expense.

C-6.14 SUSPENSION OF WORK:

In case of any dispute arising between the Contractor and the Inspector as to materials furnished or the manner of performing the work, the Inspector shall have authority to reject materials or suspend work until the question at issue can be referred to and decided by the Engineer.

If the Contractor refuses to suspend work on verbal order, the Inspector shall issue a written order to suspend work giving the reason for such suspension. After placing the order in the hands of the Contractor's man in charge, the Inspector shall immediately leave the job. Work done during the absence of the Inspector shall not be paid for.

C-6.15 REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK:

All work which has been rejected or condemned shall be repaired or removed and replaced as the Engineer may direct, at the expense of the Contractor. Materials not conforming to the requirements of the Plans and Specifications shall be removed immediately from the site of the work and replaced with satisfactory material at the expense of the Contractor.

Work done without lines and grades, work done beyond the lines and grade shown on the Plans, work done without inspection, or any extra or unclassified work done without written authority and prior agreement in writing as to the prices will be done at the Contractor's risk and will be considered unauthorized. At the option of the Engineer, such work may not be measured and paid for, or may be ordered removed and replaced at the expense of the Contractor.

Upon the failure of the Contractor to repair satisfactorily or to remove and replace rejected, unauthorized, or condemned work or materials immediately after receiving formal notice from the Engineer, the Owner may at his own option:

- a. Recover for such defective work or materials on the Contractor's bond, or;
- b. Recover from such defective work or materials by action in a court having proper jurisdiction in such matter, or;
- c. Employ labor and equipment and satisfactorily repair, or remove and replace, such defective work or materials and charge the cost of same to the Contractor, which cost will be deducted from any money due him.

C-6.16 DISPUTED CLAIMS FOR EXTRA WORK:

In case the Contractor deems extra compensation is due him for work or materials not clearly covered in the Contract, or not ordered by the Engineer as "EXTRA WORK", the Contractor shall notify the Engineer in writing of his intention to make claim for such extra compensation before he begins the work on which he bases the claim and shall afford the Engineer every facility for keeping actual cost of the work.

Failure on the part of the Contractor to give such notice or to afford the Engineer every facility for keeping account of actual cost of the work shall constitute waiver of the claim for extra compensation. The filing of such notice by the Contractor and the keeping of cost by the Engineer shall not in any way be construed to prove the validity of the claim. Extra work of any kind should only be performed by Contractor upon receipt of an approved Change Order issued by

Owner. When the work has been completed, the Contractor shall within ten (10) day file claim for extra compensation with the Engineer, who will present it to the Owner for consideration.

C-6.17 FINAL INSPECTION

Whenever the work provided for under the Contract has been satisfactorily completed and the final cleaning up performed, the Contractor shall notify the Engineer to make the "Final Inspection". Such inspection will be made within ten (10) days of such notification. After such final inspection, if the work is found to be satisfactory, the Contractor will be notified in writing of the acceptance of same. No time charge will be made against the Contractor between the date of notification of the Engineer and the date of the final inspection.

DEFINITION OF ABBREVIATIONS

C-2.01 DEFINITION OF ABBREVIATIONS:

Whenever the abbreviations defined herein occur on the Plans, in the Specifications, Contract, Bond, advertisement, Proposal, or in any other Instrument herein contemplated or to which the Specifications apply or may apply, the intent and meaning shall be as follows:

A.S.H.O	American Association of State Highways Official
HP	Horsepower
K.W.	Kilowatt
Am. or Amp.	Ampere
KVA	Kilovolt
A.S.T.M.	American Society for Testing Materials
In. or "	Inch or Inches
Lin.	Linear
Asph.	Asphalt
Lb. or #	Pound
Ave.	Avenue
A.W.W.A.	American Waterworks Association
Max.	Maximum
Min.	Minimum
MH	Manhole
I.P.	Iron Pin
B & S.	Bell and Spigot
Mono.	Monolithic
Blvd.	Boulevard
No.	Number
B.T.U.	British Thermal Unit
%	Percent
B.M.	Bench Mark
PL	Property Line
C.I.	Cast Iron
R.	Radius
C.C.C.	Center to Center
Rein.	Reinforced or reinforcing
C/G	Curb & Gutter
C.L.	Center Line
V.G.	Valley Gutter
Con. or Conc.	Concrete
Rem.	Remove
C.S.P.	Concrete Sewer Pipe
Rep.	Replace
C.M.	Circular Mil
R.C.S.D.P.	Reinforced Concrete Storm Drain Pipe
C.F.M.	Cubic Feet per Minute
C.O.	Cleanout
R.P.M.	Revolutions per minute
Cond.	Conduit Minute
Corr.	Corrugated
ROW or R of W	Right of Way
Cu.	Cubic
Vol.	Volume
Culv.	Culvert
S.S.	Sanitary Sewer
Dia.	Diameter
S.D.	Storm Drain
D.S.	Double Strength
Sq.	Square
Dr.	Driveway
Std.	Standard

Elev. or El.	Elevation
T.H.D.	Texas Highway Department
F.	Fahrenheit
V.C.P.	Vitrified Clay Pipe
Ft. or '	Foot or Feet
V	Volt
Gal.	Gallon
Yd.	Yard
S.O.P .	Secretaria de Obras Publicas (Mexican Secretaries of Public Works)
Tex. D.O.T., or TxDOT	Texas Department of Transportation

DEFINITION OF TERMS

C-1.01 DEFINITION OF TERMS:

Whenever the terms defined herein occur on the Plans, in any other documents or instrument herein contemplated or to which the Specifications apply, the intent and meaning shall be as follows:

C-1.02 OWNER: (Or Party of the First Party):

The individual, firm corporation or the political subdivision for whom the facilities covered by these Plans and Specifications are to be constructed.

C-1.03 CONTRACTOR: (Or Party of the Second Part):

The individual, firm or corporation with whom the Contract is made by the Owner.

C-1.04 COUNTY ENGINEER:

County Engineer employed by the Owner, or such other Engineer, or Supervisor authorized by the City Engineer or the Owner to act on their behalf.

C-1.05 CONSULTANT:

Licensed Engineer or Architect hired by the Owner to prepare the Contract Documents.

C-1.06 PROPOSER:

An individual, firm or corporation submitting a proposal.

C-1.07 SUPERINTENDENT:

An authorized representative of the Contractor.

C-1.08 INSPECTOR:

An authorized representative of the Owner and Engineer

C-1.09 LABORATORY:

A testing laboratory approved by the Owner and Engineer.

C-1.10 CONTRACT:

The Agreement between the Owner and the Contractor covering the furnishing of all materials and labor necessary to complete the work and consisting of the Plans and Specifications, together with such supplemental agreements as may be made from time to time.

C-1.11 WORKING DAY:

A “Working Day” is defined as any day not including Saturdays, Sundays, or any legal holidays, observed by the City of Laredo, in which weather or other conditions, not under the control of the Contractor, will permit construction of the principal units of work for a continuous period of not less than seven (7) hours. If the contractor opts to work on Saturday, Sunday, or legal holiday requiring construction inspection, said days are considered working days and charged to the contract time.

C-1.12 WORK:

All structures, services, machinery, equipment, or other facilities that are described in the Plans and Specifications together with such additions or modifications as may be ordered by the Owner from time to time.

C-1.13 WORK, ORDER, OR NOTICE TO PROCEED:

A document authorized by the Owner and issued by the Engineer directing the Contractor to proceed on all or part of the work and a specified date.

C-1.14 CHANGE ORDER:

A supplemental agreement adding to or modifying the Contract, including such additional Plans and Specifications as necessary to properly describe the required change.

C-1.15 SURETY:

The corporate body which is bound with the Contractor for the faithful performance of the work covered by the Contract.

C-1.16 PLANS:

The drawings published by the Engineer showing the locations, character, dimensions and details of the work which are part of the Contract.

C-1.17 SPECIFICATIONS:

The directions, provisions and requirements contained herein pertaining to the method and manner of performing the work, or to the quantities, or to the qualities of materials to be furnished under the Contract. The term “Specifications” shall be deemed to include the Contract Documents, the Special Provisions, the General Provision, and the Technical Provisions as contained herein, together with all supplemental agreements and change orders. Specifications are part of the Contract. Plans take precedence over Specifications if in conflict.

C-1.18 CALENDAR DAYS:

A “Calendar Day” is defined as any day of the week inclusive of Saturdays, Sundays, and legal holidays.

LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC

C-7.01 LAWS TO BE OBSERVED:

The Contractor shall make himself familiar with and shall observe and comply with, all Federal, State, and local laws, ordinances and regulations which in any manner affect the conduct of the work, and shall indemnify and save harmless the Owner and the Owner's representative against any claim arising from the violation of any such law, ordinance, or regulation whether by himself or by his employees.

C-7.02 PERMITS AND LICENSES:

The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary to the due and lawful prosecution of the work.

C-7.03 PATENTED DEVICES, MATERIALS AND PROCESSES:

If the Contractor is required or desires, to use any design, device, material or process covered by letters, patent, or copyright, he shall provide for such use by suitable legal agreement with the patentee or Owner of such patent. The Contractor and his surety shall indemnify and save harmless the Owner from any and all claims for infringement by reason of the use of any such patented design, device, material, or process, or any trademark or copyright in connection with the work agreed to be performed under this Contract, and shall indemnify the Owner for any costs, expenses, and damages which it may be obliged to pay for reasons of any such infringement at any time during the prosecution, or after the completion of the work.

C-7.04 PUBLIC, SAFETY AND CONVENIENCE:

The safety of the public and the convenience of traffic shall be regarded as of prime importance during construction and provisions thereof, made necessary by the work, shall be the direct responsibility of the Contractor, and shall be performed at his own expense.

Where the Contractor is required to construct temporary crossings for streams, culverts, ditches or trenches, his responsibility for accidents shall include the approaches as well as the structures of such crossing.

C-7.05 SANITARY PROVISIONS:

The Contractor shall, at his own expense, provide and maintain in a neat, sanitary condition such accommodations for the use of his employees as may be necessary to comply with the requirements of the State Department of Health and of other authorities having jurisdiction.

C-7.06 BARRICADES AND WARNING SIGNS:

The Contractor shall furnish and maintain adequate barricades, warning and directing signs, red flags, lights and other traffic control devices as are necessary to comply with the latest edition of the TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREET AND HIGHWAYS.

All provisions of barricades and warning signs shall be considered an incidental and necessary part of the work and no direct payment will be made therefore. All costs of providing such safe guards shall be included in the prices Proposal for other parts of the work.

C-7.07 USE OF EXPLOSIVES:

When the use of explosives is necessary in the prosecution of the work, the Contractor shall use the utmost care not to endanger life or property. All explosives shall be stored in a secured manner and all storage places shall be marked clearly with the words "DANGEROUS EXPLOSIVES". The method of storing and handling explosives and highly inflammable materials shall conform to the requirements of Federal and State laws and regulations. The Contractor shall not use explosives until he has taken the legal precautions necessary to save harmless the Owner from any claims arising from such use of explosives.

C-7.08 PROTECTION AND RESTORATION OF PROPERTY:

The Contractor shall take all measures necessary to protect public or private property which might be injured by any process of construction, and in case of any injury or damage to said property, he shall restore at his own expense the damaged property to a condition similar or equal to the existing before such injury damage was done, or he shall make good such injury or damage in an acceptable manner.

Where the work involves excavation any public or private driveway, alley street or roadway, the Contractor shall do any work necessary to restore such driveway, alley, street or roadway to a condition similar or equal to that existing before such work was done. The Contractor shall be responsible for any subsidence of backfill or pavement failure due to such excavation, and shall promptly repair any such subsidence or failure.

C-7.09 PROTECTION OF EXISTING UTILITIES:

The Contractor shall contact the utility company for exact location prior to doing any work that might interfere with or damage present utilities.

The Contractor shall take all measures necessary to protect existing surface drains, seers, under drains, conduits, utilities, or similar underground structures, and to provide temporary service when service in any of these is interrupted.

When such facilities are encountered, the Contractor shall notify the Engineer who will arrange for their removal, if necessary. Any utility lines cut or damaged shall be repaired and restored to working conditions as determined by the Engineer.

C-7.10 RESPONSIBILITY FOR DAMAGE CLAIMS:

The Contractor shall save harmless the Owner from all suits, action in or claims brought on account of any injuries or damages sustained by any person or property in consequence of any neglect in safeguarding the work by the Contractor; or on account of any claim or amount recovered for any infringement of patent or reward under the "Workmen's Compensation Laws" or any other laws. He shall be held responsible for all damage or injury to property of any character occurring during the prosecution of the work resulting from any omission, neglect, or misconduct on his part in the manner or method executing the work, or from defective work or materials.

C-7.11 RESPONSIBILITY FOR THE WORK:

Until acceptance of the work by the Engineer, in writing, it shall be under the charges and care of the Contractor. The Contractor shall rebuild and make good at his own expense all injuries and damage to the work occurring before its completion and acceptance. In case of suspension of work for any cause, the Contractor shall be responsible for all the preservation of all materials.

C-7.12 USE OF COMPLETED WORK:

Whenever, in the opinion of the Engineer, any portion of the work is in acceptable conditions, it may be entered upon and used by the Owner upon the written order of the Engineer. Such use shall be held an acceptance of that portion of the work, but not into be considered as a waiver of any of the provisions of these Specifications. Pending final completion and acceptance of the entire work, all necessary repairs and renewal of any part of the work so used, due to defective material or work, to natural causes other than wear and tear, or to the operations of the Contractor, shall be performed by the Contractor at his own expense.

C-7.13 NO WAIVER OF LEGAL RIGHT:

Inspection by the Engineer or by any of his duly representatives, any order, measurement, or certificate by the Engineer; any order by the Owner for the payment of money, any payment for or acceptance of any of work, or extension of time; or any possession taken by the Owner shall not operate as a wavier of any provision of the Contract, or any power therein preserved to the Owner, or of any right to damages therein provided. A waiver of any breach of the Contract shall not be held to be a waiver of any other or subsequent breach.

The Owner reserves the right to correct any error that may be discovered in any estimate that may have been paid, and to adjust that or any subsequent estimate to meet the requirements of the Contract. The Owner reserves the right to claim and recover sums as may be sufficient to correct any error or make good any deficit in the work resulting from error,

dishonesty, or collusion in the work after the final payment has been made.

C-7.14 RESPONSIBILITIES OF PARTIES AS TO UTILITY WORK:

It shall be the responsibility of the Contractor to check and coordinate his work with the public and private utility companies, which have authority from the City of Laredo to own and operate lines, pipes, conduits, or other means of conveyance within the streets Right-of-Way. The Contractor shall contact the Engineer concerning any and all utility relocation work needed, and it shall be the responsibility of the Contractor to advise the Engineer of any lines or utility poles to be relocated. The Engineer shall assist in coordinating the various utility relocation activities but shall not be responsible for any delays occasioned by this work, although appropriate allowance for additional contract time will be made by the Engineer if warranted. The Owner shall not be responsible for any acts of the Contractor or any damages resulting from work done by the Contractor relating to the removal, alteration, or other activity concerning utilities.

MEASUREMENT AND PAYMENT

C-9.01 MEASUREMENT OF QUANTITIES:

All work completed under the Contract will be measured in United States standard measures. Linear and surface measurements will be taken horizontally unless otherwise shown on the Plans. Structures will be measured to the neat lines shown on the Plans.

When any material is cubic yards in the vehicle, such measurement will be made at the point of delivery. The capacity of each vehicle shall be plainly marked on said vehicle and the capacity of marking shall not be changed without written permission of the Engineer. The Engineer shall have authority to require all vehicles to have uniform capacity.

C-9.02 SCOPE OF PAYMENT:

The Contractor shall accept the payment as provided in this Contract as full compensation for furnishing all materials, equipment, tools, labor and incidentals necessary to complete the work and for performing all work contemplated and embraced under this contract, as full compensation for loss or damage arising from the nature of the work, or from action of the elements, or from any unforeseen difficulties which may be encountered during the prosecution of the work; as full compensation for all expenses incurred in consequence of the suspension or discontinuance of the work; as full compensation for all expenses incurred in consequence of the suspension or discontinuance of the work herein specified; as full compensation for expenses incurred in any infringement of patent, trade-mark, or copyright; and as full compensation for completing the work in conformity with the requirements of the Plans and Specifications. Payment will be made only on items which are complete, in place, tested and accepted by the owner. Materials on hand shall be considered for payment ONLY when proper PAID invoices are submitted with Contractor's pay estimates. Materials on hand must be placed in a secured area designed for the project under this contract and be available for inspection by City Engineers at all times. The Contractor must provide an inventory of all materials on a form acceptable to the City Engineer and which must accompany each pay request. The payment of any partial or current estimate shall in no way affect the obligation of the Contractor at his own cost to repair or renew any defective parts of the construction or to replace any defective materials used in the construction and to be responsible for all damages due to such defects. Any items to complete the work indicated on plan shall be considered subsidiary to include positions of work and no further compensation will be made.

No monies payable under this contract, except the estimate for the first month or period, shall become due and payable until the Contractor shall satisfy the Owner that he has fully settled and paid for all materials and equipment used in or upon the work and labor done in connection therewith and the Owner may if he so elects pay and or all bills wholly or in part, and deduct the amount or amounts paid from any estimate(s) except the first estimate.

In event the surety on any bond given by the Contractor becomes insolvent or is placed in the hands of a receiver or has its right to do business in the State revoked by Law, the Owner may if he so elects withhold payment of any or all estimates until the Contractor shall give a good and sufficient bond in lieu of the bond so executed by said surety.

C-9.03 PAYMENT FOR ALTERED QUANTITIES:

When alterations in the Plans or quantities of work not requiring supplemental agreements are ordered and performed, the Contractor shall accept payment in full at the contract price for the actual quantities of work done. No allowance for anticipated profits will be made. Increased or decreased work involving supplemental agreements will be paid for as stipulated in such agreements.

C-9.04 PAYMENT FOR OMITTED ITEMS:

When any item ordered omitted from the Contract, the Contractor shall accept payment in full at the contract price for any work actually performed on such item prior to the date of issuance of such order. No allowance will be made for anticipated profits on work ordered omitted. Acceptable materials ordered by the Contractor, or delivered on the work prior to the date of issuance of such order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner. The Contractor shall submit immediately certified statements covering all money expended in the preparation for any item ordered omitted and shall be entitled to reimbursement for any money expended in preparation for any items when such preparation is of no value to the remaining items of the Contract.

C-9.05 PAYMENT FOR EXTRA WORK:

Extra work performed under a supplemental agreement will be paid for according to the terms of such supplemental agreement.

Extra work if performed on a force account basis will be paid for as follows:

For all labor and foreman, the Contractor will receive the wage paid on the project for each hour that said labor and foremen are actually engaged on such work to which shall be added the actual cost of premiums for public liability and workmen's compensation insurance and social security taxes for the actual amount of such payroll.

For all materials used on such work the Contractor will receive the actual cost of such materials including freight charges.

For machinery and equipment used on such work the Contractor will receive an agreed rental price for each hour that such machinery and equipment is actually used on such work. The agreed price shall include the cost of fuel, lubrication and repairs.

To the sum of the foregoing an amount equal to fifteen (15) percent thereof will be added, as compensation for the use of small tools, Superintendent's services, timekeeper's services.

Premium on bond and all other overhead expenses incurred in the prosecution of the extra work including Contractor's profit.

The sum of such payments provided for shall be accepted by the Contractor's as full compensation as provided in C-9.02.

C-9.06 PARTIAL PAYMENTS:

Once a month and within the thirty (30) days after submittal of a correct and complete estimate, the Owner shall make a progress payment to the basis of a duly certified and approved estimate of the work performed during the preceding calendar month under this Contract. To insure the proper performance of the Contract, the Owner shall retain ten (10) percent ** of the amount of each estimate until final completion and acceptance of all work covered by this Contract.

**NOTE Retainage for construction contracts over four hundred thousand (\$400,000) shall be five (5) percent.

In the event that the base Proposal is less than twenty-five thousand (\$25,000) the total contract price will be paid in one payment upon completion and acceptance of the project.

Should any defective material or work be discovered or should a reasonable doubt arise as to the integrity of any part of the work completed prior to final acceptance and payment, there will be deducted from the first estimate presented after the discovery of such work, an amount equal to the value of the defective or questionable work. Such defective work will be made from all subsequent estimates until the defects have been remedied or the cause for doubt removed.

C-9.07 TERMINATION OF THE CONTRACT BY THE CONTRACTOR:

If the work is stopped for a period of thirty (30) days under an order of any court of other public authority having jurisdiction, or as a result of an act of government, such as 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, or if the work should be stopped for a period of thirty (30) days by the Contractor because the Engineer has not issued a Certificate for payment as provided in C-9.06 or because the Owner has not made payment within the ten(10) days after such stopping of work, then the Contractor may, upon seven (7) additional days written notice to the Owner and the Engineer, terminate the Contract and recover from the Owner payment for all work executed and for any proven loss sustained upon any materials, equipment, tools, construction equipment and machinery, including reasonable profit and damages.

C-9.08 TERMINATION OF THE CONTRACT BY THE OWNER:

If the Contractor is adjudged a bankrupt, or if he makes a general assignment for the benefit of his creditors, or if a receiver is appointed on account of his insolvency, or if he persistently or repeatedly refused or fails, except in cases for which extension of time is provided, to supply enough properly skilled workmen, or proper materials, or if he fails to make prompt payment to Subcontractors or for materials or labor, or persistently disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, or otherwise is guilty of a substantial violation of a provision of the Contracts Documents, then the Owner, upon certification by the Engineer that sufficient cause exists to justify such action, may without prejudice to any right or remedy and after giving the Contractor and his surety, if any, seven (7) days written notice, terminate the employment of the Contractor and take possession of the site and of

all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor and may finish the work by whatever method he may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the work is finished.

C-9.09

If the unpaid balance of the Contract Sum exceeds the costs of finishing the work, including compensation for the Engineer's additional services made necessary thereby, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or to the Owner, as the case may be, shall be certified by the Engineer, upon application, and this obligation for payment shall survive the termination of the Contract.

C-9.10 ACCEPTANCE OF FINAL PAYMENT:

When the work provided for in the contract has been completed and the final inspection has been made by the Engineer, and all parts of the work have been approved and accepted, the final estimate showing all sums due the Contractor shall be prepared. All prior partial estimates and payments shall be subject to correction in the final estimate and payment. No payment on the final estimate will be made until the Contractor furnishes satisfactory evidence that all claims growing out of lawful demands of laborers, work, men, mechanics, subcontractors, material, men, furnishers of machinery and parts thereof, and suppliers of all kinds have been satisfied. Upon final payment the Contractor shall execute a certificate and release upon the Owner on the form specified.

C-9.11 AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS AND RELEASE OF LIENS:

Each and every pay estimate must be accompanied by an "Affidavit of Payment of Debts and Claims and Release of Liens" form (sample of which follows this Section).

C-9.12 MATERIALS ON HAND INVENTORY:

When materials on hand payment is requested, and "Inventory of Materials on Hand" is required and must be included with Contractor's Pay Estimate. Proof of payment for materials on hand is also to be included with the Materials Inventory. A sample form follows this section.

C-9.13 PHOTOGRAPHS

The Contractor shall submit with each monthly progress pay estimate four (4) each 3 1/2" x 5" color photographs depicting generally the work done during that month, and each photograph properly identified and dated.

AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS AND RELEASE OF LIENS

TO:

PROJECT: La Presa Park – Youth Baseball Field

By this instrument the undersigned Contractor engaged in the construction of the above project hereby certified that on this date, or any time prior thereto, except listed below, the Contractor has paid the full or has otherwise satisfied all obligations for all materials and equipment furnished, for all work, labor, and services performed and for all known indebtedness and claims against the undersigned for damages arising in any manner on or against the project, its land, improvements and equipment of every kind.

The undersigned hereby certified that he has received all payments currently due under his Contract for work on the above referred (except retainage). Therefore, the undersigned does hereby waive and/or release any and all liens against the property project and as of the _____ day of _____, .

Contractor

Authorized Signature

Typed Signature and Title

STATE OF TEXAS
COUNTY OF WEBB

Before me, the undersigned authority, on this day personally appeared _____
_____ known to me to be the person whose name is subscribed to the foregoing instrument, and being first duly sworn, acknowledged to me that he/she executed the same for the purpose and consideration therein expressed and declared to me that the statements contained herein are true.

SWORN AND SUBSCRIBED TO before me this _____ day of _____,

Signature - Notary Public for the State of Texas.

Notary Public's Typed Signature

My Commission expires: _____

MATERIALS ON HAND INVENTORY

PROJECT: La Presa Park – Youth Baseball Field

Contractor: _____

Estimate No. _____ Dates: From _____ to _____

No.	Invoice No.	Vendor	Balance Last Period	Received Current	Placed Current	Balance

PROSECUTION AND PROGRESS

C-8.01 RIGHT-OF-WAY:

The Owner will furnish all and or right-of-way necessary for the performance of the contract and will use due diligence in acquiring land or right-of-way. Should all necessary land or right-of-way not be acquired prior to the beginning of construction, the Contractor shall begin with work upon such land or right-of-way as the Owner may have acquired.

C-8.02 DELAYS DUE TO OWNER:

Should the Owner be prevented or enjoined from proceeding with the work or authorizing its prosecution, either before or after its commencement, by reason of any litigation or by reason of the Owner's inability to acquire necessary land or right-of-way, the Contractor shall not entitled to make or assert any claim for damage by reason of such delay, or to withdraw from the contract except by consent of Owner.

The time for completion of the work will be extended by such time as determined by the Engineer as will compensate for the time lost by reason of said delay.

C-8.03 SUBLETTING OR ASSIGNING OF CONTRACT:

The "City" does not allow, permit, negotiate, authorize nor approve any assignment of contract proceeds between the "City", the "Contractor", and/or with a bank, lending institution or any type of financial institution either before, during or after a contract award.

The "City" agrees to pay the "Contractor" for specified services as stated in the agreed contract. The "City" does not agree to pay any additional party either jointly or separately for the contract under discussion.

C-8.04 SUBCONTRACTING:

The Owner will not recognize any subcontractor on the work. The Contractor shall be fully responsible to the Owner for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them.

C-8.05 PROSECUTION OF WORK:

Prior to beginning of the work, the Contractor shall submit to the Engineer such schedules, charts, or briefs as may be required, outlining the manner of prosecution of the work. The contractor shall begin the work within ten (10) calendar days after the date set in the "Work Order" or notice to proceed and shall continuously prosecute same with such diligence as will enable him to complete the work within the time specified.

The contractor shall notify the Engineer at least twenty-four (24) hours prior to the beginning at any point. He shall not begin new portions of the work to the detriment of portions already begun.

Owner's normal working hours are Monday through Friday from 8:00 AM to 5:00 PM. The contractor shall notify the owner at least twenty-four (24) hours in advance for any work that is to be scheduled beyond the limits of the owner's working hours, and he shall not begin any such work schedule unless proper inspection by the Contractor has been pre-arranged with the Owner, with the cost for such work beyond the owner's working hours borne by the Contractor.

If at any time the methods, equipment, or sequence of operations used by the Contractor are found to be inadequate to secure the quality of the work or rate of progress required by the contract, the Engineer may in writing order such modifications in the Contractor's methods, equipment, or sequence of operations as he may deem necessary and the contractor shall comply with such order.

C-8.06 WORKMEN AND EQUIPMENT:

All workmen employed by the Contractor shall be skilled and competent. Any person employed by the Contractor who in the opinion of the Engineer does not perform his work in a proper and skillful manner or who is disrespectful, intemperate, disorderly, or otherwise objectionable shall at the written order of the Engineer be immediately removed from the work and shall not be employed again on any part of the work without written consent from the Engineer.

The Contractor shall furnish and use such suitable machinery and equipment as may be required in the opinion of the Engineer to properly prosecute the work. The Contractor shall at the written order of the Engineer remove from the work any equipment found unsuited to properly perform the work.

Upon failure of the Contractor remove the work any person or equipment as ordered by the Engineer, the Engineer may withhold all estimates which have or may become due, or may suspend the work until such orders are complied with.

C-8.07 TEMPORARY SUSPENSION OF WORK:

The Engineer shall have the authority to suspend the work wholly or in part for such period or periods as he may deem necessary due to unsuitable weather, or such other conditions as are considered unfavorable for the prosecution of the work or for such time as is necessary due to failure on the part of the Contractor to comply with orders given or to perform any or all provisions of the contract.

If work is stopped for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way, and he shall take every precaution to prevent damage or deterioration of the work performed.

The Contractor shall not suspend the work without written authority from the Engineer and shall proceed with the work promptly when notified by the Engineer to resume operations.

C-8.08 COMPUTATION OF CONTRACT TIME:

The Contractor shall complete the work within the number of days stated in the contract. The number of days used shall be the number of days from the first day of actual commencement of operations or the 10th day after the date set in the Work Order or Notice to Proceed whichever comes first, and counting that day as the first elapsed day of contract time.

If the completion of the contract requires unforeseen work, or work and materials in greater quantities than those set forth in the proposal, then additional days or suspension of time charge will be allowed the Contractor equal to the time which in the opinion of the Engineers the work as a whole is delayed.

C-8.09 FAILURE TO COMPLETE THE WORK ON TIME:

The time set forth in the proposal for the completion of the work is an essential element of the contract. If the contractor fails to complete the work in the number of working days specified, a time charge will be made for each day thereafter until the work has been satisfactorily completed.

Unless an amount per day is set forth in the “Special Provisions” to be deducted from the amount due the Contractor for each day charged in excess of the number specified, the time charge shall be based on the monetary loss suffered by the Owner as the result of such delay. Such deductions shall in no way be considered a penalty, but as compensation to the Owner for the added expense to him for engineering supervision and other costs.

C-8.10 ABANDONMENT OF WORK OR DEFAULT OF CONTRACT:

The Engineer may give notice in writing to the Contractor and his surety of delay, neglect, or default stating which if the Contractor:

- Fails to begin work within the time specified, or fails to perform the work with sufficient workmen and equipment;
- Fails to provide materials of sufficient quantity to insure the completion of the work within the contract time; or
- Performs the work unsuitable; or
- Neglects or refuses to remove materials or perform new work such as may have been rejected; or
- Discontinues the work without authority; or
- Refuses to suspend or resume operations when so directed by the Engineer; or

- Becomes insolvent or is declared bankrupt; or
- Commits any act of bankruptcy insolvency; or
- Makes an authorized assignment for the benefit of any creditor; or
- Fails from any other cause whatsoever to carry out the work in an acceptable manner.

The ten (10) days after such notice if given, if a satisfactory effort has not been made by the Contractor or his surety to correct such delay, neglect, or default, the Owner may declare the work abandoned and so notify the Contractor and his surety.

After receiving such notification of abandonment, the Contractor shall not remove from the work any machinery, equipment, tools, materials or supplies then on the site. The Owner shall have the power and authority without violating the contract to take possession of the work out of the hands of the contractor and to appropriate or use any or all materials and equipment on the site as may be suitable and acceptable and enter into an agreement for the completion of the contract according to the terms and provisions thereof, or use such other methods as he may elect for the completion of the contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the work under the contract shall be deducted from any money due or which may become due to the contractor. In the case the cost to the Owner is less than the amount which would have been payable under the contract if it had been completed by the Contractor, then the Contractor shall be entitled to receive the difference. In case the cost to the Owner exceeds the amount which would have been payable under the contract, if it had been completed by the Contractor, the Contractor and his surety shall be liable and shall pay the Owner the amount of such excess.

SCOPE OF WORK

C-5.01 INTENT OF PLANS AND SPECIFICATIONS:

It is the intent of the Plans and Specifications to describe the complete work to be performed under the Contract. Except as provided on the Plans or in the Specifications, it is also the intent that the Contractor shall furnish all items on plans, materials, supplies, tools, equipment, labor and incidentals necessary to complete the work.

C-5.02 CHANGES AND INCREASED OR DECREASED QUANTITIES OF WORK:

The Owner has the right to make such changes and alterations in the Plans or in the quantities of work as he may consider necessary or desirable, and such changes and alterations shall not be considered as a waiver of any condition of the Contract, nor shall they invalidate any provision thereof. The Contractor shall perform the work as increased or decreased, and no allowance will be made for anticipated profits.

Payment to the contractor will be made for the actual quantities of work done and materials furnished at the unit prices as set forth in the Contract, except as follows:

When the total cost of work to be done, or of materials to be furnished, is more than one hundred and twenty-five (125) percent of the total contract price for the item stated in the Proposal, then either party to the Contract, upon demand, shall be entitled to a revised consideration on that portion of the work above one hundred and twenty-five (125%) percent of the total contract price stated in the Proposal.

When the total cost of work to be done, or of materials to be furnished, is less than seventy-five (75%) percent on the total contract price for the item stated in the Proposal, then either party to the Contract, upon demand, shall be entitled to a revised consideration on the work actually done.

Revised consideration shall be determined by supplemental agreement between the parties, which supplemental agreement shall be included with, and shall become a party of, the Contract.

C-5.03 OMITTED ITEMS:

The Owner may, in writing, order the omission from the work of any item found unnecessary to the project. Such omission shall be subject to all provisions of Par. C-5.02.

C-5.04 EXTRA WORK:

When the proper completion of the project requires work for which no quantities or prices were shown in the Proposal, such work shall be called "EXTRA WORK" and shall be performed by the Contractor when so directed in writing by the Owner. "EXTRA WORK" shall be performed in accordance with these Specifications and as may be directed by the

Engineer.

Prices for extra work shall be itemized and covered by a supplement agreement submitted by the Contractor and approved by the Owner prior to the starting of such work.

Claims for extra work not authorized in writing by the Owner prior to the performance thereof will be rejected.

C-5.05 MAINTENANCE OF TRAFFIC:

When the work requires partial or complete closing of any driveway, alley, street, or roadway, the Contractor shall so schedule and prosecute his work that traffic will be hindered to a minimum.

C-5.06 REMOVAL AND DISPOSAL OF STRUCTURES AND OBSTRUCTIONS:

All structures and/or obstructions on the site of the work, which are not to remain in place or which are not to be used in the new construction shall be removed as directed by the Engineer. Such items of removal are not listed in the Proposal will not be paid for as separate items; the cost of doing such work shall be included in the unit price Proposal for other items.

C-5.07 TOOLS AND ACCESSORIES:

When special wrenches, gauges, or other special tools or accessories are required to properly maintain and operate any machine or equipment furnished under this Contract, the furnishing of such tools and accessories shall be deemed to have been included in the Contract and they shall be furnished by the Contractor without extra cost to the Owner.

C-5.08 GUARANTEES:

All structural, mechanical and electrical equipment or instrument shall be guaranteed against mechanical and physical defects, leakage, breakage, or other damage occurring during normal operation for a period of one (1) year after such equipment or instruments have been accepted by the Owner. The Contractor shall promptly repair or make good, at his own expense, any defect in such equipment or instruments.

C-5.09 GENERAL GUARANTEE:

All work included in the Contract shall be guaranteed against faulty material or workmanship for a period of one (1) year after the work has been accepted by the Owner.

Neither final acceptance of the work, nor final payment thereof, nor occupancy and use of the work by the Owner shall constitute a waiver of the Owner's right to require the Contractor to repair or make good any such faulty materials or workmanship.

C-5.10 FINAL CLEANING UP:

Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, tools, and materials and shall dispose of all rubbish, temporary structures, and surplus backfill. The site shall be left in a neat and presentable condition throughout. Any land area, driveway, sidewalk, alley, street or road (concrete or asphalt) which has been cut or disturbed during the prosecution of the work shall be repaired at the Contractor's expense to a condition at least as good or better as originally existed.

C-5.11 EXISTING STRUCTURES:

The Plans show the locations of all known surfaces and subsurface structures. However, the exact location of gas mains, water mains, conduits, sewer etc., is unknown and the Owner assumes no responsibility for failure to show any of these structures on the Plans or to show them in their exact location. It is mutually agreed such failure will not be considered sufficient basis for claims for additional compensation for extra work or for increasing the pay quantities in any manner whatsoever, unless the obstruction encountered is such as necessitates, or requires the building of special work, provision for which is not made in the Plans and Proposal, in which case the provisions in these Specifications for extra work shall apply.

01 TECHNICAL PROVISIONS

01010 SUMMARY OF THE WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings: and conditions of the construction contract, including but not limited to General Conditions, and the Special Conditions listed below, apply to work of this section.

DIVISION 1

SECTION

01000 Job requirements
01010 Summary of the Work
01050 Field Engineering
01200 Substitutions and Products
01300 Shop Drawings, Project Data and Samples
01500 Temporary Facilities
01510 Temporary Utility Services
01530 Barricades
01700 Contract Closeout
01710 Cleaning

1.2 PROJECT/WORK IDENTIFICATION

A. Project Name and Location:

La Presa Park
Webb County, Texas

B. Architect: The term "Architect" refers to the professional services contractor listed below:

Hickey Peña Architects
919 Victoria St.
Laredo, Texas 78040

C. Abbreviated Written Summary: Briefly, and without force and effect upon contract documents, work of contract can be summarized as follows:

The project consists of restoring the rectory partially destroyed by fire to original status: new & restored wooden floors, plaster walls, tin ceiling panels, wooden ceilings, new bathrooms, wooden stairwell, painting, new doors & windows, new elevator, tile work, millwork, slate roof, plumbing work, electrical work, HVAC and heating unit, etc., (see plans)

1.13 CONTRACTOR USE OF PREMISES

A. General: The Contractor shall have full access to the site for the work indicated.

1. Use of the Site: Confine operations at the site to the areas permitted under the Contract.

1.14 CONSTRUCTION COORDINATION

A. General: The Contractor shall be responsible for coordinating his work with other entities performing work at the site.

1.15 INSPECTION BY REGULATORY AUTHORITIES

A. This project is subject to inspection by the following regulatory authorities:

City of Laredo Building Inspection
Occupational Safety and Health Administration

B. Notify Architect when inspections take place. Decision as to action to be taken as a result of inspections by regulatory authorities will be made by the Owner and Architect.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

01020 ALLOWANCES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Identification and Description of allowances.

1.02 RELATED REQUIREMENTS

Related work of other sections:
Section 01010 – Summary of Work.
Divisions 2 through 16: Sections affected by each Alternate.

1.03 PROCEDURES

A. Allowances for incorporation into the Work are identified in the Contract Documents. Coordinate all related Work and modify surrounding Work as required to incorporate the allowances.

1.04 SCHEDULE OF ALLOWANCES

ADA Allowance - \$6,000: This allowance is reserved for potential construction items related to the existing site and/or proposed improvements occasioned by the review of the Texas Department of Licensing and Regulation's Elimination of Architectural Barriers Division of subject project plans and specifications. The allowance amount is exclusive of the General Contractor's overhead and profit and is to be included in the Base Bid Amount. Installation of these items shall be included in base bid.

Signage Allowance: \$3,500: This is reserved for materials cost of permanent Park signage in the form of letters and/or plaques. The allowance amount is exclusive of the General Contractor's overhead and profit and is to be included in the Base Bid Amount.

Park furnishings Allowance: \$3,000: This allowance is reserved for material costs of exterior furnishings such as benches and trash receptacles. The allowance amount is exclusive of the General Contractor's overhead and profit and is to be included in the Base Bid Amount. Installation of these items shall included in base bid.

PART 2 – PRODUCTS

NOT USED IN THIS SECTION

PART 3 – EXECUTION

NOT USED IN THIS SECTION

01030 ALTERNATES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED:

- A. Identification and Description of alternates.

1.02 RELATED REQUIREMENTS:

- A. Related work of other sections:
Section 01010 – Summary of Work.
Divisions 2 through 16: Sections affected by each Alternate.

1.03 PROCEDURES:

- A. Alternates will be exercised at option of Owner. Alternates accepted by Owner for incorporation into the Work is identified in the Contract.

Coordinate related Work and modify surrounding Work as required to complete the Work, including changes under each Alternated, when acceptance is designated in Contract.

1.04 SCHEDULE OF ALTERNATES

Alternate No. 1: Jogging Trails (1/4 Mile Walking)

1. Provide concrete walking trail as delineated on Sheet C.2 and Detail 3/A302. Contractor shall include all labor, materials, and equipment.

Alternate No. 2: Pavilion

1. Provide pavilion structure as delineated on Sheet A-200 including plumbing as shown on Sheet C4.0. Contractor shall include all labor, materials, and equipment.

Alternate No. 3: Playground and Swings Area

1. Provide playground and swings area as delineated on Sheet A-302 including the playground flooring material. Contractor shall include all labor, materials, and equipment.

Alternate No. 4: Soccer Field

- A. Provide soccer field (with sports equipment) as shown on Sheets C2.0 and C3.0 Contractor shall include all labor, materials, and equipment.

01040 COORDINATION

PART I - GENERAL

101 REQUIREMENTS INCLUDED:

A. Coordination of Work of Contract.

1.02 RELATED REQUIREMENTS:

A. Related Work of Other Sections:

1. Section 0 1 0 1 0- Summary of Work.
2. Section 01045 - Cuffing and Patching.
3. Section 01 160 - Contractor Requirements.
4. Section 0 1200 - Project Meetings.
5. Section 01300 - Submittals.
6. Section 0 1 3 1 0 - Schedules, Reports and Payments.
7. Section 0 1340 - Shop Drawings, Product Data, Samples and Colors.
8. Section 01600 - Material and Equipment.
9. Section 0 1630 - Product Options and Substitutions.
10. Section 0 1 700 -Contract Closeout: Closeout submittals.
11. Division 15 Sections: Mechanical and Plumbing Work.
12. Division 16 Sections: Electrical Work.

103 COORDINATION, GENERAL:

A. Coordinate all portions of the Work under the Contract. Require each Subcontractor to coordinate their portion of the Work and provide their requirements for coordination of their Work with other related Work.

B. Coordinate mechanical and electrical Work with that of other trades in order that various components of systems are installed at proper time, fit available space, and allow proper service access to those requiring maintenance, including equipment specified in other Divisions.

C. Coordinate Work of sections having interdependent responsibilities for installing, connecting to, and pricing in service, such equipment.

D. Coordinate use of Project and sequence of installation of mechanical, plumbing, and electrical Work which is indicated diagrammatically on Drawings. Follow routines shown for pipes, ducts, and conduits as closely as practicable, with due allowance for available physical space; make runs parallel with lines of building. Utilize space efficiently to maximize accessibility for other installations, for maintenance, for repairs.

E. In finished areas, except as otherwise shown, conceal pipes, ducts, conduit, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements. Provide escutcheon plates at penetrations through finished walls and ceilings with finish appropriate to adjacent finish surface.

F. Coordination Drawings: Before materials are fabricated or Work begun, prepare coordination Drawings including plans, elevations, sections, and other details as required to clearly define relationships between sleeves, piping, ductwork, conduit, ceiling, lighting, and other mechanical, plumbing and electrical equipment with other components of the building such as beams, columns, ceilings, and walls.

1. Hold coordination meetings with trades providing the above Work, to coordinate Work of the trades for each floor and mechanical areas.

2. Prepare coordination Drawings to 1/4" = 1'-0" scale for general layout and 3/8" = 1' = 0" for plans and sections in congested areas such as equipment spaces.

3. Resolve conflicts between trades, prepare composite coordination Drawings and obtain signatures on original composite coordination Drawings.

4. When conflicts cannot be resolved, Contractor shall request clarification prior to proceeding with that portion of the Work affected by such conflicts or discrepancies. Prepare interference Drawings to scale and include plans, elevations, sections, and other details as required to clearly define the conflict between the various systems and other components of the building such as beams, columns, and walls, and to indicate the Contractor's proposed solution.

5. Submit Drawings for approval whenever job measurements and an analysis of the Drawings and Specifications by the Contractor indicate that the various systems cannot be installed without significant deviation from the intent of the

Contract. When such an interference is encountered, cease Work in the general _____ areas of the conflict until a solution to the question has been approved by the _____ A/E.

6. Submit original composite coordination Drawings as part of record document submittals specified in Section 01720.

G. Remove and relocate items which are installed without regard to proper access as directed by the A/E, at no additional cost to the Owner.

1.04 CORRESPONDENCE:

All correspondence relating to this Project must show the Project name, Project number & Contract number. Copies of all correspondence between the Owner, Contractor and A/E (except shop Drawings and submittals) should be provided to all parties. Copies of correspondence for the Owner should be provided to both the Project Manager and Inspector.

1.05 MEETINGS:

A. In addition to progress meetings specified in Section 01200, hold coordination meetings and pre-installation conferences with personnel and Subcontractors to assure coordination of Work.

1.06 COORDINATION OF SUBMITTALS:

A. Schedule and coordinate submittals specified in Sections 01300, 01310, 01340, 01380, 01630 and 01700 and other Sections.

Coordinate requests for substitutions to assure compatibility of space, of operating elements, and effect on Work of other sections.

1.07 COORDINATION OF CONTRACT CLOSEOUT:

A. Coordinate completion and cleanup of Work of separate sections in preparation for Beneficial Occupancy.

B. After Owner occupancy of premises, coordinate access to site by various sections for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.08 COORDINATION WITH LOCAL PERSONNEL:

A. Problems concerning traffic, parking or blocking streets must be referred to the City of Laredo Traffic Department. Coordination is to be through the Owner's Representative.

B. Any exterior problems, including the moving of utilities is to be referred to the City of Laredo Utilities Department. Coordination is to be through the Owner's Representative.

C. The scheduling of utility outages must be coordinated with the Owner's project manager of the individual institution at least one week in advance. This coordination is to be arranged through the Owner's Representative.

PART 2- PRODUCTS
NOT USED

END OF SECTION

01050 FIELD ENGINEERING

Checking dimensions at site: Before ordering any materials or doing any work, verify all measurements of the building and be responsible for the correctness of them. No extras will be allowed for variations from drawings in existing conditions or for work performed under this contract. Any discrepancies found shall be submitted to the architect for instructions before proceeding.

01200 PROJECT MEETINGS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Bidding and Contract Requirements and Division 1 - General Requirements of the Specifications apply to this work.

1.02 SECTION INCLUDES:

A. Requirements for the arrangement, distribution of notices, and maintenance of records for the pre-construction meeting, progress meetings, and pre-installation meetings.

1.03 GENERAL:

A. Contractors, subcontractors and suppliers representatives attending the meetings / conferences of this section shall be qualified and authorized to act on behalf of the entity each represents.

B. Comply with the following meeting requirements after execution of the Contract.

1. Arrangements: Arrange for a convenient, comfortable room in which to conduct the progress meetings, furnished as necessary to accommodate the people involved and to accomplish the purpose of the meeting. Owner will provide the room for the pre-construction meeting.

2. Notices: Distribute written notices to all concerned at least 1 week in advance of the meeting date.

3. Records: Keep notes during each meeting and distribute them in the form of minutes of the meeting to all concerned within 4 days after the adjournment of the meeting.

4. Schedule Updating: Immediately following each progress meeting, where revisions to the progress schedule have been made or recognized, revise the progress schedule. Reissue revised schedule concurrently with report of each meeting.

1.04 PRE-CONSTRUCTION MEETING:

A. Chairman: The meeting will be presided over by the Owner's Representative.

B. Attendance: The following, persons will be expected to attend:

1. Owner's Representative.
2. Architect/Engineer's Construction Administrator.
3. Architect/Engineer's Consultant for Mechanical, Electrical and Structural Engineering.
4. Contractor's General Superintendent and Project Manager.
5. Major Subcontractors including those for mechanical, plumbing and electrical work.

C. Agenda: Subjects shall include, but are not limited to the following:

1. Distribution of submittals. Refer to Section 01300.
2. Sequence of critical work
3. Relation and coordination of Contractor.
4. Designation of responsible personnel.
5. Processing of Change Orders.
6. Adequacy of distribution of Construction Documents.
7. Handling of materials to permit inspection.
8. Procedure for maintaining Record Documents.
9. Use of the premises; access to the Site, office and storage areas, and Owner's requirements.
10. Major equipment deliveries and priorities.
11. Safety and first aid procedure.
12. Security procedures.
13. Housekeeping procedures.
14. Additional subjects as requested by the Owner, the Architect / Engineer or the Contractor.
15. List of major subcontractors and supplies.

1.05 PROGRESS MEETINGS:

A. Chairman: Contractor's Project Manager or Project Superintendent shall preside over the meeting.

B. Attendance: The following persons will be expected to attend:

1. Owner's Representative.
2. Architect / Engineer's Construction Administrator.
3. Architect / Engineer's Consultants for mechanical, electrical and structural engineering until excused from attendance.
4. Contractor's General Superintendent, Project Superintendent and Project Manager.
5. Subcontractors who have work in progress.
6. Subcontractor who will start work within the next month.
7. Others as requested by Owner, Architect/Engineer, or Contractor.

C. Agenda: The Contractor will provide a written agenda including but not necessarily limited to the following items:

1. Present a brief written narrative of construction progress since the last month meeting containing:
 - a. General description of work performed.
 - b. Expectation of meeting scheduled dates.
 - c. Description of current or anticipated delaying factors or problems, if any.
2. Review the updated Progress Schedule and present a written schedule analysis.
3. Review the Submittal Schedule/Log.
4. Review the Revision Log.
5. Review of Requests for Information.
6. Review of Record (nAs Built") Drawings.
7. Review/approval of the Pay Request.
8. General discussion: Other outstanding/current business.

D. Number of Meetings: A minimum of one progress meeting shall be held each month. Other weekly or biweekly progress meetings shall be held as determined by the Owner and shall cover those subjects as required by the Owner.

1.06 PRE-INSTALLATION MEETINGS:

- A. When required in individual specification Section, convene a pre-installation meeting at the Project field office prior to commencing work of the Section.
- B. Require attendance of entities directly affecting, or affected by, work of Section.
- C. Notify Architect ten (10) days in advance of meeting date.
- D. Contractor shall prepare agenda, preside at meeting, record minutes, and distribute copies within four (4) working days after meeting to participants, with three (3) copies furnished to the Architect and one (1) copy furnished to the Owner.
- E. Review conditions of installation, preparation and installation procedures, and coordination with related work. Review submittals for all work to be installed.
- F. The Contractor shall maintain an adequate inspection system and perform such inspection to insure that the work called for by this contract conforms to the contract specifications and requirements.
- G. The Contractor shall maintain complete inspection records and make them available to the Owner's Representative

1.07 PRE-ROOFING CONFERENCE:

- A. Refer to applicable Division 7 section for requirements.

1.08 LOCKSET HARDWARE/KEY CONFERENCE:

A key conference shall be conducted after approval of hardware submittal prior to the ordering of lock hardware. The General Contractor shall, in conjunction with the Project Manager, A/E and User Coordinator, establish a date for the keying conference to be held. A key conference is required to review the function of the locks and to insure that all security requirements of the Using Agency will be met.

PART 2 - PRODUCTS
NOT USED

PART 3 – EXECUTION
NOT USE

01300 SUBMITTALS

PART 1 - GENERAL

1.01. Related Documents

- A. Bidding and Contract Requirements and Division 1 - General Requirements of the Specifications apply to this work.

1.02. Section Includes

- A. Administrative submittal requirements including but not limited to:
 - 1. List of proposed subcontractors.
 - 2. List of materials.
 - 3. Contract price breakdown.
 - 4. Progress schedule.

1.03. Related Work

- A. Coordinate the work of this Section with work of other Sections as required to properly execute the Work, and as necessary to maintain satisfactory progress of the work of other Sections, including:
 - 1. Section 01010 - Summary of Work.
 - 2. Section 01310 - Schedules, Reports and Payments.
 - 3. Section 01340 - Shop Drawings, Product Data, Samples and Colors.
 - 4. Section 01600 - Material and Equipment.
 - 5. Section 01630 - Product Options and Substitutions.
 - 6. Section 01700 - Contract Closeout.
 - 7. Division 15 and 16 Sections: Additional submittal requirements for mechanical, plumbing and electrical work.

1.04. General Requirements

A. General

Immediately after the development and acceptance of the fully developed progress schedule, prepare a complete schedule of work-related submittals. Submit this schedule within 10 days of the date required for establishment of progress schedule. Correlate this submittal schedule with the listing of principal subcontractors, as required by the Special Provisions, and with the "list of materials" as specified and elsewhere in Contract Documents.

B. Form

Prepare the schedule in chronological order of submittals. Show category of the submittal, name of Subcontractor, a generic description of schedule, the scheduled date for the first submission, resubmittal, and the final release or approval by Architect/Engineer. Submittals of written data shall be on 8-1/2 x 11 inch size paper, they shall be typed and they shall clearly state the name of the project, the subject of the submittal and its date.

C. Delivery

Submittals shall be sent to the Architect/Engineer's office. The required date shall be considered met if the submittal is postmarked with such date.

D. Approval

When approval is required, resubmittals shall be made when necessary in the manner described for the original submission, unless specified otherwise, until it is received.

1.05. LIST OF PROPOSED SUBCONTRACTORS AND SUPPLIERS

A. General

Not later than 30 days after Award of Contract, submit the names of subcontractors and material suppliers proposed for work tabulated by and complete for each portion of the work in duplicate, in accordance with General Conditions. Performance or non-performance of any subcontractor or material supplier will not relieve the Contractor of its responsibility for work as called for under the Contract Documents.

B. Submit list of materials within 60 days after issuance of Notice to Proceed in accordance with General Conditions.

1.06. LIST OF PROPOSED MATERIALS

A. Materials List

Submit in duplicate a list of the following types of materials proposed for installation:

1. Material not specified (follow substitution requirements specified in Section 01 630).
2. Material selected from a Specification naming more than one manufacturer or supplier.
3. Material selected to conform to a reference specification when no manufacturer has been named.

B. It will be assumed that unlisted materials will be furnished as specified when only one manufacturer has been specified or that the Architect/Engineers selection will govern when more than one manufacturer has been named or when reference specifications have been used.

C. The list shall be tabulated by, and be complete for, each Specification Section and portion of the Work. Include name of manufacturer of each material. For materials specified by reference standards, also include the following, with the listing of each such product:

1. Address of manufacturer.
2. Trade name.
3. Model or catalogue designation.
4. Manufacturer's data, including performance and test data and referenced standards.

1.07. Contract Price Breakdown

A. General

Submit Contract Price Breakdown to Owner and Architect at least 20 days prior to submitting first Application for Payment. (Refer to General Conditions) Upon request of Architect, furnish additional data to support values given that will substantiate their correctness. Approved Contract Price Breakdown will be used as basis for reviewing Contractor's Applications for Payment. Identify and recap the 10% of the total amount of work to be performed by the Contractor's own organization in accordance with General Conditions

B. Form and Content

1. Submit typewritten Schedule. Use AIA Document G 702.
 - a. Use Table of Contents of Project Manual as basis of format for listing costs of Work.
 - b. List installed value of component parts of Work in sufficient detail to serve as basis for computing values for progress payments.
2. List item costs shall not include General Contractor fee/overhead and profit; but, shall reflect the direct cost for labor and materials to General Contractor. Separate items into labor amounts and material amounts for each item.
3. For items on which payment will be requested for stored materials, break down value into:
 - a. Cost of materials, delivered and unloaded, with taxes paid.
 - b. Total installed value.
4. Labor Costs
Include estimated installation costs including labor, applicable taxes, insurance, fringe benefits, erection equipment and tools.
5. Materials Costs: Include estimated material and manufactured equipment costs including delivery, taxes and insurance.
6. Itemize separate line item cost for each of the following General Contractor cost items:
 - a. Bonds
 - b. Field supervision and layout.
 - c. Temporary facilities and controls.
 - d. General Contractor overhead and profit or "fee."
7. Combined total of all costs listed in Schedule shall equal Contract Sum.

C. Review and Resubmittal

1. After initial review by Owner and Architect, revise and resubmit if required.
2. Revise and resubmit along with next Application for Payment when a Change Order is issued. List each Change Order as a new line item.

1.08. Progress Schedule (Re: General Conditions)

A. Submission

Prepare and submit in triplicate, a progress schedule and bar graph or if specified, a Critical Path Method Schedule as specified in Section 01310 Schedules, Reports and Payments.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

01310 SCHEDULES, REPORTS AND PAYMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Bidding and Contract Requirements and Division 1 - General Requirements of the Specifications apply to this work.

1.02 SECTION INCLUDES:

A. Administrative submittal requirements, including but not limited to:

1. Bar chart progress schedule.
2. Daily reports.
3. Payment requests.

1.03 RELATED WORK:

A. Coordinate the work of this Section with work of other Sections as required to properly execute the Work, and as necessary to maintain satisfactory progress of the work of other Sections, including:

1. Section 01010 - Summary of Work.
2. Section 01300 - Submittals.
3. Section 01340 - Shop Drawings, Product Data, Samples and Colors.
4. Section 01700 - Contract Closeout.

1.04 PROGRESS SCHEDULE:

Coordination: Comply with General Conditions. Coordinate both the listing and timing of reports and other activities required by provisions of this Section and other Sections, so as to provide consistency and logical coordination between the reports. Maintain coordination and correlation between separate reports by updating a monthly or shorter time intervals. Make appropriate distribution of each report and updated report to all parties involved in the work including the A/E and Owner. In particular, provide close coordination of the progress schedule, contract price breakdown, listing of subcontracts, schedule of submittals, progress reports, and payment requests.

A. Preliminary Work Progress Schedule: Submit a bar-chart type progress schedule within three weeks after receipt of Notice to Proceed.

1.05 DAILY REPORTS:

A. Prepare a daily report, recording the following information concerning events at the Site; and submit duplicate copies to Architect/Engineer and Owner at regular intervals not exceeding weekly intervals:

1. List of subcontractor at the Site.
2. Approximate count of personnel at the Site.
3. High/low temperatures, general weather conditions.
4. Accidents (refer to accident reports).
5. Meetings and significant decisions.
6. Unusual events (refer to special reports).
7. Stoppages, delays, shortages, losses.
8. Meter readings and similar recordings.
9. Emergency procedures, field orders.
10. Orders/requests by governing authorities.
11. Visitors.
12. Services connected, disconnected.
13. Equipment or system test and start-ups.
14. Partial completions, occupancies.

1.06 PAYMENT REQUESTS:

A. General: Except as otherwise indicated, the progress payment cycle is to be regular. Each application must be consistent with previous applications and payments. Certain applications for payment, such as the initial application, the application at final payment application involved additional requirements. Refer to General Conditions for additional requirements.

B. Construction Voucher: AIA Document G 702 and Contractor prepared back-up sheets.

At the earliest convenient time after receiving the notice of award, the Contractor shall develop a cost breakdown to reflect the value of the categories of work.

C. Contractor's Estimate/Contract Payments:

General Conditions, makes provisions for partial payments once each month to the Contractor based on the amount of work completed and materials stored. The approved Contract breakdown schedule will be used in calculating the progress payments.

D. Monthly Payment Estimates:

Once each calendar month the A/E, General Contractor's superintendent, and Owner's Representative will have an on-the-job meeting in which to review the Contractor's estimate and to agree upon a percentage complete for the various items of work. The Owner's Representative will review the estimate prior to presentation to the A/E for approval. The agreed upon percentage and amount will be typed on the Contract breakdown schedule and signed by the General Contractor's representative and Owner's Representative.

The A/E will show approval by signature on the face of the construction voucher AIA Document G 702 in conjunction with the authorized representative of the General Contractor. Only an original Form G702 (red dot) should be sent to the Owner, for further processing. Refer to General Conditions.

1. Limitations - Estimates will not be approved if the job site As-Built drawings are not up to date and posted.

2. Historically Underutilized Business Progress Reports will be prepared and submitted with the pay request each month in accordance with the General Conditions. Pay requests will not be approved without this completed form.

3. Contract Change Statement - All approved revisions should be entered on the Contract Change Statement. This Statement will then be attached to the Contractor's monthly payment estimate. Percentages complete should be shown opposite each item listed and extended into the "Total Complete to Date column. The total of the Total Complete to Date" should be brought forward to the line item on the breakdown schedule titled, "Changes Complete to Date".

4. Payment for Stored Materials - Invoices for stored materials will be submitted when required by the Owner's Representative.

Stored material invoices will be accepted only after an approved shop drawing or sample has been received by the Facilities Construction Division.

5. Payment of Estimates- It is the desire of the Owner to process the Contractor's estimates as promptly as possible. In order to do this, it is requested that these instructions be followed and that the Contractor make every effort to see that the estimate is mathematically correct and that only approved items are included as material stored on the site.

Invoices for stored materials will only be considered when they exceed five hundred dollars (\$500) for each individual item. There will be no invoices accepted that contain tools, or expendable materials.

Invoices will only be considered that are referenced to the materials in the estimate cost breakdown. Invoices that are not legible will not be considered for payment.

All stored materials will be checked by the Project Superintendent and verified by the Owner's Representative before being incorporated into the payment estimate.

E. Base applications for Payment on value of work installed, and materials and equipment suitably stored at Site. Materials and equipment suitably stored off site in an insured or bonded warehouse may be included, if approved in writing by Owner.

F. Payment for Stored Materials:

1. Where the Schedule of Values separates items into labor amounts and material amounts, payment will be made for materials delivered and suitably stored on Site.

2. Materials stored at an off site location which are eligible for inclusion on progress payments are defined as finished goods made specifically for the Project. Raw materials, work in progress at fabrication plants, and commodity items readily available for purchase are not eligible for inclusion in Contractor's Application for Payment.

3. Payment will be made under following provisions:

a. Items are listed separately on Application for Payment.

b. Include with Application for Payment:

(1) Paid receipts showing Contractor is unconditional owner.

(2) Fully executed Transfer of Title on photocopy of form provided herein.

(3) Location where materials are stored if off site, and method used to store.

(4) Identify items in off site storage as property of Owner and furnish description of

- identification method.
- (5) Inventory of items and methods used to verify inventory, including Contractor's certification that quantities have been received in good order.
- (6) Proof of insurance for materials stored off site, in Owner's name.
- (7) Proof of transportation arranged for delivery of material stored off site.
- c. Owner reserves right to verify storage by physical inspection at any time.
- d. Payment does not relieve Contractor's obligations to protect, transport and install materials.
- e. Title of materials upon which partial payments are made shall transfer to Owner.

Partial payment does not constitute acceptance by Owner nor a waiver of any right or claim by Owner. Any costs incurred by Owner shall be paid by Contractor.

G. Final Payment Application: Administrative actions and submittals must precede or coincide with submittal of Contractor's final payment application.

1. Complete project closeout requirements specification in Section 01700.
2. Additions and deductions resulting from (1) previous Change Orders, (2) deductions for reinspection payments, and (3) other adjustments.
 - a. Original Contract Sum.
 - b. Additions and deductions resulting from (1) previous Change Orders, (2) deductions for reinspection payments, and (3) other adjustments.
 - c. Retainage withheld from previous payments.
 - d. Total Contract Sum, as adjusted.
 - e. Previous payments.
 - f. Sum remaining due.

3. Architect will prepare final Change Order, reflecting approval adjustments to Contract Sum not previously made by Change Orders.

4. Final payment constituting entire unpaid balance of Contract Sum will be made within 60 days after final Certificate of Payment has been approved.

H. Application Transmittal: Submit three (3) executed copies of each payment application, one copy of which is completed with waivers of lien and similar attachments. Transmit each copy with a transmittal form listing those attachments, and recording appropriate information related to application in a manner acceptable to Owner. Transmit to Owner by means ensuring receipt with 24 hours.

I. Cash Flow Schedule: With the required progress schedule, prepare and submit for approval an Estimated Cash Flow Schedule for the Work, detailing the monthly payment requirements anticipated during the course of the Work.

1.08 CONTRACTOR'S PAYROLL RECORDS

A. The Contractor is required to make the weekly payroll records available to the Owner for verification. These records are necessary to ascertain whether the prescribed wage rates are being paid or to verify wages as submitted in Contract revisions. Refer to General Conditions.

B. On certain projects, the Contractor will be required to furnish a complete set of payroll records weekly.

C. The Contractor is required to submit a written monthly narrative of construction progress. This report should be submitted to the A/E with copies to the Project Manager and Project Inspector. Refer to General Conditions.

1.09 ARCHITECT/ENGINEER REPORTS

A. The A/E will make a monthly report to the Owner containing:

1. A brief synopsis of the work completed for this period; anticipated problems; and a review of the outstanding submittals and revisions.

A copy of this report shall be furnished to the Project Manager, Project Inspector, and General Contractor.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

01340 SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND COLORS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Bidding and Contract Requirements and Division 1 - General Requirements of the Specifications apply to this work.

1.02 SECTION INCLUDES:

A. Submittal requirements, including but not limited to:

1. Shop drawings, product data, samples and colors.
2. Submittal procedures.
3. Review procedures.
4. Mockups and field samples.

1.03 RELATED WORK:

A. Coordinate the work of this Section with work of other Sections as required to properly execute the Work, and as necessary to maintain satisfactory progress of the work of other Sections, including:

1. Section 01010 - Summary of Work.
2. Section 01040 - Coordination.
3. Section 01300 - Submittals.
4. Section 01310 - Schedules, Reports and Payments.
5. Section 01600 - Material and Equipment.
6. Section 01630 - Product Options and Substitutions.
7. Section 01700 - Contract Closeout.
8. Other Technical Sections: Additional submittal requirements.

1.04 SUBMITTALS, GENERAL:

A. In addition to the requirements outlined under the General Conditions, Contractor shall comply with the following duties and responsibilities.

B. The Contractor shall submit to the A/E for review all shop drawings, product data, samples and other submittals for all items required in the Technical Sections of the Specifications and for all items proposed for use in the Work. Do not combine submittals for specified work with requests for substitutions. Submit requests for substitutions. See Section 01630 for requirements.

C. The Contractor shall review and designate (stamp) its approval and submit, with reasonable promptness and in orderly sequence, all shop drawings, product data and samples required.

D. Submit shop drawings, product data and samples far enough in advance to allow ample time for A/E's review, re-submittal if required, and fabrication without creating any delay in the Work, or the work of any other Contractor or subcontractor.

1. Make architectural submittals a minimum of 30 days prior to needed return date.
2. Make structural, mechanical and electrical submittals a minimum of 45 days prior to needed return date.
3. Allow more review time for requests or substitutions.
4. Shop drawings will be discussed at the Pre-Construction Conference on an individual project basis regarding the number of shop drawings to be submitted for review by the A/E and Owner. See General Conditions, Article V, paragraph 5.14.4 for requirements.
5. The A/E, after review and approval of submittals, will keep one copy for file and return remaining copies to contractor.

E. Submittal Content Requirements:

1. Shop drawings shall be completely detailed and dimensioned with types, sizes, and gauges of materials noted. Where shop coat of paint is required on materials, brand name, and chemical content shall be noted on the drawings.
2. Shop drawings shall be neatly, accurately, and legibly drawn, noted and referenced.
3. Each item contained in the submittal shall be clearly referenced and noted establishing the item's location in the finished work.
4. Member and item designations shall be the same as those used on the A/E's drawings, except that, where the A/E's has used the same designation for more than one member or item, the Contractor may add a suffix to the designation to differentiate between these members.
5. Where published standard exist (such as ACI Standard 315-65 reinforcing steel), these shall be followed in the preparation of shop drawings. Where no such standards are published by the industry or trade concerned, the shop drawings shall be prepared in a suitable form acceptable to the A/E.

F. Submittal Format Requirements:

1. Submittal Preparation: Mark each submittal with a permanent label or title block, as appropriate, for identification with the following information on the label or title block for proper processing and recording of action taken.

- a. Title of submittal and date submitted.
- b. Sheet number and number of sheets included (as applicable). Number drawings consecutively.
- c. Project Name, Project Number, and location of Project.
- d. Name of Architect and Architect's Project Number.
- e. Name of Contractor, subcontractor, fabricator supplier, and manufacturer, as appropriate.
- f. Name of drawing and scale (as applicable).
- g. Name and date of each revision.
- h. Cross reference to A/E's Drawings and Specification Sections, as appropriate.
- i. Provide a space on the label or adjacent to title block for the Contractor's review and approval markings, and appropriate space for the Architect's or Engineer's "Action" stamp.
- j. Name of each item on each sheet submitted and indicate its location in the Project Work.

2. Submittal Numbering System: To expedite review of shop drawings, product data, samples and other submittals, all submittals shall be assigned a submittal number clearly visible on all transmittal forms and on each copy of each submittal adjacent to Contractor's review stamp. Numbering system shall track Specifications format. In the example the number represents the following:

- a. First Two Numbers: Specification Division; Division 3 in example.
- b. Third Through Fifth Numbers: Numerical log of submittals within each Division; Submittal number 1 in example.
- c. Last Number: Initial or re-submittal of each submittal; .0 for initial submittal, .1 for first re-submittal, and so forth.

3. Transmittal Form: Provide a letter of transmittal with each submittal, in duplicate, accurately describing the complete contents of the submittal, including the following:

- a. Project name.
- b. Date.
- c. To:
- d. From:
- e. Names of subcontractor, manufacturer and supplier.
- f. References.
- g. Category and type of submittal.
- h. Submittal purpose and description of number of sheets, type of data, equipment and product types, finishes, submittal number, and similar data.
- i. Submittal and transmittal distribution record.
- I. Signature of transmitter.
- k. Record relevant information and requests for data on the transmittal form. On the transmittal form, or on a separate sheet attached to the form, record deviations from the requirements of the Contract Documents, if any, including minor variations and limitations.

4. Submit Plumbing, Mechanical and Electrical items specified in each individual Section at the same time. Partial submittals will not be considered.

5. Bind each of the Plumbing, Mechanical and Electrical submittals into a complete brochure; loose sheets will not be accepted. Each complete brochure shall contain a Table of Contents showing the order in which the items are arranged in the brochure and shall have extended index tabs for each item. Arrange items in the same order in each brochure. Where manufacturer's literature contains information on more than one product, clearly mark the item being submitted, using the symbol or designation used to identify the item on the Drawings or in the Specifications.

6. Group only like or related items together in a single submittal. Do not combine submittals for specified work with requests for substitutions. Submit requests for substitutions as specified in Section 01630.

G. Contractor Duties and Responsibilities:

1. Coordinate requirements for submission of each shop drawing, product data and sample as required to properly execute the Work and as necessary to maintain satisfactory progress of the Work in accordance with the Construction Progress Schedule and Submittal Schedule.

2. Review shop drawings, product data, and samples prior to submission to Architect. By submitting shop drawings, product data, and samples, Contractor represents that it has verified field measurements, field construction criteria, catalog numbers and similar data, and has coordinated each submittal with requirements of the Work and of the Contract Documents. Contractor's responsibility for

errors and omissions in submittals is not relieved by A/E's review of submittals. Submittals received from sources other than Contractor will be returned to sender without Architect's or Engineer's review "action".

3. Contractor shall certify by stamped, signed, and dated notation on each submittal, that "Submittal is in compliance with requirements of Contract Documents without deviation." Submittals without Contractor's stamp and submittals which, in A/E's or Owner's opinion, are incomplete, contain numerous errors, have not been checked, or have been checked only superficially, will be returned without disposition. Delays resulting therefrom shall be Contractor's responsibility.

4. Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by A/E's review of shop drawings, product data, and samples unless Contractor has specifically informed the A/E in writing of such deviation at time of submission and A/E has given written acceptance to the specific deviation.

5. Contractor shall direct specific attention, in writing or on resubmitted shop drawings, product data or samples, to revisions other than those requested by Architect on previous submittals.

6. Contractor shall give prompt written notice to A/E of inability to comply with exceptions noted on the returned submittals or if unsatisfactory results are anticipated. Document specific reasons for inability to comply or specific unsatisfactory results that are anticipated. Propose substitution to comply with intent of the Contract Documents and produce satisfactory results in accordance with the substitution requirements of Section 01630.

7. No portion of the Work requiring submission of a shop drawing, product data or sample shall be commenced until submittal has been reviewed with "No Exceptions Taken" status by A/E, except as otherwise provided in this Section.

8. All portions of the Work shall be in accordance with approved submittals.

H. Submittal Quantity: Unless greater quantity is otherwise required, provide and transmit to the office of the A/E, at the address given in the Contract Documents, the quantity of shop drawings, and product data required in General Conditions. Submit minimum of three samples of materials requiring choice of color, texture or finish. Large Job site samples shall be limited to one for each approval submittal. Refer to Section 01630 for additional requirements.

I. Reproduction and Distribution of Submittals After A/E's Review: Provide and distribute blue-line prints of reviewed shop drawing reproducible transparencies as required to provide 2 copies for Owner and 1 copy for Job Site file (both "No Exceptions Taken" status only), and copies necessary for Contractor operations. Distribute sets of product data to provide 2 copies for Owner and 1 copy for Job site file (both "No Exceptions Taken" status only) and others as necessary for Contractor operations. Retain Job Site mock-ups and samples until removal is approved by A/E and Owner's Representative.

1.05 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES:

A. Shop Drawings: Comply with "Submittals, General" and the following:

1. Definition: The term "shop drawings" refers to original drawings prepared by the Contractor, subcontractor, supplier, fabricator or distributor illustrating a portion of the Work including fabrication drawings, manufacturing drawings, erection drawings, setting drawings, patterns, coordination drawings, schedules, design mix formulas, Contractor's engineering calculations, and layout drawings including ceiling layouts if varied from the Contract Documents. Do not submit Contract Drawings for shop drawings.

2. Format: Prepare drawings on minimum 8-1/2" x 11" to maximum 30" x 42" sheets. Draw plan and section details at a scale of 1" = 1'-0", details shall be drawn at scale of 3" = 1'-0" or larger scale. In addition to "Submittals, General" requirements, each drawing shall be cross-referenced to A/E's Drawings.

3. Content: Drawings shall include, but not be limited to the following:

- a. The size thickness of members.
- b. The method of anchoring and securing parts together.
- c. The quantity and location of each item.
- d. Other pertinent data necessary to show the work to be done, where, and how it is to be done.
- e. Materials and finishes.
- f. How item fits to abutting work and requirements for related construction.
- g. Required connections.
- h. Overall size and weight.
- i. Clearances and tolerances.
- j. Verify field conditions prior to fabrication.
- k. Coordinate Shop Drawings and data with requirements.
- l. Refer to Section 01040 - Coordination for other requirements.

B. Product Data:

1. **Definition:** Manufacturer's standard product specifications, installation instructions, roughing-in diagrams and templates, standard wiring diagrams, printed performance and operational range diagrams, mill reports, operating and maintenance manuals, color charts, data sheets, brochures, drawings and diagrams, and other standard illustrative and descriptive data to clearly identify pertinent data, models and materials, uses, limitations, actual dimensions and clearances required, and technical performance data including wiring diagrams and controls.

2. Mark out information not applicable to this Project and supplement standard product data to show compliance with requirements.

C. **Samples:**

1. **Definition:** Samples include:

- a. Partial sections of manufactured or fabricated work.
- b. Small cuts or containers of materials.
- c. Complete units of repetitively-used materials.
- d. Swatches showing full range of color, texture and pattern.
- e. Color range sets.
- f. Units of work to be used for independent inspection and testing.
- g. Units of work to be used as a standard to judge materials and workmanship.

2. Provide samples for items where specified and for items requiring a choice of color, texture or finish. Samples shall illustrate the materials and workmanship and establish standards by which to judge the completed work. Refer to Section 01630 for additional requirements.

3. Typical office samples shall be approximately 12" square of 12" long unless otherwise noted and shall clearly illustrate the applicable function, corners, joints, related parts, attachment devices, specified finish and full range of colors. Full size approved samples may be incorporated into the Work.

1.06 FIELD MOCK-UPS AND FIELD SAMPLES:

A. The Contractor shall erect and maintain mock-ups and field samples as required by the various sections of the specifications. Mock-ups and field samples are required for, but not limited to the following:

1. Concrete sidewalk finishes.
2. Exterior face brick wall complete with required tooled mortar, sealants and related stonework.

B. Field samples and job site mock-ups shall be erected at the Project Site at a mutually agreed location. Contractor shall request approval for location on which to construct mock-up of field sample prior to proceeding. Each field sample or mock-up shall be complete and illustrate the range of finish and workmanship required in the completed Work and will be used by A/E, upon approval, as a standard to judge subsequent work.

C. Where several mock-ups of alternate construction techniques or finishes are required and prepared, each shall be labeled for clear identification indicating base construction finish material, special techniques used and where important for duplication of effect line pressures, grit classification, lengths of exposure, surface preparation, undercoats, strength of reagents, etc.

D. Contractor shall request review of mock-up or field sample upon completion prior to proceeding with actual construction work.

E. Contractor shall protect mock-up or field samples from damage, dirt and discoloration after A/E's approval. Retain on the job as a standard reference for materials, workmanship and appearance until removal is authorized. Do not alter, move or destroy mock-up or field sample until so authorized.

1.07 COLOR SCHEDULES:

A. After receipt of all samples, A/E will present to the Owner a proposed comprehensive color schedule for review and approval.

1. The Contractor must insure that required submittals for all items requiring color selection are accomplished in a timely manner. The A/E cannot prepare the colorboard for approval by the Owner until all items requiring color selection have been submitted.

B. The approved color schedule will then be released to the Contractor for ordering materials.

C. No color selection will be released until all colors are approved in the comprehensive color schedule. Any "early" selections requested, and acted upon by the Contractor, shall be at its own risk and understanding that material of color differing from the approved color schedule will be rejected.

D. If the Contractor is unable to submit all color selections/samples within sixty (60) days after "Notice to Proceed", the A/E may proceed with preparation of the color schedule using the color selections of a specified product. The Contractor shall be required to

match the selected colors at no additional cost to the Owner of the specified product selected by the A/E.

1.08 ARCHITECTS AND ENGINEER'S ACTION:

A. Upon receipt of submittals requiring review, the A/E will review submittals and return them to the Contractor with results of the review indicated as follows:

1. REVIEWED; NO EXCEPTIONS TAKEN: Submittal has been reviewed for the limited purpose of checking for conformance information given and design concept expressed in the Contract Documents and no exceptions are taken; Contractor may proceed with work represented in submittal, provided no deviation to Contract Documents.
2. REVIEWED; EXCEPTIONS NOTED: Submittal has been reviewed as stated above and certain exceptions are noted. Contractor may not proceed with work represented in submittal, except when specific written authorization to proceed is given by A/E. Revise submittal, incorporating exceptions noted, and resubmit to A/E until "Reviewed; No Exceptions Taken" status is given.
3. REVIEWED; REVISE AND RESUBMIT: Submittal has been reviewed as stated in paragraph 1 above, Contractor may not proceed with work represented in submittal, and submittal is not acceptable for one of the following reasons:
 - a. Not enough information is provided to make a determination.
 - b. Submittal contains too many errors or omissions to make a determination.
 - c. Information provided does not conform with the information given in the Contract Documents.
4. REJECTED; SUBMIT SPECIFIC ITEM: Submittal has been reviewed as stated in paragraph 1 above, work represented in submittal has not been accepted in accordance with procedures specified in Section; submit specified item.

1.09 REQUIRED SUBMITTAL SCHEDULE:

A. General:

1. In addition to the requirements outlined in the General Conditions, Special Conditions, Division 1 and in the Technical Sections of the Specifications, the Contractor shall submit shop drawings, product data, samples, color samples, warranties, and other pertinent data as briefly scheduled herein.
2. Refer to each individual Section of the Specifications for specific requirements of each submittal item.
3. Where requirements are not specifically indicated, provide sufficient data as required to incorporate each item into the work.
4. All subcontractors, suppliers, and manufacturers shall provide a duration, and as otherwise specified.

B. Submittal Schedule Legend: The following abbreviations are used in remarks column of the Submittal Schedule:

C:	Color Selection Required
CR:	Certifications
CT:	Certification or Qualification
CT-I:	Of Installer or Installation
CT-M:	Of Manufacturer
CT-P:	Of Product
CT-W:	Of Welder
G-1, G-5, Etc.:	Guarantee with number of years duration
IO:	Instruction of Owner's Personnel
K:	Keys
M:	Manufacturer's Data
MO:	Maintenance and Operating Manuals
MU:	Mock-ups
R:	Additional Replacement Materials
S:	Physical Samples
SCH:	Schedule
SD:	Shop Drawings
TR:	Test Reports

C. Submittal Schedule:

Division 0 - Bidding and Contract Requirements

List of Subcontractors within 30 days after notification of Contract Award

List of Materials within 60 days after issuance of Notice to Proceed

Construction Progress Schedule within 3 weeks after issuance of Notice to Proceed General Contractor's and Maintenance Warranty
G1

Division 1 - General Requirements

Construction Progress with Schedule of Values within 3 weeks and each month thereafter Contract Warranty and Guarantee
additions noted herein Guarantees additions noted herein Project Sign SD within 30 days Maintenance MO 4 sets prior to Final
Acceptance and Payment

All items requiring Color Selection within 60 days

Soil, Concrete Mix Designs M, S

Division 2 - Site Work

Termite Control	M, G-5
Hot-Mix Asphalt Paving	M, CT-P
Flexible Base	M, TR
Select Structural Fill Borrow Material	TR, S, G-1
Lime Stabilization	TR, G-1
Compaction and Testing	TR, Special Provisions
Soil Treatment	M, G5
Sidewalk Finish Sample	S, G-1
Concrete and Reinforcing Steel	M, TR, SD, G-1
Pavement Marking	M, C, SD, G-1
Water Service System	M, SD, TR, G-1
Storm Sewer System	M, G-1
Sanitary Sewer System	M, SD, G-1
Landscape	M, SD

Division 3 - Concrete

Concrete Formwork	SD
Concrete Work	M, SD, S, TR, CT-P
Cast-in-Place Concrete	M, TR, S, SD, CR, G-1

Division 4 - Masonry

C. M. U.	M, S
Mortar	M, S, C, MU
Unit Masonry	M, CT-P, S, MU, C

Division 5 - Metals

Structural Steel	M, SD, CR, TR, CT-W, G-1
Steel Joist & Joist Girders	M, SD, CT-P
Metal Roof Decking	M, SD, CR, TR, CT-P, CT-I, G-1

Division 6 - Wood and Plastic

Rough Carpentry	M, CR, G-1
Finish Carpentry	S, SD, G-1

Division 7 - Thermal and Moisture Protection

Fluid Applied Waterproofing	M, S, CR, SD, G-10
Flexible Flashing	M, S, CR, G-1
Dampproofing	M, G-1
Vapor Retarder	M, G-1
Building Insulation	M, S, CR, G-1
Firestopping	M, SD, G-1, Schedule
Flashing and Sheet Metal	M, SD, S, CR, G-2

Joint Sealers M, SD, S, CR, C, G-5

Division 8 - Doors and Windows

Metal Doors and Frames M, SD, CR, G-1
Wood Doors M, SD, S, C, CR, G-Life
Aluminum Storefront M, SD, S, C, CR, TR, G-5
Finish Hardware Schedule M, SCH, SD, S, G-2
Glass and Glazing M, SD, S, C, G-1/ G-5 (mirrors)

Division 9- Finishes

Gypsum Board Systems M, S, CT-P, G-1
Interior Slate Facing M, S, SD, MU
Tile M, S, C, MU, R, G-1
Acoustical Panel Ceilings M, S, R, CD, C
Resilient Flooring M, SD, S, CR, R, C, G-1
Carpeting M, SD, S, C, TR, R, G-15
Painting M, SD, S, C, CT-P, R, G-1

Division 10- Specialties

Toilet Partitions M, SD, S, C, CR, G-1
Toilet & Bath Accessories SCH, S, M, MO, G-15
Identifying Devices M, SD, S, C, G-1
Fire Extinguishers and Cabinets M, SD, C, G-1
Toilet Accessories M, SD, C, CR, S, G-1

Division 11 - Equipment (Not Used)

Division 12 - Furnishings (Not Used)

Division 13 - Special Construction (Not Used)

Division 14- Conveying Systems (Not Used)

Division 15 - Mechanical

Refer to the various Division 15 Sections
specific submittal requirements M, SD, S, C, MO, IO, G1

Division 16- Electrical

Refer to the various Division 16 Sections
specific submittal requirements M, SD, S, C, MO, IO, G1

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

01400 QUALITY CONTROL

PART 1- GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for quality control.

B. Quality control includes

1. Quality control of products and workmanship.
2. Manufacturer's instructions.
3. Manufacturer's certificates and field services.
4. Mockups.

C. Refer to Section 01410 for provision of testing laboratory services.

1.3 QUALITY CONTROL

A. Maintain quality control over supervision, subcontractors, suppliers, manufacturers, products, services, workmanship, and site conditions, to produce Work in accordance with Contract Documents.

B. Workmanship:

1. Comply with industry standards of the region except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
2. Provide suitably qualified personnel to produce Work of specified quality.
3. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.
4. Provide finishes to match approved samples.

C. Manufacturer's Instructions:

1. Require compliance with instructions in full detail, including each step in sequence.
2. Should instruction conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

D. Manufacturer's Certificates:

1. When required in individual Specifications section, submit manufacturer's certificate, in duplicate, certifying that products meet or exceed specified requirements, executed by responsible officer.

E. Manufacturer's Field Services:

1. When required in individual Specifications section, have manufacturer or his authorized representative provide qualified representative to observe field conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment test, adjust, and balance of equipment as applicable, and to make written report of observations and recommendations to Architect.
2. Individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
3. Submit report in duplicate within 30 days of observation to Architect/Engineer for review.

F. Mockups

1. Tests will be performed under provisions of Section 01410.
2. Assemble and erect complete, with specified attachment and anchorage devices, flashings, seals, and finishes.
3. Remove mockup and clear area when work of that section is complete, when approved by Architect.

G. Field Samples:

1. Install field samples at the site as required by individual specifications Sections for review.
2. Acceptable samples represent a quality level for the Work.
3. Where field sample is specified in individual Sections to be removed, clear area after field sample has been accepted by Architect/Engineer.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION
NOT APPLICABLE

01530 BARRICADES

A. Provide barricades at hazardous location, complete with signs, general lighting, warning lights and similar devices where appropriate and in accordance with governing regulations.

B. Lock-up and security: As construction of building structure shell progresses and it becomes feasible to secure project against intrusion, provide temporary security enclosure, doors and locks as necessary to prevent unauthorized entrance. deliver, store and lock-up materials and equipment in a manner which will help prevent theft and vandalism.

C. Weather protection: Provide whatever protective means and methods that are required for preventing damage to building construction caused by elements of the weather.

CONTRACTOR'S USE OF PREMISES

A. Contractor shall limit his use of the premises for work and for storage to allow for:

- Work by other contractors
- Owner occupancy

B. Coordinate use of premises under direction of the architect and owner.

C. Assume full responsibility for the protection and safekeeping of products under this contract, stored on the site.

D. Moved any stored products, under contractor's control, which interfere with operations of the owner, tenants, anchor stores or separate contractor.

E. Obtain and pay for the use of additional storage or work areas needed for operation.

01600 MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Bidding and Contract Requirements and Division 1 - General Requirements of the Specifications apply to this work.

1.02 SECTION INCLUDES:

A. General requirements for materials and equipment, manufacturer's instructions, transportation and handling, storage and protection, material and coordination.

1.03 RELATED WORK:

A. Related Work of Other Sections:

1. Section 01010 - Summary of Work.
2. Section 01300 - Submittals: List of Materials.
3. Section 01340 - Shop Drawings, Product Data, Samples and Colors.
4. Section 01400 - Coordination.
5. Section 01500 - Construction Facilities and Temporary Controls: Material Storage Facilities.
6. Section 01630 - Product Options and Substitutions.
7. Section 01700 - Contract Closeout.

1.04 GENERAL REQUIREMENTS:

A. In addition to General Conditions, Contractor shall use materials and equipment that are:

1. New, unless otherwise specified, and that are of good quality, free from faults and defects, and in conformance with the requirements of the Contract Documents.
2. Suitable for use and function intended.
3. Corresponding in quality to related materials in the absence of a complete specification.
4. Of quality appearance where exposed to view.
5. Of one manufacturer or source for the same specific purpose, with uniform appearance and physical properties.
6. Interchangeable and be the same, when required to be supplied in quantity.
7. Free of name, trade mark, or other insignia which is intended to identify the manufacturer, vendor, or other source(s) which is surface applied or affixed to any manufactured articles, materials, and items of equipment in any public area or similar locations within the Project. Any manufactured articles, materials, and items of equipment which bears evidence that an insignia, name, or trade mark has been removed shall not be used. Code required labels, such as Underwriters Laboratory labels, and other identification required by the Contract Documents is expected.

B. Product Color, Texture, and Pattern Selection: No work requiring A/E's review for color, texture and pattern selection shall be fabricated, delivered or installed prior to review and selection.

1. Contractor shall select product of a named manufacturer that complies with the specified requirements and submit the full range of colors, textures, patterns, including custom colors, textures and patterns for Architect's selection. All subsequently approved products of other manufacturers are approved contingent upon availability of equivalent colors, textures, and patterns available to A/E for selection.
2. When "match existing color" is indicated or specified, Contractor shall, in addition to material and construction requirements specified elsewhere, match existing color, texture, and pattern in every respect, as approved by A/E.
3. When materials have a natural range of color, texture, and pattern such as natural stone, brick, tile, anodized aluminum finish and other exposed materials and finishes, submit required number of sets of ranges of color, texture, and pattern, including representative naturally occurring defects as appropriate, for A/E's review. All work fabricated and installed shall be within range of samples approved by Architect.

In addition, Contractor shall refer selection of raw materials containing defects within limits of A/E's approved range of samples, to Architect to provide distribution of such throughout required work so as to avoid patterns and concentrations of such defects.

C. Source Limitations: To the fullest extent possible, provide products of the same generic kind, from a single source, for each item of work.

1. When specified products are available from only sources that do not or cannot produce an adequate quantity to complete Project requirements in a timely manner, consult with A/E for a determination of what product qualities are most important before proceeding. A/E will designate those qualities, such as visual, structural, durability, or compatibility, that are most important. When Architect's determination has been made, select products from those sources that produce products that possess the most important qualities, to fullest extent possible.

D. Compatibility of Options: Where product options are permitted, select products that are compatible with other products to be

incorporated into the Work, including products previously selected product options.

1.05 MANUFACTURER'S INSTRUCTIONS:

- A. Install products in accordance with manufacturer's printed instructions. Obtain and distribute copies of such instructions to installer, including one copy to A/E and one to Owner's Representative. Maintain one set of complete instructions at Job Site during installation and until completion.
- B. Manufactured articles, materials, and items of equipment shall be handled, stored, applied, installed, connected, erected, used, cleaned, adjusted, conditioned, and protected in accordance with manufacturer's printed instructions and specifications for the Project conditions indicated, within manufacturer's published limitations, and requirements specified.
- C. Should any manufactured articles, materials, and items of equipment be found to be damaged, deteriorated, or otherwise contrary to the requirements of the Contract Documents, remove and replace such damaged or deteriorated articles, materials, and items of equipment, no matter in what stage of completion and replace with new materials.
- D. Should Project conditions or specified requirements be in conflict with manufacturer's instructions request written clarification from A/E before proceeding. Do not proceed with work without clear instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.
- E. Keep a copy of material safety data sheets for all products used in the Work, at Contractor's field house.

1.06 TRANSPORTATION AND HANDLING:

- A. Arrange deliveries of materials and products in accordance with Construction Progress Schedule.
- B. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturer's unopened containers or packaging, dry.
- C. Provide equipment and personnel to handle products by methods to prevent soiling or damage.
- D. Promptly inspect shipments to ensure that products comply with requirements of the Contract Documents and approved submittals, quantities are correct, and products are undamaged.

1.07 STORAGE AND PROTECTION:

- A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products, including factory-finished items and similar work, in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions. Comply with applicable laws, ordinances and regulations for protective storage of potentially dangerous materials.
- B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
- C. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- D. Arrange storage to provide access for inspection at all times. Periodically inspect to assure products are free from damage or deterioration, and are maintained under required conditions.
- E. At end of each day's work, cover new work likely to be damaged. Provide substantial coverings necessary to protect installed products from damage, traffic, and subsequent construction operations. Refer to Section 01500 for additional requirements, including removal of temporary protections.
- F. Contractor shall provide inspection of subcontractor's material for compliance with submittals on proper storage.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

01630 PRODUCT OPTIONS AND SUBSTITUTIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Bidding and Contract Requirements and Division 1 - General Requirements of the Specifications apply to this work.

1.02 SECTION INCLUDES:

A. General requirements for product options and substitution procedures.

1.03 RELATED WORK:

A. Related Work of Other Sections:

1. Section 01010 - Summary of Work.
2. Section 01300 - Submittals: List of Materials within 30 days of Notice to Proceed.
3. Section 01340 - Shop Drawings, Product Data, Samples and Colors.
4. Section 01040 - Coordination.
5. Section 01600 - Material and Equipment.
6. Section 01700 - Contract Closeout.

1.04 GENERAL:

A. In addition to General Conditions, comply with product option and substitution requirements specified in this Section.

1.05 MATERIAL AND PRODUCT OPTIONS:

A. Materials and Products Specified by Reference Standards, by Performance, or by Description Only: Any product meeting specified requirements.

B. Materials and Products Specified by Naming Products of One or More Manufacturers with a Provision for an Equivalent Product: Submit one of the products listed which complies with specified requirements or submit a request for substitution for a product of manufacturer not specifically named which complies with specified requirements.

C. Materials and Products Specified by Naming Products of Several Manufacturers Meeting Specifications: Submit one of the products listed which complies with specified requirements or submit a request for substitution for a product of manufacturer not specifically named which complies with specified requirements.

1.06 SUBSTITUTIONS:

A. Within sixty (60) days after date of Owner's Notice to Proceed, A/E will consider requests from Contractor for substitutions. Subsequently, substitutions will be considered only when a material or product becomes unavailable due to no fault of Contractor and as follows:

1. Lockouts.
2. Strikes.
3. Bankruptcy.
5. Proven shortage.
6. Other similar occurrences.

B. Each proposed substitution of materials or products for that specified is a representation by Contractor that it has personally investigated the substitution and determined that the proposed substitution is equivalent or superior to that specified in quality, durability and serviceability, design, appearance, function, finish, performance, and of size and weight which will permit installation in spaces provided and allow adequate service access. Additionally, Contractor agrees that it will provide and do the following:

1. Same warranty for substitution as for specified product or material.
2. Coordinate installation and make other changes which may be required for Work to be complete in all respects.
3. Waive claims for additional costs which may subsequently become apparent.
4. Verify that proposed materials and products comply with applicable building codes and governing regulations and, where applicable, has approval of governing authorities having jurisdiction.

C. A/E will review requests from Contractor for substitutions with Owner. Do not purchase or install substitute materials and products without written approval. A/E will give written notice to Contractor of acceptance or rejection within a reasonable time.

D. Document each request for substitution with complete data substantiating compliance of proposed substitution with Contract Documents. As appropriate include:

1. Reason for the proposed substitution.
2. Change in Contract Sum and Contract Time, if any.

3. Effect on Construction Progress Schedule and completion date.
4. Changes in details and construction of related work required due to substitution.
5. Drawings and samples.
6. Product identification and description.
7. Performance and test data.
8. Itemized comparison of the qualities of the proposed substitution to the product specified including durability, serviceability, design, appearance, function, finish, performance, size and space limitations, vibration, noise, and weight.
9. Availability of maintenance service, source and interchangeability of parts or components.
10. Additional information as requested.

E. In the event of credit change in the cost, the Owner shall receive all benefit of the reduction in cost of the proposed substitution. Credit shall be established prior to final approval of the proposed substitution and will be adjusted by Change Order.

F. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals without separate written request, without having been reviewed and approved by Contractor, or when acceptance will require substantial revision of Contract Documents without additional compensation to A/E.

G. In the event that the Contractor or subcontractor has neglected to place an order for specified materials and products to meet the Construction Progress Schedule, specified requirements, color schemes or other similar provisions, such failure or neglect shall not be considered as legitimate grounds for an extension of completion time nor shall arbitrary substitutions be considered to meet completion date.

H. Only one request for substitutions will be considered for each product. When substitutions are not accepted, provide specified product.

I. Should substitution be accepted, and substitution subsequently is defective or otherwise unsatisfactory, replace defective material with specified material at no cost to Owner.

1.07 COORDINATION:

A. When a specified, optional, specified by reference standard, or proposed substitution item of equipment or material is submitted which requires minor changes or additions to the designed structure, finishes or to mechanical and/or electrical services due to its requirements being different from those shown on the Contract Documents, itemize the changes required and attach to submittal. Do not proceed with changes without approval in writing from the Architect.

B. Contractor shall make adjustments and changes required to coordinate work for installation of optional materials and products, approved substitutions and materials and products specified by reference standards without additional costs to Owner or Architect.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

01700 PROJECT RECORD DOCUMENTS

A. General: Related requirements specified elsewhere: Shop Drawings, Project Data, and Samples.

B. Maintenance of Documents:

Maintain at job site, one copy of:

1. Contract Drawings (full-size blue-line prints).
2. Specifications
3. Addenda
4. Reviewed Shop Drawings
5. Change Orders
6. Other Modifications to Contract
7. Field Test Records

Store documents in temporary field office, apart from documents used for construction.

Provide files and racks for storage of documents.

Maintain documents in clean, dry, legible condition.

Do not use documents for construction purposes.

Make documents available at all times for inspection by Architect and Owner.

C. Marking Devices: Provide colored pencil for all marking.

D. Recording:

1. Label each document "Project Record: in min. 2 inch high printed letters.
2. Keep record documents current.
3. Do not permanently conceal any work until required information has been recorded.

E. Contract Drawings: Legibly mark to record actual construction.

1. Depths of various elements of foundation in relation to first floor level.
2. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
3. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
4. Field changes of dimension and detail.
5. Changes made by Change Order or Field Order.
6. Details not on original contract drawings.

F. Specification and Addenda: Legibly mark up each Section to record:

1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
2. Changes made by Change Order or supplemental instruction.
3. Other matters not originally specified.

G. Shop Drawings: Maintain as record documents; legibly annotate following drawings to record changes made after review:

1. Reinforcing Steel
2. Millwork

H. Submittal: At completion of project the Contractor shall transfer all the accumulated changes to two complete reproducible sets of sepia drawings and shall deliver the sepia record documents to the Architect, and to the Owner.

Accompany submittal with transmittal letter, in duplicate, containing:

1. Date
2. Project title and number
3. Contractor's name and address

4. Title and number of each record document
5. Certification that each document as submitted is complete and accurate
6. Signature of Contractor, or his authorized representative

01710 CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Bidding and Contract Requirements and Division 1 - General Requirements of the Specifications apply to this work.

1.2 RELATED WORK

A. Related Work of Other Sections:

Section 01010 - Summary of Work.

Section 01300 - Shop Drawings, Project Data and Samples

Section 01500 - Construction Facilities and Temporary Controls.

Section 01720 - Project Record Documents

1.3 GENERAL REQUIREMENTS

A. General: In addition to General Conditions, provide progress and final cleaning as specified in this section.

B. Progress Cleaning: Keep premises and public properties free from accumulations of waste, debris and rubbish, caused by operations. Maintain Project in accord with State and local safety, health, and insurance standards.

C. Final Cleaning: At completion of Work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all exposed surfaces of building and Project Site, including crawl spaces; leave Project clean and ready for occupancy.

D. Pre-Final Inspection: Prior to pre-final inspection, clean all surfaces and remove all debris from project.

PART 2 - PRODUCTS

2.01 CLEANING MATERIALS

A. Use materials which will not create hazards to health or property, and which will not damage surfaces.

B. Use only materials and methods recommended by manufacturer of material being cleaned.

PART 3 - EXECUTION

3.01 CLEANING

A. In addition to removal of debris and cleaning specified in other sections, clean interior and exterior exposed-to-view surfaces affected by Work of this Contract.

B. Hazards Control: Store volatile waste in covered metal containers and remove from premises daily. Prevent accumulation of wastes which create hazardous conditions. Provide adequate ventilation during use of volatile or noxious substances.

C. Clean permanent filters of ventilating equipment and replace disposable filters when units have been operated during construction; in addition, clean ducts, blowers, and coils when units have been operated without filters during construction.

D. Remove waste, debris, and surplus materials from site. Clean paving areas, walks, drives and streets in the vicinity of the building; remove mud, rubbish, waste, stains, spills, and foreign substances from paved areas and sweep clean. Immediately clean any mud tracked out of the construction area by vehicles and equipment.

E. Keep the entire construction area clean and at least weekly conduct a general clean-up operation.

F. Keep grass/weeds cut at all times within the limits of construction; maximum time interval in growing season is two weeks.

G. Periodically inspect, tighten and realign construction/tree protection fencing.

H. Do not burn or bury rubbish and waste materials on the Project Site.

I. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.

J. Do not dispose of rubbish and wastes into streams or waterways.

K. Do not dispose of excess concrete on the Project Site.

L. Wet down rubbish and waste to lay dust and prevent it from blowing.

M. Provide on Site containers for collection of waste, debris and rubbish. Handle materials in a controlled manner with as few

handlings as possible; do not drop or throw materials from heights. Do not fence, block, cover, otherwise make inaccessible, or use Owner's waste containers located inside or outside construction limits.

N. Remove temporary protection and labels not required to remain.

O. Just prior to painting and similar finishing operations, clean interior areas ready to receive finish, and continue cleaning on an as needed basis until building is ready for beneficial occupancy.

P. Disposal: Remove waste materials, debris and rubbish from the Project Site and provide legal disposal at a Texas Department of Health (TDH) permitted solid waste

facility. In hauling material from the Project Site, Contractor shall prevent debris from dropping from vehicles and littering the campus or area streets and roads. Contractor shall promptly remove any debris which falls from vehicles.

3.2 FINAL CLEANING

A. Employ experienced workmen or professional cleaners and perform cleaning in accordance with manufacturer's written recommendations, using products approved by the manufacturer for material being cleaned.

B. Prior to final inspection and the Owner's acceptance of the Work, perform final cleaning of all areas of the building and Project Site, performing all operations called for in the various Sections of Project Specifications. Final cleaning operations include, but are not limited to:

1. Remove waste, debris, and surplus materials of any nature from site. Clean paving areas in the vicinity of the building; remove stains, spills, and foreign substances from paved areas and sweep paved areas clean and rake clean other surfaces of grounds.
2. Broom cleaning of all exposed concrete floors.
3. Cleaning all stonework.
4. Cleaning all exposed unpainted metals.
5. Cleaning all architectural woodwork.
6. Cleaning all doors and polish hardware; removing excess paint and stains.
7. Cleaning all glass areas, exterior and interior.
8. Cleaning all storefront framing and doors, and glazed wall system members, exterior and interior.
9. Cleaning all walls and floors.
10. Cleaning of resilient flooring.
11. Vacuuming all carpeted floors.
12. Cleaning all toilet partitions, fixtures, and accessories.
13. Cleaning all exposed surfaces of light fixtures, including removal of construction dust, paint overspray, finger prints, and similar soiling from light fixture bodies, reflectors, and both sides of light fixture lenses.
14. Removing and disposing of all temporary protections.
15. Repair, patch and touch-up marred surfaces to match adjacent surfaces.
16. Prior to final completion, inspect exposed interior and exterior surfaces and work areas to verify that entire work is clean.

C. Clean finishes free of dust, stains, films, and other foreign substances.

D. Clean transparent and glossy materials to a polished condition; remove foreign substances. Polish reflective surfaces to a clear shine.

01730 OPERATING AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Bidding and Contract Requirements and Division 1 - General Requirements of the Specifications apply to this work.

1.02 RELATED WORK:

A. Related Work of Other Sections:

1. Section 01300 - Submittals.
2. Section 01700 - Contract Closeout.
3. Section 01735 - Maintenance Instruction.

1.03 FORMAT:

A. Prepare prior to pr - final inspections Three (3) sets of operating and maintenance data, each containing data bound in commercial quality 3-ring binders with plastic covers.

B. Cover: identify each volume with type or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS", name of Project, Project No., location, Contractor, date of Substantial Completion and Volume Number.

C. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Specification. Include Tab for each section number, systems and equipment number.

D. The work covered by these manuals will not be accepted nor will the Final Inspection and Acceptance be conducted until the Owner has received the manuals. The A/E will check for compliance with the specifications and furnish the approved copies to the Owner.

1.04 CONTENTS, EACH VOLUME:

A. Arrange typewritten table of contents for each volume, in systematic order:

1. A list of each product required to be included with name, address and telephone number of:

- a. Subcontractor or installer.
- b. Maintenance contractor, as appropriate.
- c. Local source of supply for parts and replacement.

2. Identifying each product by product name and other identifying symbols.

B. Product Data:

1. Include only those sheets which are pertinent to specific product with 2. Delete references to inapplicable information.

C. Drawings:

1. Supplement product data with drawings as necessary to clearly illustrate relations of component parts of equipment and systems and control and flow diagrams.
2. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.

D. Written Text: As required to supplement product data for particular installation to provide logical sequence of instructions for each procedure.

E. Miscellaneous Data:

1. Furnish copy of each warranty, bond and service contract issued.
2. Furnish proper procedures in event of failure and instances which might affect validity of warranties or bonds.

1.05 MANUAL FOR MATERIALS AND FINISHES:

A. Architectural Products, Applied Materials, and Finishes:

1. Provide manufacturer's data giving full information on product:

- a. Catalog number, size and composition.

- b. Color and texture designations.
- c. Information required for re-ordering special manufactured products.

2. Provide instructions for care and maintenance including:

- a. Manufacturer's recommendation for types of cleaning agents and methods.
- b. Cautions against cleaning agents and methods which are detrimental to product.
- c. Recommended schedule for cleaning and maintenance.

B. Additional Requirements: Refer to respective Specification Sections.

1.06 MANUAL FOR EQUIPMENT AND SYSTEMS:

A. Each Type of Equipment and System:

1. Provide description of unit and component parts including:

- a. Function, normal operating characteristics and limiting conditions.
- b. Performance curves, engineering data and tests.
- c. Complete nomenclature and commercial number of replaceable parts.
- d. Dimensional drawing.

2. Operating Procedures: Include the following.

- a. Start-up, break-in, routine and normal operating instructions.
- b. Regulation, control, stopping, shut-down and emergency instructions.
- c. Summer and winter operating instructions.
- d. Special operating instructions.

3. Maintenance Procedures: Include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing and checking instructions.

4. Provide servicing and lubrication schedule including list of lubricants required.

5. Include manufacturer's printed operating and maintenance instructions.

6. Describe sequence of operation by control manufacturer.

7. Include original manufacturer's parts list, price lists, illustrations, assembly drawings and diagrams required for maintenance, predicted life of parts subject to wear and items recommended to be stocked as spare parts.

8. Include control diagrams by controls manufacturer.

9. Coordinate drawings and color coded piping diagrams.

10. Schedule valve tag numbers with location and function of each valve.

11. Include water treatment procedures and tests.

12. Include final balancing reports for mechanical systems.

B. Each Electric and Electronic System:

1. Provide description of system and component parts including:

- a. Function, normal operating characteristics and limiting conditions.
- b. Performance curves, engineering data and tests.
- c. Complete nomenclature and commercial number of replaceable parts.

2. Panelboard Circuit Directories: Provide electrical service characteristics, controls and communications.

3. Include color coded wiring diagrams.

4. Operating Procedures: Include start-up, break-in, and routine and normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and any special operating instructions.

5. Maintenance Procedures: Include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

6. Include manufacturer's printed operating and maintenance instructions.

7. Provide list of original manufacturer's spare parts, manufacturer's current prices and recommended quantities to be maintained in storage.

C. Include warning of detrimental maintenance practices.

D. Prepare and include additional data when need for such data becomes apparent during instruction of Owner's personnel or as required under pertinent Specification Sections.

1.07 SUBMITTALS:

A. Submit completed manuals to A/E for review and transmittal to Owner 30 days prior to Pre-Final Inspection.

B. Submittal of operating and maintenance manuals shall be prior to instruction of Owner's operating and maintenance personnel.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

01740 WARRANTIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Bidding and Contract Requirements and Division 1 - General Requirements of the Specifications apply to this work.

1.02 SECTION INCLUDES:

A. Provide preparation and submittal of warranties as specified in this Section.

B. The Contractor is responsible for implementation of all warranties, guarantees, bonds, maintenance contracts and shall perform all work required, in case of failure of Subcontractors; material suppliers and manufacturers; applicators and installers; to fulfill any and all provision of the warranties, guarantees, service and maintenance contracts and bonds.

C. General Contractor and installers shall sign warranties.

1.03 RELATED WORK:

A. Related Work of Other Sections:

1. General Conditions.
2. Section 01 300 - Submittals.
3. Section 01 340 - Shop Drawings, Product Data, Samples and Colors:
Submittal schedule warranty requirements.
4. Section 01 700 - Contract Closeout.
5. Individual Specification Sections: Special Project Warranties.

1.04 FORM OF WARRANTY SUBMITTALS:

A. Warranty Format: Assemble warranties executed by respective manufacturers, suppliers, subcontractors and Contractor as follows:

1. Size: 8-1/2" x 11". Punch sheets for 3-ring binder; fold larger sheets to fit into durable binders.
2. Cover: Identify each packet with type or printed title "WARRANTIES".
List title of Project and name of Contractor.
3. Table of Contents: Neatly typed, using table of contents of Project Specification as format.
4. Procedures to be followed in case of failure.
5. Quantity: Provide two (2) sets.

B. Warranty Forms: Except as otherwise specified, Contractor shall execute in duplicate on Contractor's letterhead, the Project Warranty for General Construction and special

Warranties required by various Specification Sections, on the warranty forms which follow at end of this Section.

C. Warranty Effective Date:

1. For portions of work accepted by Owner prior to Final Completion: Date of Substantial Completion.
2. For portions of work accepted by Owner at Final Completion: Date of Substantial Completion or Final Completion whichever occurs sooner.

1.05 PREPARATION:

A. Obtain warranties and guarantees, executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item or work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Substantial Completion or Final Completion is determined in accordance with General Provisions Paragraph 11.1.

B. Verify that documents comply with requirements of Contract Documents, are in form approved by Owner, contain full information, and are notarized. As a minimum, each warranty shall contain:

1. Name and location of Project.
2. Name and address of Contractor.
3. Product or work item.
4. Scope of warranty.
5. Date of beginning and duration of correction period for warranty.

C. Retain warranties until time specified for submittal.

1.06 TIME OF SUBMITTALS:

A. For equipment or component parts of equipment put into service with Owner's permission, submit documents within 10 days after acceptance.

B. Make other submittals within 10 days after Date of Substantial Completion, prior to Final Application for Payment.

1.07 SCHEDULE OF SUBMITTALS:

A. Refer to Section 01340 for Schedule of Submittals.

1.08 WARRANTY ADMINISTRATION

A representative of the Owner will be the point of contact for all warranty work.

When disagreements develop between the Warranty Administrator and the Warrantor, the Owner's Representative will act for the User.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

PROJECT WARRANTY FOR GENERAL CONSTRUCTION

WHEREAS, _____(Contractor),

Address _____

Telephone () _____ has performed _____

work on the following project: _____

Address _____

For _____

(Owner),

Address, _____ and,

WHEREAS, Contractor has agreed to warrant said work to be new, unless otherwise specified in the Contract Documents, and that all Work is of good quality, free from faults and defects, and in accordance with the Contract Documents.

NOW THEREFORE, Contractor hereby warrants said work in accordance with terms hereof, complying with terms of Contract with Owner dated _____, 20____, that:

Contractor agrees to repair or replace to the satisfaction of the Owner all work that may prove defective in workmanship or materials together with all other work which may be damaged or displaced in so doing, except for abuse, modifications not executed by Contractor, insufficient maintenance, improper operation, or normal wear and tear under normal usage.

All repairs or replacements shall have a correction period for such work equal to the original correction period as herein stated, dated from the final acceptance of repairs or replacement.

CORRECTION PERIOD FOR THE WORK: STARTING _____

TERMINATING _____

In the event of our failure to comply with the above mentioned conditions within a reasonable time after being notified in writing, we hereby authorize the Owner to proceed to have defects repaired and made good at our expense, and will pay the costs and charges therefore immediately upon demand.

IN WITNESS THEREOF, this instrument has been duly executed this _____ day of _____, 20_____

for Contractor by _____

(Signature)

as its

(Typed Name)

(Position)

SPECIAL WARRANTY FOR _____

WHEREAS, _____ (Contractor),

Address _____

Telephone () _____ has performed _____

work on the following project: _____

Address _____

For _____

(Owner),

Address _____,

and,

WHEREAS, Contractor has agreed to warrant said work to be new, unless otherwise specified in the Contract Documents, and that all Work is of good quality, free from faults and defects, and in accordance with the Contract Documents.

NOW THEREFORE, Contractor hereby warrants said work in accordance with terms hereof, complying with terms of Contract with Owner dated _____, 20_____, that:

Contractor agrees to repair or replace to the satisfaction of the Owner all work that may prove defective in workmanship or materials together with all other work which may be damaged or displaced in so doing, operation, or normal wear and tear under normal usage.

All repairs or replacements shall have a correction period for such work equal to the original correction period as herein stated, dated from the final acceptance of repairs or replacement.

CORRECTION PERIOD FOR THE WORK: STARTING _____

TERMINATING _____

In the event of our failure to comply with the above mentioned conditions within a reasonable time after being notified in writing, we agree to hereby authorize the Owner to proceed to have defects repaired and made good at our expense, and will pay costs and charges therefore immediately upon demand

IN WITNESS THEREOF, this instrument has been duly executed this _____ day of _____, 20_____

for Contractor by _____

(Signature)

as its

(Typed Name)

(Position)

And has been countersigned in accordance with terms and conditions, for

Installer by: _____

(Signature)

(Typed Name)

as its _____

(Position)

Name of Firm _____

Address _____

01750 MAINTENANCE MATERIALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Bidding and Contract Requirements and Division 1 - General Requirements of the Specifications apply to this work.

1.02 SECTION INCLUDES

A. Requirements for spare parts and maintenance materials required by the Various Specification Sections are specified in this Section.

1.03 RELATED WORK:

A. Related Work of Other Sections:

1. Section 01300 - Submittals.
2. Section 01700 - Contract Closeout.
3. Individual Specification Sections: Spare parts and maintenance materials.

1.04 GENERAL:

A. Assemble spare parts and maintenance materials as required in individual Specification Sections. Deliver in clean packaging identified with manufacturer's name, trade name, stock number, size, color, and other similar information identifying products. Identify building and location in building where item is used or with what it is used. Include name, address and telephone number of local supplier.

B. Deliver to Owner, prior to Pre-Final Completion, at a location within 3 miles of Project Site as directed by Owner. Include a letter of transmittal with delivery with a copy to A/E listing materials provided.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

02 SITE WORK

02110 SITE CLEARING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Requirements of Drawings, General and Special Conditions and Division 1 apply to this Section.

1.2 SCOPE

- A. Provide all site clearing work, including, but not necessarily limited to:
1. Protection of existing trees and improvements.
 2. Removal of trees and other vegetation.
 3. Top soil stripping and stockpiling.
 4. Clearing and grubbing.
 5. Removing above grade improvements.

1.3 JOB CONDITIONS

A. Conduct site clearing operations to ensure minimum interference with roads, streets, walks and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from the Owner's representative.

B. Provide protections necessary to prevent damage to existing improvements indicated to remain in place.

1. Protect adjacent improvements on Owner's property.
2. Restore damaged improvements to their original condition, at no cost to Owner, as acceptable to parties having jurisdiction.

C. Protect existing trees and other vegetation indicated to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, mothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.

1. Water trees and other vegetation to remain within limits of contract work as required to maintain their health during course of construction operations. Coat cut faces with an emulsified asphalt, or other acceptable coating, formulated for use on damaged plant tissues. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.

D. Repair or replace, at no cost to Owner, trees and vegetation indicated to remain which are damaged by construction operations, in a manner acceptable to Architect. Employ licensed arborist to repair damages to trees and shrubs.

E. Replace trees which cannot be repaired and restored to full-growth status, as determined by arborist.

F. Extent of work on adjacent property is indicated on Drawings.

PART 2 - PRODUCTS

Not applicable to work of this Section.

PART 3 - EXECUTION

3.1 SITE CLEARING

A. Remove trees, shrubs, grass and other vegetation, improvements or obstructions interfering with installation of new construction. Remove such items elsewhere on site or premises as specifically indicated. Removal includes digging out stumps and roots. Dispose off site in a legal manner. Carefully and cleanly cut roots and branches of trees indicated to be left standing, where such roots and branches obstruct new construction

B. Excavated material free of deleterious materials such as concrete, rocks larger than 2" in diameter, steel pipes, conduits and miscellaneous debris may be stockpiled on the campus as directed and may be reused if acceptable to the Architect. Any acceptable material not reused shall remain the property of the Owner.

C. Clear construction area site of trees, shrubs and other vegetation, except for those indicated to be left standing.

D. Completely remove stumps, roots and other debris protruding through ground surface.

E. Use only hand methods for grubbing inside drip line of trees indicated to be left standing.

F. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding 6" loose depth, and thoroughly compact to 95% density, ASTM D698.

G. Remove existing above-grade or at-grade improvements necessary to permit construction, and other work as indicated.

3.2 DISPOSAL OF WASTE MATERIALS

A. Burning is not permitted on Owner's property.

B. Remove any excavation material not suitable for reuse from the Owner's property and dispose of off site in a legal manner.

02200 EARTHWORK FOR SITE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division I Specification Sections, apply to work of this Section.

1.2 SUMMARY:

A. This Section includes the following:

1. Drainage fill course for support of building slabs is included as part of this work.
2. Preparation of subgrade for building slabs, walks, and pavements is included as part of this work.

3. Site grading and filling to indicated elevations, profiles and contours.
4. Excavating and backfilling structure footings and foundations.
5. Topsoil distribution and finish grading.
6. Backfilling of trenches within building lines is included as part of this work.

B. Excavating and Backfilling for Mechanical/Electrical Work: Excavation and backfill required in conjunction with underground mechanical and electrical utilities and buried mechanical and electrical appurtenances.

1.3 DEFINITIONS:

A. Excavation consists of removal of material encountered to subgrade elevations indicated for placement of foundations, forms, other construction, and subsequent disposal of materials removed.

B Sub excavation consists of removal of undesirable upper strata of soils as required for foundation bearing, as indicated on the plans.

1.4 SUBMITTALS:

A. Test Reports: Submit the following reports directly to the Contractor & the testing services, with copies to the Owner/Architect/Engineer and others as directed by the Owner/Architect/Engineer:

1. Test reports on borrow material.
2. Field reports; in-place soil density tests.
3. Two optimum moisture-maximum density curves for each type of soil encountered.

1.5 QUALITY ASSURANCE:

A. Codes and Standards: Perform excavation work in compliance with applicable requirements of authorities having jurisdiction.

B. Testing and Inspection Service: Contractor shall employ and pay for a qualified independent geotechnical testing laboratory to perform soil testing and inspection service during earthwork operations.

C. Testing Laboratory Qualifications: To qualify for acceptance, the Contractor's geotechnical testing laboratory must submit data and certification demonstrating to the Owner/Architect/Engineer satisfaction, based on evaluation of laboratory-submitted criteria conforming to ASTM E 699, that it has the experience and capability to conduct required field and laboratory geotechnical testing without delaying the progress of the Work.

1.6 PROJECT CONDITIONS:

A. Site Information: Data in the subsurface investigation report was used for the basis of the design and is included in these specifications to provide the Contractor with information only. Conditions are not intended as representations or warranties of accuracy or continuity between soil borings. The Owner will not be responsible for interpretations or conclusions drawn from this data by the Contractor. Additional test borings and other exploratory operations may be performed by Contractor at his discretion and for his use as he may deem necessary; however, no change in the Contract Sum will be authorized for such additional exploration.

B. Existing Utilities: Locate existing underground utilities if any in areas of excavation work. If utilities are indicated to remain in place, provide adequate means of support and protection during earthwork operations. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner. Do not interrupt existing utilities serving facilities occupied by Owner or others, during occupied hours, except when permitted in writing by the Owner/Architect/Engineer and then only after acceptable temporary utility services have been provided. Provide minimum of 48-hour notice to the Owner/Architect/Engineer, and receive written notice to proceed before interrupting any utility.

C. Use of Explosives: Use of explosives is not permitted. Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights. Operate warning lights as recommended by authorities having jurisdiction. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS:

A. Definitions: Satisfactory soil materials are defined as those complying with ASTM D 2487 soil classification groups GW, GP, GM, GC-GM, GP-GM, GP-GC, SC, SC-SM, SP-SM, SP,SC, SM, SW, and SP. Unsatisfactory soil materials are defined as those complying with ASTM D 2487 soil classification groups ML, MH, CL, CH, OL, OH, and PT or when the Plasticity Index exceed 20. Select Fill Materials shall be soil materials meeting the requirements for satisfactory soil materials defined above. Select fill material will have a liquid limit less than or equal to 45 percent and a plasticity index not exceeding 20. The moisture of the fill at the time of compaction should not vary from the - 1 to +3 percentage of optimum moisture as specified.

B. Backfill and Site Fill Materials: Satisfactory soil materials free of clay, rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation and other deleterious matter.

C. Primary Zone Backfill: For utility trenches, primary zone consists of the bedding to 12" above the top of pipe (or duct) Primary zone backfill shall possess a maximum plasticity index (PI) of 8 and a maximum liquid limit (LL) of 35. For water, sanitary sewer, storm sewer and gas lines, primary zone and bedding material shall be well-graded gravel with a maximum particle size of 1 ". For other utilities, use select soil material meeting PI and LL limits stated above. Material shall be free from trash, debris, rocks over 1/2 inch in any dimension, and shall contain no more than 25 percent by weight of clay, silt or organics. The contractor may be required to submit ample sieve analysis results from a reputable independent testing laboratory to verify compliance of backfill material.

D. Secondary Zone Backfill: For utility trenches, secondary zone consists of the area from 12" above the top of pipe to the top of subgrade. All secondary zone backfill shall possess a maximum plasticity index of 18 and a maximum liquid limit of 40.

E. Drainage fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, with 100% passing a 2" sieve and 100% retained on a 1/2" sieve.

F. Backfill and Fill Materials: Satisfactory soil materials with a P.I. greater than 5 and less than 20 free of clay, rock or gravel larger than 2" in any dimension, debris, waste, frozen materials, vegetable and other deleterious matter. Material from the project site that is free from rubbish, baits, lumber or other debris can be used if approved by the Owner/Architect/Engineer. This material shall also have a P.I. of greater than 5 and less than 20.

PART 3 - EXECUTION

3.1 EXCAVATION (SUB EXCAVATION)

A. Excavation is unclassified and includes excavation to subgrade elevation indicated, regardless of character of materials and obstructions encountered. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of the Owner/Architect/Engineer. Unauthorized excavation, as well as remedial work directed by the Owner/Architect/Engineer, shall be at Contractor's expense. Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to the Owner/Architect/Engineer. In locations other than those above, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by the Owner/Architect/Engineer.

B. Additional Excavation: When sub excavation has reached the required subgrade elevations as indicated on the plans, notify the Owner/Architect/Engineer, who will make an inspection of conditions. If the Owner/Architect/Engineer determines that existing soil materials at required sub excavation elevations are unsuitable, continue excavation as directed by the Owner/Architect/Engineer and install structural fill as specified.

C. Subgrade: The undisturbed earth or the compacted soil layer immediately below slabs on grade, bottom of footings, or topsoil materials.

D. Structure: Buildings, foundations, slabs, curbs, or other man-made stationary features occurring above or below ground surface.

3.2 ROADWAY EXCAVATION:

A. All roadway excavation and corresponding embankment construction shall be performed as specified herein and in the item, "Embankment", and the completed roadway shall conform to the established alignment, grades and cross sections. All suitable excavated material shall be utilized, insofar as practicable, in constructing the required roadway sections or in uniformly widening embankments, flattening slopes, etc., as directed by the Owner/Architect/Engineer. Unsuitable roadway excavation and roadway excavation in excess of that needed for construction shall be known as "Waste" and shall become the property of the Contractor to be disposed of by him outside the limits of the right of way at a location suitable to the Owner/Architect/Engineer. Unsuitable material encountered below subgrade elevation in roadway cuts, when declared "Waste" by the Owner/Architect/Engineer, shall be replaced with material from the roadway excavation or with other suitable material as directed by the Owner/Architect/Engineer. During construction the roadbed and ditches shall be maintained in a condition to insure proper drainage at all times. Ditches and channels shall be so constructed and maintained to avoid damage to the roadway section. Unless otherwise indicated on plans, excavation in solid rock shall extend 6 inches below the required

subgrade elevation for the entire roadbed width, and shall be backfilled with suitable selected material as indicated on plans or as instructed by the

Owner/Architect/Engineer. All slopes except in solid rock or other material which, in the judgment of the Owner/Architect/Engineer, require variation shall be accurately shaped and care shall be taken that no material is loosened below the required slopes. All breakage and slides shall be removed and disposed of as directed. Where shown on plans, selected materials shall be utilized to improve the roadbed, in which case the work shall be performed in such a manner and sequence that suitable materials may be selected, removed separately, and deposited in the roadway within limits and at elevation required.

3.3 EMBANKMENT:

A. Prior to placing and embankment, all Preparing Right of Way and/or Clearing and Grubbing Operations shall have been completed on the excavation sources and areas over which the embankment is to be placed. Stump holes or other small excavations in the limits of the embankments shall be backfilled with suitable material and thoroughly tamped by approved methods before commencing embankment construction. Embankments shall be constructed in successive layers for the full width of the individual roadway cross section and in such lengths as are best suited to the sprinkling and compaction methods utilized. Layers of embankment may be formed by utilizing equipment which will spread the material as it is dumped, or they may be formed by being spread by blading or other acceptable methods from piles or windrows dumped from excavating or hauling equipment in such amounts that material is evenly distributed. Each layer of embankment shall be uniform as to material, density and moisture content before beginning compaction. No material placed in the embankment by dumping in a pile or windrow shall be incorporated in a layer in the position, but all such piles or windrows shall be moved by blading or similar methods. Clods or lumps of material shall be broken and the embankment material mixed by blading, harrowing, dishing or similar methods to the end that a uniform material of uniform density is secured in each layer. Water required for sprinkling to bring the material to the moisture content necessary for maximum compaction shall be evenly applied and it shall be the responsibility of the Contractor to secure a uniform moisture content throughout the layer by such methods as may be necessary. In order to facilitate uniform wetting of the embankment material, the Contractor may apply water at the material source if the sequence and methods used are such as not to cause an undue waste of water. Such procedure shall be subject to the approval of the Owner/Architect/Engineer. Compaction of embankments shall be obtained by the Density Control method of compaction. Each layer shall be compacted to the required density by any method, type and size of equipment which will give the required compaction. The depth of layers, prior to compaction, shall depend upon the type of sprinkling and compacting equipment used. Prior to and in conjunction with the rolling operation, each layer shall be brought to the moisture content necessary to obtain the required density and shall be kept leveled with suitable equipment to insure uniform compaction over the entire layer. Testing for density will be in accordance with Test Method ASTM D-698. For each layer of earth embankment and select material, it is the intent of this specification to provide the density as required herein, unless otherwise shown on the plans. Soils (soils with plasticity index less than 20) shall be sprinkled as required and compacted to the extent necessary to provide not less than 95 percent of the density as determined in accordance with Test Method ASTM D-698. Field density determination will be made in accordance with approved methods. After each layer of earth embankment or select material is complete, tests as necessary will be made by the Engineer. If the material fails to meet the density specified, the course shall be reworked as necessary to obtain the specified compaction, and the compaction method shall be altered on subsequent work to obtain specified density. Such procedure shall be determined by and subject to, the approval of the Owner/Architect/Engineer. Should the subgrade, due to any reason or cause, lose the required stability, density or finish before the pavement structure is placed, it shall be re compacted and refinished at the sole expense of the Contractor. Excessive loss of moisture in the subgrade shall be prevented by sprinkling, sealing or covering with a subsequent layer or granular material. Excessive loss of moisture shall be construed to exist when the subgrade soil moisture content is more than 4 percent below the optimum of compaction ratio density.

3.4 STABILITY OF EXCAVATIONS:

A. General: Comply with local codes, ordinances, and requirements of agencies having jurisdiction slope sides of excavations to comply with local codes, ordinances, and requirements of agencies having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. maintain sides and slopes of excavations in safe condition until completion of backfilling. Shoring and Bracing Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition. Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.

3.5 DEWATERING:

A. Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of sub grades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or runoff areas. Do not use trench excavations as temporary drainage ditches.

3.6 STORAGE OF EXCAVATED MATERIALS:

A. Stockpile excavated materials acceptable for structural fill, backfill and site fill as indicated on the Site Grading Plan and/or where directed. Place, grade, and shape stockpiles for proper drainage. Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain. Dispose of excess excavated soil material and materials not acceptable for use as

structural hit, backfill or site fill off of the site.

3.7 EXCAVATION FOR STRUCTURES:

A. Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 foot, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, and other construction and for inspection.

B. Excavations for footings and foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work. In excavating for slabs, cut surface to required elevations within tolerance listed above, take care to leave subgrade surface undisturbed and free of ruts or soft spots.

C. Excavation for Pavements: Cut surface under pavements to comply with cross-sections, elevations and grades as shown.

3.8 TRENCH EXCAVATION FOR PIPES AND CONDUIT:

A. Excavate trenches to uniform width, sufficiently wide to provide ample working room and a minimum of 6 to 9 inches of clearance on both sides of pipe or conduit. Excavate trenches and conduit to depth indicated or required to establish indicated slope and invert elevations and to support bottom of pipe or conduit on undisturbed soil. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line. For pipes or conduit less than 6 inches in nominal size, and for flat-bottomed, multiple duct conduit units, do not excavate beyond indicated depths. Hand-excavate bottom cut to accurate elevations and support pipe or conduit on undisturbed soil. For pipes and equipment 6 inches or larger in nominal size, shape bottom of trench to fit bottom of pipe for 90 degrees (bottom 1/4 of the circumference). Fill depressions with tamped sand backfill. At each pipe joint, dig bell holes to relieve pipe bell of loads ensure continuous bearing of pipe barrel on bearing surface.

Where elevations are not indicated on water-bearing utility lines, provide for the following depths below finished grade.

hot and chilled water mains	5'-0"
hot and chilled water services	3'-6"
domestic water	2'-6"
domestic hot water	2'-6"

Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for entire body of pipe.

3.9 COLD WEATHER PROTECTION:

Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees F.

3.10 STRUCTURAL FILL. BACKFILL AND FILL:

A. General: Place soil material in layers to required subgrade elevations, for each area classification listed below, using materials specified in Part 2 of this Section. In excavations, use satisfactory excavated or borrow material.

B. Under grassed areas. use satisfactory excavated or borrow material.

C. Under walks and pavements. satisfactory excavated or borrow material, or a combination.

D. Under steps. use structural fill material.

E. Under building foundations and slabs: Refer to Section 02210.

F. Backfill trenches with concrete where trench excavations pass within 18 inches of column or wall footings and that are carried below bottom of such footings or that pass under wall footings. Place concrete to level of bottom of adjacent footing.

Concrete is specified in Division 3.

Do not backfill trenches until tests and inspections have been made and backfilling is authorized by to Owner/Architect/Engineer. Use care in backfilling to avoid damage or displacement of pipe systems.

G. Backfill excavations (Sub excavation) as promptly as work permits, but not until completion of the following:

1. Acceptance of compaction of surface of sub excavations.
2. Acceptance of construction below finish grade.
3. Inspection, testing, approval, and recording locations of underground

4. Removal of concrete formwork.
5. Utilities have been performed and recorded.
6. Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if required.
7. Removal of trash and debris from excavation.

3.11 PLACEMENT AND COMPACTION:

A. Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills, Plow strip, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with existing surface. Break up ground surface, pulverize, moisture condition to optimum moisture content, and compact to required depth and percentage of maximum density. Place structural fill, backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches for backfill and fill materials only in loose depth for material compacted by hand-operated tampers.

Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice. Place backfill and fill materials evenly adjacent to structures, piping, or conduit to required elevations. Prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping, or conduit to approximately same elevation in each lift.

3.12 COMPACTION:

A. General: Control soil compaction during construction providing minimum percentage of density specified for each area classification as indicated below.

Percentage of Maximum density Requirements: Compact soil to not less than the following percentages of maximum density determined in accordance with ASTM D-698.

1. Subgrade for Building Slabs, Pavements, Curbs, Gutters, Shoulders, Equipment Slabs, Steps and Other Structures: After cutting to required grade, subgrade shall be scarified a minimum of 6 inches and compacted at 95% maximum density at a moisture content of +/- 5% of optimum.
2. Select Building Pad Fill: for top 12" under Building Slabs, Pavements, Curbs, Gutters, Shoulders, Equipment Slabs, Steps, Sidewalks and Other Structures: Compact each layer at 95% maximum density at a moisture content as recommended in soil report.
3. Backfill or Fill at Pavements, Driveways, Curbs, Gutters, Shoulders and Similar Use Areas: Compact each layer at 90% maximum density at a minimum moisture content of +/- 5% optimum. Compact top 12 inches below subgrade to 95% maximum density at a minimum moisture content of +/- 5% optimum.
4. Backfill at Lawn or Unpaved Areas: Compact each layer at 90% maximum density at a minimum moisture content of +5% optimum.
5. Backfill or Fill for Utility Trenches: There are three conditions for back fill depending on pipe or conduit placement.
Condition A: Use where pipe or conduit is laid under an area to be paved in this project where pipe or conduit is laid.
Condition B: Use within street right-of-way but not under pavement, or within 20' of areas to be paved in this project.
Condition C: Use where pipe or conduit is laid outside of street right-of-way and in unpaved areas 20' or further from pavements.

	A	B	C
PRIMARY ZONE			
% compaction (ASTM D-698)	95%	95%	95%
Lift thickness/tamping method	6" hand or mechanical	6" hand or mechanical	6" hand or mechanical
SECONDARY ZONE			
To compaction (ASTM D-698)	95%	90%	90%
Lift thickness/tamping method	6" hand or mechanical	10" mechanical or 6" hand or	10" mechanical or 6" hand or

FINAL 12" BELOW SUBGRADE		mechanical	mechanical
% compaction (ASTM D-698)	95%	same as	same as
Lift thickness/tamping method	6" hand or mechanical	secondary zone	secondary zone

Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade or layer of soil material.

Apply water in minimum quantity as necessary to prevent free water from appearing on surface during or subsequent to compaction operations. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density. Stockpile or spread soil material that has been removed because it is too wet to permit compaction. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value.

3.13 GRADING:

A. General: Uniformly grade areas within limits of grading under this section, including adjacent transition areas.

Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.

B. Grading Outside Building Lines: Grade areas adjacent to building lines to drain away from structures and to prevent ponding. Finish surfaces free from irregular surface changes and as follows:

C. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10 foot above or below required subgrade elevations.

D. Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 0.10 foot above or below required subgrade elevation.

E. Pavements: Shape surface of areas under pavement to line, grade and cross-section, with finish surface not more than 1/2" above or below required subgrade elevation.

F. Grading Surface of Structural Fill Under Building Slabs: Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of 1/2 inch when tested with a 10-foot straightedge.

G. Grading Surface of Crawl Spaces Beneath Buildings: Shape surface of areas under pavement to line, grade and cross-section, with finish surface not more than 0.10 feet.

Compaction: After grading, compact subgrade surfaces to the depth and indicated percentage of maximum or relative density for each area classification.

3.14 FIELD QUALITY CONTROL:

A. Quality Control Testing During Construction: Allow testing service to inspect and approve each subgrade and fill layer before further backfill or construction work is performed.

B. Perform field density tests in accordance with ASTM D 1556 (sand cone method) or ASTM D 2167 (rubber balloon method), as applicable.

Field density tests may also be performed by the nuclear method in accordance with ASTM D 2922, providing that calibration curves are periodically checked and adjusted to correlate to tests performed using ASTM D1556. In conjunction with each density calibration check, check the calibration curves furnished with the moisture gages in accordance with ASTM D 3017.

If field tests are performed using nuclear methods, make calibration checks of both density and moisture gages at beginning of work, on each different type of material encountered, and at intervals as directed by the A/E.

C. Building Slab Subgrade: Make at least one field density test of subgrade for every 2000 sq. ft. of building slab, but in no case less than 3 tests. In each compacted fill layer, make one field density test for every 2000 sq. ft. of overlying building slab, but in no case less than 3 tests.

D. Paved Areas: Make at least one field density test of subgrade for every 800 square yards of paved area. In each compacted fill layer, make one field density test for every 800 sq. yds.

E. Utility Trench Backfill: Under paved area, make one field density test of backfill for every 250 linear feet of trench per lift of backfill for the top 12" below subgrade.

F. If in opinion of the Owner/Architect/Engineer, based on testing service reports and inspection, structural fills or site fills that have been placed are below specified density, perform additional compaction and testing until specified density is obtained.

3.15 EROSION CONTROL:

A. Provide erosion control methods in accordance with requirements of authorities having jurisdiction.

3.16 MAINTENANCE

A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

B. Repair and reestablish grades in settled, eroded, and rutted areas to specified tolerances.

C. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density prior to further construction.

D. Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn, or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.17 DISPOSAL OF EXCESS AND WASTE MATERIALS:

A. Removal from Owner's Property: The Contractor shall remain responsible for the removal of waste materials, including unacceptable excavated material, trash, and debris, and to safely dispose of it off the Owner's property, in a legal manner, at no cost to Owner. Remove excess excavated material not required for construction, trash, debris and waste materials and dispose of it off Owner's property, in a legal manner, at no cost to Owner.

02202 EXCAVATION AND BACKFILL FOR UTILITIES AND SEWERS

PART 1 - GENERAL

1.01 DESCRIPTION

A. This specification shall govern all excavation for storm or sanitary sewers, sewers structures appurtenances and connections, utility pipe or conduits, and for backfilling to the level of tile original ground, all in conformity with the locations, lines, and grades shown on the plans or as established by the Engineer. This specification also governs for the necessary pumping or bailing and drainage, and all sheathing and bracing of trench walls, the furnishing and placing of cement stabilized backfill, and hauling and disposition of surplus materials, and tile bridging of trenches and other provisions for traffic or access as provided herein.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 CONSTRUCTION

A. Unless otherwise specified on the plans or permitted by the Engineer, all sewers, pipe, and conduit shall be constructed in open cut trenches with vertical sides. Trenches shall be sheathed and braced to the extent necessary throughout the construction period. Adequacy of the sheathing and bracing shall be to responsibility of the Contractor.

B. Trenches shall have a maximum width of one foot beyond the horizontal projection of the outside surfaces of the pipe and parallel thereto on each side unless otherwise specified.

C. The Contractor shall not have more than 100 feet of open trench left behind the trenching operation and no more than 250 feet of ditch behind the ditching machine that is no compacted as required by the plans and specifications.

D. For all utility conduit and sewer pipe to be constructed in fill above natura ground, the embankment shall first be constructed to an elevation not less than one foot above the top of the pipe or conduit after which excavation for the pipe or conduit after which excavation fo the pipe or conduit shall be made.

E. For pipe and conduit of all types, where soil encountered at established footing grade is a quicksand, muck, or similar unstable material, the following procedure shall be used unless other methods are called for on the plans. All unstable soil shall be removed to a depth of 2 feet below the bottom of pipe for pipes 2 feet or more in height; and to a depth equal to the height of pipe, 6 inch minimum, for pipe less then 2 feet in height. Such excavation shall be carried at least 1 foot beyond the horizontal limits of the structure on all sides.

All unstable soil so removed shall be replaced with suitable stable material, placed in uniform layers of suitable depth as directed by the Engineer, and each layer shall be wetted, if necessary, and compacted by mechanical tamping as required to provide a stable foundation for the structure. Soil which is considered to be of sufficient stability to sustain properly the adjacent sections of the roadway embankment will be considered a suitable foundation material for the culvert or sewer. For unstable trench conditions is encountered, and additional excavation and backfill required shall be done at the contractor's expense.

3.02 Shaping of Trench Bottom.

The trench bottom shall be undercut a minimum depth sufficient to accommodate the class of bedding indicated in the plans and specification.

3.03 Dewatering Trench.

Pipe or conduit shall not constructed or laid in a trench in the presence of water. All water shall be removed from tile trench sufficiently prior to the pipe or conduit planing, operation insure a relatively dry (no standing water), firm bed. The trench shall be maintained in such dewatered condition until the trench has been backfilled to a height at lease one foot above the top of pipe. Removal of water may be accomplished by bailing, pumping" or by a well-points installation as conditions warrant. Removal of well-points shall be at rate of 1/3 per 24 hours (every third well-point).

3.04 Excavation in Streets.

Excavation its streets, together with the maintenance of traffic where specified, and the restoration of tile pavement riding surface shall the in accordance with plan detail or as required try other applicable specification.

3.05 Removing, Old Structures.

When old masonry structure or foundations are encountered in the excavation, such obstructions shall be removed for the full width of the trench and to a depth of 1 foot below the bottom of the trench. When old inlets or manholes are encountered and no plan provision is made for adjustment or connection to the new sewer, such manholes and inlets shall be removed completely to a depth 1 foot below the bottom of the trench. In each instance, the bottom to the trench shall be restored to grade by backfilling and compacting by the methods provided hereinafter for backfill. Where the trench cuts through storm or sanitary sewers which are

known to be abandoned, these sewers shall be cut flush with sides of the trench and blocked with a concrete plug in a mannere satisfactory to the Engineer.

3.06 Protection of Utilities.

The Contractor shall conduct his work such that a reasonable minimum of disturbance to existing utilities will result. Particular care shall be exercised to avoid the cutting or breakage of water and gas line. Such lines, if broken, shall be restored promptly by the Contractor. When active sanitary sewer lines are cut in the trenching operations, temporary flumes shall be provided across the trench, while open, and the lines shall be restored when the backfilling has progressed to the original bedding lines of the sewer so cut. The Contractor shall inform utility owners sufficiently in advance of the Contractor's operations to enable such utility owners to reroute, provide temporary detours, or to make other adjustments to utility lines in order that the Contractor may proceed with his work with a minimum of delay and concerned in effecting any utility adjustments necessary and shall not hold the Owner liable for any expense due to delay or additional work because of conflicts.

3.07 Excess Excavated Material.

All materials from excavation not required for backfilling the trench shall be removed, by the Contractor, from the job site promptly following the completion of work involved.

3.08 Backfill

A. Backfill Procedure Around Pipe or Conduit and for One Foot Above Same

All trenches and excavation shall be backfilled as soon as is practical after the pipes or conduits are properly laid therein and the joints have hardened sufficiently to prevent displacement of the pipe or conduit and damage to the joints unless other protection of the pipe or conduit is directed. The backfill shall be material as described by Plan Details, free of large hard lumps, rock fragments or other debris. The backfill shall be deposited in the trench simultaneously on both sides of the pipe for the full width of the trench, in layers not to exceed six (6) inches (loose measurement), wetted if required to obtain proper compaction, and thoroughly compacted by mechanical tampers to a density as shown on plans, so that a thoroughly compacted material shall be in place between the external wall of the pipe and the undisturbed sides of trench and to a level twelve (12) inches above the top of the pipe.

B. Backfill Over One Foot Above Pipe

Where deep trenches are required, the backfill for that portion of trench over (1) foot above the pipe or conduit shall be selected excavated material free of hard lumps, rocks fragments, or other debris, place in layers not more than 6 inches in depth (loose measurement), wetted if required and thoroughly compacted by use of mechanical tampers to the densities show on plans. Flooding of backfill is not allowed.

A period of not less than twenty-four (24) hours shall lapse between the time of jetting and the placing of the top four (4) feet of backfill.

When indicated on the plans, trenches shall be backfilled to the elevations shown with cement stabilized sand containing a minimum of 1½ sacks of standard Type I Portland cement per cubic yard of sand.

02203 TRENCH SAFETY FOR EXCAVATIONS

PART 1 - GENERAL

1.01 DESCRIPTION

A. This specification shall govern all work for providing for worker safety in excavations and trenching operations required to complete the project.

1.02 REQUIREMENTS

A. Worker Safety in excavations and trenches shall be provided by the Contractor in accordance with Occupational Safety and Health Administration (OSHA) Standards, 29 CFR Part 1926 Subpart P - Excavations.

B. It is the sole responsibility of the Contractor, and not the Owner or Engineer, to determine and monitor the specific applicability of a safety system to the field conditions to be encountered on the job site during the project.

C. The Contractor shall indemnify and hold harmless the Owner and Engineer from all damages and cost that may result from failure of methods or equipment used by the Contractor to provide for worker safety.

D. Trenches as used herein, shall apply to any excavation into which structures, utilities, or sewers are placed regardless of depth.

E. Trench Safety Plan as used herein, shall apply to all methods and materials used to provide for worker safety in excavation and trenching operations required during, the project.

F. Contractor shall submit a trench excavation safety plan specific for this project. Prepared by a Registered Professional Engineer.

02282 TERMITE CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes soil treatment for termite control.

1.3 SUBMITTALS

A. General: Submit the following according to Conditions of Contract and Division 1 Specification Sections.

B. Product data and application instructions.

C. Certification that products used comply with U.S. Environmental Protection Agency (EPA) regulations for termiticides.

1.4 QUALITY ASSURANCE

A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for preparing substrate and application.

B. Engage a professional pest control operator who is licensed according to regulations of governing authorities to apply soil treatment solution.

Use only termiticides that bear a federal registration number of the EPA and are approved by local authorities having jurisdiction.

1.5 JOB CONDITIONS

A. Restrictions: Do not apply soil treatment solution until excavating, filling, and grading operations are completed, except as otherwise required in construction operations.

B. To ensure penetration, do not apply soil treatment to frozen or excessively wet soils or during inclement weather. Comply with handling and application instructions of the soil toxicant manufacturer.

1.6 WARRANTY

A. Warranty: Furnish written warranty, executed by Applicator and Contractor, certifying that applied soil termiticide treatment will prevent infestation of subterranean termites. If subterranean termite activity is discovered during warranty period, Contractor will re-treat soil and repair or replace damage caused by termite infestation.

Warranty Period: 5 years from date of Substantial Completion.

The warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 SOIL TREATMENT SOLUTION

A. General: Use an emulsible, concentrated termiticide that dilutes with water, specially formulated to prevent termites infestation. Fuel oil will not be permitted as a diluent.

Provide a solution consisting of one of following chemical elements.

B. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:

1. Chlorpyrifos:
 - a. Dursban TC, Dow Chemical Co.
2. Permethrin:

- a. Dragnet FT, FMC Corp.
- b. Torpedo, ICI Americas, Inc.
- 3. Cypermethrine:
 - a. Prevail FT, FMC Corp.
 - b. Demon, ICI Americas, Inc.
- 4. Fenvalerate:
 - a. Gold Coast Tribute, Du Pont.
- 5. Isofenphose:
 - a. Pryfon, Mobay Corp.

C. Dilute with water to concentration level recommended by manufacturer.

D. Other solutions may be used as recommended by Applicator if approved for intended application by local authorities having jurisdiction. Use only soil treatment solutions that are not harmful to plants.

PART 3 - EXECUTION

3.1 APPLICATION

A. Surface Preparation: Remove foreign matter that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated, except previously compacted areas under slabs and foundations. Toxicants may be applied before placing compacted fill under slabs if recommended by toxicant manufacturer.

B. Application Rates: Apply soil treatment solution as follows unless otherwise recommended by manufacturer:

1. Under slab-on-grade structures, treat soil before concrete slabs are placed, using the following application rates:
 - a. Apply 4 gallons of chemical solution per 10 linear feet to soil in critical areas under slab, including entire inside perimeter of foundation walls, along both sides of interior partition walls, around plumbing pipes and electric conduit penetrating slab, and around interior column footers.
 - b. Apply 1 gallon of chemical solution per 10 sq. ft. as an overall treatment under slab and attached slab areas where fill is soil or unwashed gravel. Apply 1-1/2 gallons of chemical solution to areas where fill is washed gravel or other coarse absorbent material.
 - c. Apply 4 gallons of chemical solution per 10 linear feet of trench for each foot of depth from grade to footing, along outside edge of building. Dig a trench 6 to 8 inches wide along outside of foundation to a depth of not less than 12 inches. Punch holes to top of footing at not more than 12 inches o.c. and apply chemical solution. Mix chemical solution with the soil as it is being replaced in the trench.
2. At hollow masonry foundations or grade beams, treat voids at rate of 2 gallons per 10 linear feet, poured directly into the hollow spaces.
3. At expansion joints, control joints, and areas where slabs will be penetrated, apply at rate of 4 gallons per 10 linear feet of penetration.

C. Post signs in areas of application to warn workers that soil termiticide treatment has been applied. Remove signs after areas are covered by other construction.

D. Reapply soil treatment solution to areas disturbed by subsequent excavation, landscape grading, or other construction activities following application.

02562 CONCRETE SIDEWALKS AND DRIVEWAYS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Requirements of Drawings, General and Special Conditions and Division 1 apply to this section.

1.2 DESCRIPTION

A. The specification shall consist of sidewalks and driveways, composed of Portland cement concrete, constructed as herein specified on an approved subgrade, in conformity with the lines and grades established by the Engineer and the details shown on the plans.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Materials and proportions used in construction under this item shall conform to the requirements as specified for 3000 PSI concrete under the specification Section 03300 "Cast-in-Place Concrete". Reinforcing steel shall conform to the requirements as specified in the specification Section 03200 "Concrete Reinforcing".

B. Expansion Joint Material: Expansion joint material shall be 3/4-inch thick asphalt impregnated, preformed filler conforming to the requirements of AASHTO M33 or M213; ASTM D994 or D1751 as specified, and shall be punched to admit dowels where called for in the plans. The filler for each joint shall be furnished in a single piece for the full depth and width required for the joint unless otherwise authorized by the Engineer. When the use of more than one piece is authorized for a joint, the abutting ends shall be fastened securely and held accurately to shape by stapling or other positive fastening satisfactory to the engineer.

C. Reinforcing Steel: Type specified in Section 03200. Grade 60

D. Dowels: ASTM A615; 60 KSI yield grade, smooth plain steel, unfinished. shall be approved material, shall be of such design as to provide the curb required and shall be rigidly attached to the outside forms. Where specifically permitted by the Engineer in writing, the Contractor may place concrete curb and gutter with an extrusion machine.

C. The reinforcing steel, if required, shall be placed in position as shown on the typical sections. Care shall be exercised to keep all steel in its proper location.

D. Concrete for curb and gutter shall be mixed in a manner satisfactory to the Engineer. The curb and gutter shall be poured in sections of the length indicated on the plans, and each section shall be separated by a premoulded or board joint of cross section specified for the curb and gutter, and of the thickness indicated on the plans.

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E. After the concrete has been struck off and after it has become sufficiently set, the exposed surfaces shall be thoroughly worked with a wooden float. The exposed edges shall be rounded by the use of an edging tool to the radius indicated on plans. All exposed surfaces of curb and gutter, or curb, shall be brushed to a smooth and uniform surface.

F. The completed curb and gutter shall be cured with Type 2, white pigmented, curing compound unless shown otherwise on plans. Other methods of curing as outlined in the specification, Section 03300 "Cast-in-Place Concrete" will be acceptable with a required curing period of 72 hours. The curb and gutter shall be backfilled to the full height of the concrete, tamped and sloped as directed.

H. Expansion joints shall match joints in adjoining walk at end of radius, at inlets. Locate at maximum 40' spacing (contraction joints at 10'-0" max spacing)

02663 WATER SERVICE LINE AND TAP

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Section specifies the requirements for providing a metered water service line and water tap from the existing City of Laredo water main.

1.02 QUALITY ASSURANCE

A. Reference Standards Applicable to This Section:

1. ASTM: American Society for Testing and Materials
 - a. B 62: Composition Bronze or Ounce Metal Castings
 - b. B 88: Seamless Copper Water Tube
 - c. B 584: Copper Alloy Sand Castings for General Applications
2. City of Laredo, Utility Department:
 - a. Specifications for Water Line Construction
 - b. Specifications for PVC Pipe Water Conduits
 - c. Specifications for Fire Hydrants
3. ANSI: American National Standards Institute
 - a. 16.15: Cast Bronze Threaded Fittings Classes 125 and 250
 - b. 16.18: Cast Copper Alloy Solder Joint Pressure Fittings
 - c. 16.22: Wrought Copper and Wrought Copper Alloy Solder Joint Fittings Pressure
 - d. 16.23: Cast Copper Alloy Solder Joint Drainage Fittings - DWV
 - e. 16.29: Wrought Copper and Wrought Copper Alloy Solder Joint Fittings - DWV Drainage

B. Certification: Installation of the water service line and meter shall be performed by a Certified Installer. Installer shall be subject to an informal contract agreement with the City of Laredo and shall be bonded and certified to tap city water distribution mains and install water meters.

1.03 SUBMITTALS

A. In accordance with Section 01300 - Submittals, of these specifications, the following shall be submitted:

1. Certificates: Manufacturer's certificates stating that materials meet specified requirements.
2. Shop Drawings and Data: Shop Drawings and data showing details of and recommendations for connection of valves and the various types of fittings and appurtenances.

PART 2 - PRODUCTS

2.01 GENERAL

A. Products for use within the City of Laredo right-of-way shall meet the applicable requirements of City of Laredo.

2.02 MATERIALS

- A. Pipe: Ductile iron complying with City of Laredo Standards.
- B. Fittings: Ductile iron, conforming to City of Laredo Standards.
- C. Valves: Conforming to City of Laredo Standards.
- D. Meter and Meter Box: Conforming to City of Laredo Standards.

PART 3 - EXECUTION

3.01 GENERAL

A. All water work shall meet the applicable requirements of City of Laredo Standards.

3.02 EXCAVATION

A. All excavation shall be in accordance with Section 02203 - Trenching, of these Specifications.

1. Perform excavation for water line to lines and grades as indicated on the Drawings.
2. Excavate to a minimum of 6 in. outside pipe barrel. Maintain sides of trench substantially vertical. shore and support as necessary.

3.03 PIPE BEDDING

A. Provide 6 in. of cement stabilized sand bedding shaped to fully support the pipe and all appurtenances, with the exception that no water tamping shall be permitted.

3.04 PIPE LAYING

A. Prior to placing, examine each piece of pipe and fitting for defects and make necessary repairs. Pipe and fitting damaged beyond acceptable repair shall be rejected.

B. Lay the entire length of pipe at line and grade indicate Blocking shall not be used to change pipe grade or to intermittently support pipe across excavated section.

C. Bend pipe to a minimum radius as recommended by the manufacturer for the type of a specified pipe. Otherwise use suitable fittings for changes in direction.

D. Field cut pipe where necessary, using approved pipe cutter, to prevent damage to pipe and to ensure a smooth end.

E. Seal open end of pipe with plug when pipe laying operation is temporarily halted. Plug shall remain in place until operation restarts.

3.05 TESTING AND DISINFECTING

A. Conduct leakage and pressure tests by the open trench method. Allowable hydrostatic pressure and leakage shall be in accordance with City of Laredo Standards.

B. Eliminate all leaks and defects and retest lines to ensure elimination of leaks and defects at no additional cost to the City.

C. Disinfect and test water service line in accordance with City of Laredo Standards.

D. Do not connect the water service line to the existing water main until the service line has been successfully cleaned, tested, disinfected and approved by the City of Laredo.

3.06 BACKFILL

A. Backfill the excavation, after successful completion of testing and disinfecting of pipe, in accordance with Section 02202 - Backfilling, and after obtaining written approval of the City of Laredo to do so.

3.07 CLEANUP

A. Remove temporary structures, rubbish, waste materials and excess excavated materials from the Site and dispose of legally.

02831 CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Divisions1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes the following:

1. Galvanized steel chain link fence and gates.
2. Galvanized steel framework.

B. Related Sections: The following sections contain requirements that relate to this section:

1. Division 2 Section "Earthwork" for filling and grading work.
2. Division 3 Section "Concrete Work" for concrete for post footings.

1.03 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division D Specification Sections. Product data in the form of manufacturer's technical data, specifications, and installation instructions for fence and gate posts, fabric, gates, and accessories.

B. Shop drawings showing location of fence, gates, each post, and details of post installation, extension arms, gate swing, hardware, and accessories.

1.04 QUALITY ASSURANCE

A. Single-Source Responsibility: Obtain chain link fences and gates as complete units, including necessary erection accessories, fittings, and fastenings from a single source or manufacturer.

PART 2 - PRODUCT

2.01 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

B. Galvanized Steel Fencing and Fabric:

1. Allied Tube and Conduit Corp.
2. American Chain Link Fence Company
3. American Tube Company
4. Anchor Fence, Inc.
5. Capitol Wire and Fence Co., Inc.
6. Century Tube Corp.
7. Cyclone Fence Div./USX Corp.

C. Barbed Tape:

1. Allied Tube and Conduit Corp.
2. American Security Fence Corp.
3. Michael Industries, Inc.
4. M R M Security Systems, Inc.

2.02 FABRIC

A. Salvage: Fabric 72 inches high and over with 2- or 2-1/8-inch mesh shall be knuckled at one salvage and twisted at the other; all mesh 60 inches high and under shall be knuckled at both salvages.

B. Steel Fabric: Comply with Chain Link Fence Manufacturers Institute (CLFMI) Product Manual. Furnish one-piece fabric widths for fencing up to 12 feet high. Wire size includes zinc or aluminum coating. Size: 2-inch mesh, 9-gage (0.148-inch diameter)wire.

C. Galvanized Steel Finish: ASTM A 392, Class 2, with not less than 2.0 oz. zinc per sq. ft. of uncoated wire surface on wire coated before weaving or not less than 2.0 oz. zinc per sq. ft. of uncoated wire surface on wire of fabric coated after weaving s determined

from the average of two or more samples and not less than 1.8 oz. zinc per sq. ft. of uncoated wire surface for any individual sample.

2.03 FRAMING

A. Strength requirements for posts and rails conforming to ASTM F 669. Pipe shall be straight, true to section, material, and sizes specified, and shall conform to the following weights per foot:

NPS in inches	Outside Diameter (OD) in inches	Type I Steel	Type II Steel	Aluminum
2	2.375	3.65	3.12	1.260
3	3.500	7.58	5.71	_____

B. Steel Framework, General: Posts, rails, braces, and gate frames.

1. Type I Pipe: Hot-dipped galvanized steel pipe conforming to ASTM F 1083, plain ends, standard weight (schedule 40) with not less than 1.8 oz. zinc per sq. ft. of surface area coated.

2. Type II Pipe: Manufactured from steel conforming to ASTM A 569 or A 446, grade D, cold formed, electric welded with minimum yield strength of 50,000 psi and triple coated with minimum 0.9 oz. zinc per sq. ft. after welding, a chromate conversion coating and a clear polymer overcoat. Corrosion protection on inside surfaces shall protect the metal from corrosion when subjected to the salt spray test of ASTM B 117 for 300 hours with the end point of 5 percent Red Rust.

C. Section: Rolled form steel shapes conforming to ASTM F 669, group II produced form steel conforming to A 446, grade D, or ASTM A 570, grade 45, cold formed, hot-dip galvanized with minimum 2.0 oz. zinc per sq. ft. of surface area conforming to ASTM A 123 or ASTM A 525; or 5 percent aluminum-mischmetal coated with minimum 1.0 oz. coating per sq. ft. of surface area each side conforming to ASTM A 875.

H Section: Hot-rolled steel H shape with minimum yield strength of 45,000 psi conforming to ASTM F 669, group III and hot-dip galvanized with minimum 2.0 oz. zinc per sq. ft. of surface area conforming to ASTM A123.

1. Over 6 feet: 2.875-inch OD Type I or II steel pipe, 2.50-inch-square steel tubing weighing 5.10 lbs. per lin. ft., or 3.5-inch by 3.5-inch roll-formed sections weighing 4.85 lbs. per tin. ft.

2. Over 6 feet: 2.375-inch OD Type I or II steel pipe, 2.25-inch by 1.70-inch C section weighing 2.70 lbs. per lin. ft., or 2.25-inch by 1.70-inch galvanized steel H section weighing 3.26 lb. per tin. ft.

3. Over 6 feet to 13 feet: 4.00-inch OD Type I or II steel pipe.

4. Galvanized Steel: 1-1/4-inch NPS (1.66-inch OD) Type I or II steel pipe or 1.625-inch by 1.25-inch roll-formed C sections weighing 1.35 lb. per ft.

2.04 FITTINGS AND ACCESSORIES

A. Material: Comply with ASTM F 626. Mill-finished aluminum or galvanized iron or steel, to suit manufacturer's standards.

B. Zinc Coating: Unless specified otherwise, galvanize steel fence fittings and accessories in accordance with ASTM A 153, with zinc weights per Table I.

C. Tension Wire: 0.177-inch-diameter metallic-coated steel marcelled tension wire conforming to ASTM A 824 with finish to match fabric.

Type II Zinc Coated in following class:

D. Bottom and Center Rail: Same material as top rail. Provide manufacturer's standard galvanized steel or cast iron or cast aluminum cap for each end.

E. Post and Line Caps: Provide weathertight closure cap for each post. Provide line post caps with loop to receive tension wire or top rail.

F. Tension or Stretcher Bars: Hot-dip galvanized steel with minimum length 2 inches less than full height of fabric, minimum cross-section of 3/16 inch by 3/4 inch and minimum 1.2 oz. zinc coating per sq. ft. of surface area.

Provide one bar for each gate and end post, and two for each corner and pull post, except where fabric is integrally woven into post.

G. Tension and Brace Bands: Minimum 3/4-inch-wide hot-dip galvanized steel with minimum 1.2 oz. zinc coating per sq. ft. of surface area.

H. Tension Bands: Minimum 14 gage (0.074 inch) thick.

I. Tension and Brace Bands: Minimum 12 gage (0.105 inch) thick.

J. Barbed Wire Supporting Arms: Manufacturer's standard barbed wire supporting arms conforming to ASTM F 626, metal and Amish to match fence framework, with provision for anchorage to posts and attaching three rows of barbed wire to each arm. Supporting arms may be either attached to posts or integral with post top weather cap and must be capable of withstanding 250 lb. downward pull at outermost end. Provide following type:

K. Steel Barbed Wire: Two strand, 12-1/2-gage steel wire with 14-gage, 4-point barbs spaced not more than 5 inches o.c.; metallic coated finish to match fabric.

L. Galvanized Steel Barbed Wire: Comply with ASTM A 121.

M. Barbed Tape: Continuous helical coils of barbed stainless steel tape, fabricated from ANSI 430 stainless steel hardened to Rockwell (30N) 40-45, 0.025 inch thick by 1 inch wide prior to fabrication with 4 needle sharp barbs not less than 1.25-inch long in clusters on 4-inch centers and permanently cold-clenched to a minimum of 230 degrees around a 0.098-inch-diameter core wire of high-tensile zinc-coated steel conforming to ASTM A 764 or stainless steel conforming to ASTM A 478. Clip adjacent loops together with 0.065-inch-thick by 0.375-inch-wide stainless clips capable of withstanding a minimum 150 lb. pull load to limit extension of coil, resulting in a concertina effect when deployed. Provide coil diameter, type, and configuration as indicated; if not otherwise indicated, provide 24-inch-diameter, single-concertina type coil.

N. Concrete: Provide concrete consisting of Portland cement, ASTM C 150, aggregates ASTM C 33, and clean water. Mix materials to obtain concrete with a minimum 28-day compressive strength of 2500 psi. Use at least 4 sacks of cement per cu. yd., 1-inch maximum size aggregate, maximum 3-inch slump, and 2 to 4 percent entrained air.

2.05 GATES

A. Fabrication: Fabricate perimeter frames of gates from metal and finish to match fence framework. Assemble gate frames by welding. Provide horizontal and vertical members to ensure proper gate operation and attachment of fabric, hardware, and accessories. Space frame members maximum of 8 feet apart unless otherwise indicated.

Provide same fabric as for fence unless otherwise indicated. Install fabric with tension bars and bands at vertical edges and at top and bottom edges.

Install diagonal cross-bracing consisting of 3/8-inch-diameter adjustable-length truss rods Where barbed wire is indicated above gates, extend end members of gate frames 12 inches above top member and prepare to receive 3 strands of wire. Provide necessary clips for securing wire to extensions.

B. Swing Gates: Comply with ASTM F 900.

C. Steel:

1. Up to 6 feet High and 8 feet Wide: Fabricate perimeter frames of minimum 1.660-inch OD Type I or II steel pipe or 1.50-inch square galvanized steel tubing weighing 1.90 lb. per sq. ft.

2. Over to 6 feet High and 8 Feet Wide: Fabricate perimeter frames of minimum 1.90-inch OD Type I or II steel pipe or 2.00-inch square galvanized steel tubing weighing 2.60 lb. per sq. ft.

D. Aluminum: Fabricate perimeter frames of minimum 1.90-inch OD aluminum pipe or 2-inch-square aluminum tubing.

E. Gate Hardware: Provide hardware and accessories for each gate, galvanized per ASTM A 153, and in accordance with the following:

F. Hinges: Size and material to suit gate size, non-lift-off type, offset to permit 180-deg. gate opening. Provide 1-1/2 pair of hinges for each leaf over 6-foot nominal height.

G. Latch: Forked type or plunger-bar type to permit operation from either side of gate,, with padlock eye as integral part of latch.

H. Keeper: Provide keeper for vehicle gates, which automatically engages gate leaf and holds it in open position until manually released.

I. Gate Stops: Provide gate stops for double gates, consisting of mushroom-type flush plate with anchors, set in concrete, and designed to engage center drop rod or plunger bar. Include locking device and padlock eyes as integral part of latch, permitting both gate leaves to be locked with single padlock.

J. Sliding Gates: Comply with ASTM F 1184.

K. Type I. Overhead Slide: Provide manufacturer's standard heavy-duty inverted channel track, ball-bearing hanger sheaves, overhead framing and supports, guides, stays, bracing, hardware, and accessories as required.

L. Type II, Cantilever: Provide manufacturer's standard top rail incorporating track for top roller and guide posts to keep gate on rollers. External rollers shall have accessible grease fittings, and internal rollers shall have sealed lubricant ball bearings. Brace frame to prevent sagging and apply fabric to entire gate. Provide lockable positive latch and other hardware and accessories as required.

M. Operator Controlled Electric Gate Operators: The swing gate operators shall be a compact self contained unit. It shall consist of a precision Worm and cur navy "G" bronze gear wheel driven by "V" belt and pulley. A positive mechanical safety clutch fully adjustable for immediate emergency release, and permanently synchronized limit switch for each 180 deg. of the 360 deg. main shaft rotation. Housing shall be streamlined cast aluminum with removable side plates. Motor shall be 1/2 horsepower 115/220 volts single phase capacitor motor with thermal protection against overload. Electrical system shall include water proof box with adjustable automatic closing timer, fuse, hinged circuit board, service disconnect switches, radio receiving unit, 24V transformer, terminal connection for outside wiring and security system interface. Located in import exit booth.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General: Install fence in compliance with ASTM F 567. Do not begin installation and erection before final grading is completed, unless otherwise permitted.

Apply fabric to outside of framework. Install fencing on boundary lines inside of property line established by survey as required by Division 1.

B. Excavation: Drill or hand-excavate (using post-hole digger) holes for posts to diameters and spacings indicated, in firm, undisturbed or compacted soil.

If not indicated on drawings, excavate holes for each post to minimum diameter recommended by fence manufacturer, but not less than 4 times largest cross-section of post. Unless otherwise indicated, excavate hole depths approximately 3 inches lower than post bottom, with bottom of posts set not less than 36 inches below finish grade surface.

C. Setting Posts: Center and align posts in holes 3 inches above bottom of excavation. Space maximum 10 feet o.c., unless otherwise indicated.

Protect portion of posts above ground from concrete splatter. Place concrete around posts and vibrate or tamp for consolidation.

Check each post for vertical and top alignment, and hold in position during placement and finishing operations.

Unless otherwise indicated, extend concrete footings 2 inches above grade and trowel to a crown to shed water.

D. Top Rails: Run rail continuously through line post caps, bending to radius for curved runs and at other posts terminating into rail end attached to posts or post caps fabricated to receive rail. Provide expansion couplings as recommended by fencing manufacturer.

E. Brace Assemblies: Install braces so posts are plumb when diagonal rod is under proper tension.

F. Bottom Tension Wire: Install tension wire within 6 inches of bottom of fabric before stretching fabric and tie to each post with not less than same gage and type of wire. Pull wire taut, without sags, Fasten fabric to tension wire with 11-gage hog rings of same material and finish as fabric wire, spaced maximum 24 inches o.c.

G. Fabric: Leave approximately 2 inches between Amish grade and bottom salvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Install fabric on security side of fence, and anchor to framework so that fabric remains in tension after pulling force is released.

H. Tension or Stretcher Bars: Thread through or clamp to fabric 4 inches o.c., and secure to end, corner, pull, and gate posts with tension bands spaced not over 15 inches o.c.

I. Tie Wires: Use U-shaped wire of proper length to secure fabric firmly to posts and rails with ends twisted at least 2 full turns. Bend ends of wire to minimize hazard to persons or clothing.

J. Maximum Spacing: Tie fabric to line posts 12 inches o.c. and to rails and braces 24 inches o.c.

K. Fasteners: Install nuts for tension bands and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

L. Gates: Install gates plumb, level, and secure for full opening without interference. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

M. Barbed Wire: Pull wire taut and install securely to extension arms and secure to end post or terminal arms in accordance with manufacturer's instructions.

N. Barbed Tape: Install barbed tape in configurations indicated in accordance with manufacturer's recommendations and fasten

securely to fencing to prevent movement or displacement.

03 CONCRETE

03300 CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcing, mix design, placement procedures, and finishes.
- B. Cast-in-place concrete includes the following:
 - 1. Foundations and footings.
 - 2. Slabs-on-grade.
 - 3. Equipment pads and bases.
- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 2 Section "Portland Cement Concrete Paving" for concrete paving and walks.

1.3 SUBMITTALS

- A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake finish materials, and others if requested by Engineer.
- C. Shop drawings for reinforcement detailing fabricating, bending, and placing concrete reinforcement. Comply with ACI SP-66 (88), AACI Detailing manual," showing bar schedules, stirrup spacing, bent bar diagrams, and arrangement of concrete reinforcement. Include special reinforcing required for openings through concrete structures.
- D. Shop drawings for formwork indicating fabrication and erection of forms for specific finished concrete surfaces. Show form construction including jointing, special form joints or reveals, location and pattern of form tie placement, and other items that affect exposed concrete visually.
 - 1. Architect's review is for general architectural applications and features only. Designing formwork for structural stability and efficiency is Contractor's responsibility.
- E. Samples of materials as requested by Engineer, including names, sources, and descriptions, as follows:
 - 1. Color finishes.
 - 2. Normal weight aggregates.
 - 3. Reglets.
 - 4. Waterstops.
 - 5. Vapor retarder/barrier.
- F. Laboratory test reports for concrete materials and mix design test.
- G. Material certificates in lieu of material laboratory test reports when permitted by Architect. Material certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with or exceeds specified requirements. Provide certification from admixture manufacturers that chloride content complies with specification requirements.
- H. Minutes of preinstallation conference.

1.4 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of the following codes, specifications, and standards, except where more stringent requirements are shown or specified:
 - 1. American Concrete Institute (ACI) 301, "Specifications for Structural Concrete for Buildings."
 - 2. ACI 318, "Building Code Requirements for Reinforced Concrete."
 - 3. Concrete Reinforcing Steel Institute (CRSI) "Manual of Standard Practice."
- B. Concrete Testing Service: Owner to engage an independent testing laboratory acceptable to Engineer to perform material evaluation tests and to design concrete mixes.
- C. Materials and installed work may require testing and retesting at any time during progress of Work. Tests, including retesting of rejected materials for installed Work, shall be done at Contractor's expense.
- D. Mockup: Cast mockup of size indicated or as required to demonstrate typical joints, form tie spacing, and proposed surface finish, texture, and color. Maintain sample panel exposed to view for duration of Project, after Architect's acceptance of visual qualities.
 - 1. Demolish mockup and remove from site when directed by Architect.
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings" and the following:
 - 1. At least 35 days prior to submitting design mixes, conduct a meeting to review detailed requirements for preparing concrete design mixes and to determine procedures for satisfactory concrete operations. Review requirements for submittals, status of coordinating work, and availability of materials. Establish preliminary work progress schedule and procedures for materials inspection, testing, and certifications. Require representatives of each entity directly concerned with cast-in-place concrete to attend conference, including, but not limited to, the following:
 - a. Contractor's superintendent.
 - b. Agency responsible for concrete design mixes.
 - c. Agency responsible for field quality control.
 - d. Ready-mix concrete producer.
 - e. Concrete subcontractor.
 - f. Primary admixture manufacturers.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

- A. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings.
 - 1. Use overlaid plywood complying with U.S. Product Standard PS-1 "A-C or B-B High Density Overlaid Concrete Form," Class I.
 - 2. Use plywood complying with U.S. Product Standard PS-1 "B-B (Concrete Form) Plywood," Class I, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible inspection trademark.
- B. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or another acceptable material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Form Release Agent: Provide commercial formulation form release agent with a maximum of 350 mg/l volatile organic compounds (VOCs) that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
- D. Form Ties: Factory-fabricated, adjustable-length, removable or snap-off metal form ties designed to prevent form deflection and to prevent spalling of concrete upon removal. Provide units that will leave no metal closer than 1-1/2 inches to the plane of the exposed concrete surface.

1. Provide ties that, when removed, will leave holes not larger than 1 inch in diameter in the concrete surface.

2.2 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A 615, Grade 40 for No. 3 bars, Grade 60 for No. 4 bars and larger, deformed.
- B. Steel Wire: ASTM A 82, plain, cold-drawn steel.
- C. Welded Wire Fabric: ASTM A 185, welded steel wire fabric.
- D. Deformed-Steel Welded Wire Fabric: ASTM A 497.
- E. Supports for Reinforcement: Bolsters, chairs, ACI approved precast concrete block supports, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire bar-type supports complying with CRSI specifications.
 1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
 2. For exposed-to-view concrete surfaces where legs of supports are in contact with forms, provide supports with legs that are protected by plastic (CRSI, Class 1) or stainless steel (CRSI, Class 2).

2.3 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I.
 1. Use one brand of cement throughout Project unless otherwise acceptable to Engineer of Record.
- B. Normal-Weight Aggregates: ASTM C 33 and as specified. Provide aggregates from a single source for exposed concrete.
 1. For exposed exterior surfaces, do not use fine or coarse aggregates that contain substances that cause spalling.
 2. Local aggregates not complying with ASTM C 33 that have been shown to produce concrete of adequate strength and durability by special tests or actual service may be used when acceptable to Engineer.
- C. Lightweight Aggregates: ASTM C 330.
 1. Nominal maximum aggregate size: 2 inch.
- D. Water: Potable.
- E. Admixtures, General: Provide concrete admixtures that contain not more than 0.1 percent chloride ions.
- F. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.
 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. Air-Tite, Cormix Construction Chemicals.
 - b. Air-Mix or Perma-Air, Euclid Chemical Co.
 - c. Darex AEA or Daravair, W.R. Grace & Co.
 - d. MB-VR or Micro-Air, Master Builders, Inc.
 - e. Sealtight AEA, W.R. Meadows, Inc.
 - f. Sika AER, Sika Corp.
- G. Water-Reducing Admixture: ASTM C 494, Type A.
 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. Chemtard, ChemMasters Corp.
 - b. PSI N, Cormix Construction Chemicals.
 - c. Eucon WR-75, Euclid Chemical Co.

- d. WRDA, W.R. Grace & Co.
 - e. Pozzoloth Normal or Polyheed, Master Builders, Inc.
 - f. Metco W.R., Metalcrete Industries.
 - g. Prokrete-N, Prokrete Industries.
 - h. Plastocrete 161, Sika Corp.
- H. High-Range Water-Reducing Admixture: ASTM C 494, Type F or Type G.
- 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
 - 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. Super P, Anti-Hydro Co., Inc.
 - b. Cormix 200, Cormix Construction Chemicals.
 - c. Eucon 37, Euclid Chemical Co.
 - d. WRDA 19 or Daracem, W.R. Grace & Co.
 - e. Rheobuild or Polyheed, Master Builders, Inc.
 - f. Superslump, Metalcrete Industries.
 - g. PSPL, Prokrete Industries.
 - h. Sikament 300, Sika Corp.
- I. Water-Reducing, Accelerating Admixture: ASTM C 494, Type E.
- 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
 - 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. Q-Set, Conspec Marketing & Manufacturing Co.
 - b. Lubricon NCA, Cormix Construction Chemicals.
 - c. Accelguard 80, Euclid Chemical Co.
 - d. Daraset, W.R. Grace & Co.
 - e. Pozzutec 20, Master Builders, Inc.
 - f. Accel-Set, Metalcrete Industries.
- J. Water-Reducing, Retarding Admixture: ASTM C 494, Type D.
- 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
 - 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. PSI-R Plus, Cormix Construction Chemicals.
 - b. Eucon Retarder 75, Euclid Chemical Co.
 - c. Daratard-17, W.R. Grace & Co.
 - d. Pozzoloth R, Master Builders, Inc.
 - e. Protard, Prokrete Industries.
 - f. Plastiment, Sika Corporation.

2.4 RELATED MATERIALS

- A. Reglets: Where sheet flashing or bituminous membranes are terminated in reglets, provide reglets of not less than 0.0217-inch-thick (26-gage) galvanized sheet steel. Fill reglet or cover face opening to prevent intrusion of concrete or debris.
- B. Dovetail Anchor Slots: Hot-dip galvanized sheet steel, not less than 0.0336 inch thick (22 gage) with bent tab anchors. Fill slot with temporary filler or cover face opening to prevent intrusion of concrete or debris.
- C. Waterstops: Provide flat, dumbbell-type or centerbulb-type waterstops at construction joints and other joints as indicated. Size to suit joints.
- D. Rubber Waterstops: Corps of Engineers CRD-C 513.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
 - 2. Manufacturers: Subject to compliance with requirements, provide products of one of the following:

- a. The Burke Co.
 - b. Progress Unlimited.
 - c. Williams Products, Inc.
- E. Polyvinyl Chloride Waterstops: Corps of Engineers CRD-C 572.
- 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
 - 2. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
 - a. The Burke Co.
 - b. Greenstreak Plastic Products Co.
 - c. W.R. Meadows, Inc.
 - d. Progress Unlimited.
 - e. Schlegel Corp.
 - f. Vinylex Corp.
- F. Sand Cushion: Clean, manufactured or natural sand.
- G. Vapor Retarder: Provide vapor retarder that is resistant to deterioration when tested according to ASTM E 154, as follows:
- 1. Polyethylene sheet not less than 6 mils thick.
- H. Nonslip Aggregate Finish: Provide fused aluminum oxide granules or crushed emery as the abrasive aggregate for a nonslip finish, with emery aggregate containing not less than 50 percent aluminum oxide and not less than 25 percent ferric oxide. Use material that is factory-graded, packaged, rustproof, nonglazing, and unaffected by freezing, moisture, and cleaning materials.
- I. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.
- J. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.
- 1. Waterproof paper.
 - 2. Polyethylene film.
 - 3. Polyethylene-coated burlap.
- K. Liquid Membrane-Forming Curing Compound: Liquid-type membrane-forming curing compound complying with ASTM C 309, Type I, Class A. Moisture loss not more than 0.55 kg/sq. meter when applied at 200 sq. ft./gal.
- 1. Provide material that has a maximum volatile organic compound (VOC) rating of 350 mg per liter.
 - 2. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
 - 3. Products: Subject to compliance with requirements, provide one of the following:
 - a. A-H 3 Way Sealer, Anti-Hydro Co., Inc.
 - b. Spartan-Cote, The Burke Co.
 - c. Conspec #1, Conspec Marketing & Mfg. Co.
 - d. Sealco 309, Cormix Construction Chemicals.
 - e. Day-Chem Cure and Seal, Dayton Superior Corp.
 - f. Euco cure, Euclid Chemical Co.
 - g. Horn Clear Seal, A.C. Horn, Inc.
 - h. L&M Cure R, L&M Construction Chemicals, Inc.
 - i. Masterkure, Master Builders, Inc.
 - j. CS-309, W.R. Meadows, Inc.
 - k. Seal N Kure, Metalcrete Industries.
 - l. Kure-N-Seal, Sonneborn-Chemrex.
 - m. Stontop CS2, Stonhard, Inc.
- L. Water-Based Acrylic Membrane Curing Compound: ASTM C 309, Type I, Class B.
- 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work

- include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:
 - a. Highseal, Conspec Marketing and Mfg. Co.
 - b. Sealco - VOC, Cormix Construction Chemicals.
 - c. Safe Cure and Seal, Dayton Superior Corp.
 - d. Aqua-Cure, Euclid Chemical Co.
 - e. Dress & Seal WB, L&M Construction Chemicals, Inc.
 - f. Masterkure 100W, Master Builders, Inc.
 - g. Vocomp-20, W.R. Meadows, Inc.
 - h. Metcure, Metalcrete Industries.
 - i. Stontop CS1, Stonhard, Inc.

 - M. Evaporation Control: Monomolecular film-forming compound applied to exposed concrete slab surfaces for temporary protection from rapid moisture loss.
 - 3 Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
 - 4 Products: Subject to compliance with requirements, provide one of the following:
 - a. Aquafilm, Conspec Marketing and Mfg. Co.
 - b. Eucobar, Euclid Chemical Co.
 - c. E-Con, L&M Construction Chemicals, Inc.
 - d. Confilm, Master Builders, Inc.
 - e. Waterhold, Metalcrete Industries.

 - N. Bonding Agent: Polyvinyl acetate or acrylic base.
 - 5 Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
 - 6 Products: Subject to compliance with requirements, provide one of the following:
 - a. Polyvinyl Acetate (Interior Only):
 - 1 Superior Concrete Bonder, Dayton Superior Corp.
 - 2 Euco Weld, Euclid Chemical Co.
 - 3 Weld-Crete, Larsen Products Corp.
 - 4 Everweld, L&M Construction Chemicals, Inc.
 - 5 Herculox, Metalcrete Industries.
 - 6 Ready Bond, Symons Corp.
 - b. Acrylic or Styrene Butadiene:
 - 7 Acrylic Bondcrete, The Burke Co.
 - 8 Strongbond, Conspec Marketing and Mfg. Co.
 - 9 Day-Chem Ad Bond, Dayton Superior Corp.
 - 10 SBR Latex, Euclid Chemical Co.
 - 11 Daraweld C, W.R. Grace & Co.
 - 12 Hornweld, A.C. Horn, Inc.
 - 13 Everbond, L&M Construction Chemicals, Inc.
 - 14 Acryl-Set, Master Builders Inc.
 - 15 Intralok, W.R. Meadows, Inc.
 - 16 Acrylpave, Metalcrete Industries.
 - 17 Sonocrete, Sonneborn-Chemrex.
 - 18 Stonlock LB2, Stonhard, Inc.
 - 19 Strong Bond, Symons Corp.

 - O. Epoxy Adhesive: ASTM C 881, two-component material suitable for use on dry or damp surfaces. Provide material type, grade, and class to suit Project requirements.
 - 7 Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
 - 8 Products: Subject to compliance with requirements, provide one of the following:

- a. Burke Epoxy M.V., The Burke Co.
- b. Spec-Bond 100, Conspec Marketing and Mfg. Co.
- c. Resi-Bond (J-58), Dayton Superior.
- d. Euco Epoxy System #452 or #620, Euclid Chemical Co.
- e. Epoxite Binder 2390, A.C. Horn, Inc.
- f. Epabond, L&M Construction Chemicals, Inc.
- g. Concrevis Standard Liquid, Master Builders, Inc.
- h. Rezi-Weld 1000, W.R. Meadows, Inc.
- i. Metco Hi-Mod Epoxy, Metalcrete Industries.
- j. Sikadur 32 Hi-Mod, Sika Corp.
- k. Stonset LV5, Stonhard, Inc.
- l. R-600 Series, Symons Corp.

2.5 PROPORTIONING AND DESIGNING MIXES

- A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. For the trial batch method, use an independent testing agency acceptable to Engineer for preparing and reporting proposed mix designs.
 - 9 **Do not use the same testing agency for field quality control testing.**
 - 10 Use of fly ash or calcium chloride will not be permitted in concrete, unless noted otherwise.
- B. Submit written reports to Architect of each proposed mix for each class of concrete at least 15 days prior to start of Work. Do not begin concrete production until proposed mix designs have been reviewed by Engineer.
- C. Design mixes to provide normal weight concrete with the following properties as indicated on drawings and schedules:
 - 11 3000-psi, 28-day compressive strength; water-cement ratio, 0.58 maximum (non-air-entrained), 0.46 maximum (air-entrained). For slabs on grade, grade beam, loading docks & ramps.
 - 12 2500-psi, 28-day compressive strength; water-cement ratio, 0.67 maximum (non-air-entrained), 0.54 maximum (air-entrained). For miscellaneous sidewalks and curbs not otherwise called out to have a higher strength.
- D. Water-Cement Ratio: Provide concrete for following conditions with maximum water-cement (W/C) ratios as follows:
 - 13 Subjected to freezing and thawing: W/C 0.45.
- E. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:
 - 14 Ramps, slabs, and sloping surfaces: Not more than 3 inches.
 - 15 Reinforced foundation systems: Not less than 1 inch and not more than 5 inches.
 - 16 Concrete containing high-range water-reducing admixture (superplasticizer): Not more than 8 inches after adding admixture to site-verified 2-to-3-inch slump concrete.
 - 17 Other concrete: Not more than 4 inches.
- F. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, as accepted by Engineer. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Architect before using in Work.

2.6 ADMIXTURES

- A. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.
- B. Use accelerating admixture in concrete slabs placed at ambient temperatures below 50 deg F (10 deg C).
- C. Use high-range water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs, architectural concrete, parking structure slabs, concrete required to be watertight, and concrete with water-cement ratios below 0.50.
- D. Use admixtures for water reduction and set accelerating or retarding in strict compliance with manufacturer's directions.

2.7 CONCRETE MIXING

- A. Job-Site Mixing: Mix concrete materials in appropriate drum-type batch machine mixer. For mixers of 1 cu. yd. or smaller capacity, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released. For mixers of capacity larger than 1 cu. yd., increase minimum 1-1/2 minutes of mixing time by 15 seconds for each additional cu. yd.
- 18 Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mix type, mix time, quantity, and amount of water introduced.
- B. Ready-Mixed Concrete: Comply with requirements of ASTM C 94, and as specified.
- 19 When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 GENERAL

- A. Coordinate the installation of joint materials, vapor retarder/barrier, and other related materials with placement of forms and reinforcing steel.

3.2 FORMS

- A. General: Design, erect, support, brace, and maintain formwork to support vertical, lateral, static, and dynamic loads that might be applied until concrete structure can support such loads. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain formwork construction tolerances and surface irregularities complying with the following ACI 347 limits:
- 20 Provide Class A tolerances for concrete surfaces exposed to view.
- 21 Provide Class C tolerances for other concrete surfaces.
- B. Construct forms to sizes, shapes, lines, and dimensions shown and to obtain accurate alignment, location, grades, level, and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in the Work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent cement paste from leaking.
- C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like for easy removal.
- D. Provide temporary openings for clean-outs and inspections where interior area of formwork is inaccessible before and during concrete placement. Securely brace temporary openings and set tightly to forms to prevent losing concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- E. Chamfer exposed corners and edges as indicated, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
- F. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.
- G. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before placing concrete. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

3.3 VAPOR RETARDER/BARRIER INSTALLATION

- A. General: Place vapor retarder/barrier sheeting in position with longest dimension parallel with direction of pour.
- B. Lap joints 6 inches and seal with manufacturer's recommended mastic or pressure-sensitive tape.

3.4 PLACING REINFORCEMENT

- A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as specified.
 - 22 Avoiding cutting or puncturing vapor retarder/barrier during reinforcement placement and concreting operations. Repair damages before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as approved by Engineer.
- D. Place reinforcement to maintain minimum coverages as indicated for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.5 JOINTS

- A. Construction Joints: Locate and install construction joints so they do not impair strength or appearance of the structure, as acceptable to Architect.
- B. Provide keyways at least 1-1/2 inches deep in construction joints in walls and slabs and between walls and footings. Bulkheads designed and accepted for this purpose may be used for slabs.
- C. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as indicated otherwise. Do not continue reinforcement through sides of strip placements.
- D. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.
- E. Waterstops: Provide waterstops in construction joints as indicated. Install waterstops to form continuous diaphragm in each joint. Support and protect exposed waterstops during progress of Work. Field-fabricate joints in waterstops according to manufacturer's printed instructions.
- F. Isolation Joints in Slabs-on-Grade: Construct isolation joints in slabs-on-grade at points of contact between slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
 - 23 Joint fillers and sealants are specified in Division 7 Section "Joint Sealants."
- G. Contraction (Control) Joints in Slabs-on-Grade: Construct contraction joints in slabs-on-grade to form panels of patterns as shown. Use saw cuts 1/8 inch wide by one-fourth of slab depth or inserts 1/4 inch wide by one-fourth of slab depth, unless otherwise indicated.
 - 24 Form contraction joints by inserting premolded plastic, hardboard, or fiberboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris.
 - 25 Contraction joints in unexposed floor slabs may be formed by saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregate.
 - 26 If joint pattern is not shown, provide joints not exceeding 15 feet in either direction and located to conform to bay spacing wherever possible (at column centerlines, half bays, third bays).

27 Joint fillers and sealants are specified in Division 7 Section "Joint Sealants."

3.6 INSTALLING EMBEDDED ITEMS

- A. General: Set and build into formwork anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached.
- B. Install reglets to receive top edge of foundation sheet waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, relieving angles, and other conditions.
- C. Install dovetail anchor slots in concrete structures as indicated on drawings.
- D. Forms for Slabs: Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-type screeds.

3.7 PREPARING FORM SURFACES

- A. General: Coat contact surfaces of forms with an approved, nonresidual, low-VOC, form-coating compound before placing reinforcement.
 - B. Do not allow excess form-coating material to accumulate in forms or come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply according to manufacturer's instructions.
- 28 Coat steel forms with a nonstaining, rust-preventative material. Rust-stained steel formwork is not acceptable.

3.8 CONCRETE PLACEMENT

- A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.
- B. General: Comply with ACI 304, "Guide for Measuring, Mixing, Transporting, and Placing Concrete," and as specified.
- C. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened sufficiently to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation at its final location.
- D. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
 - 29 Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete complying with ACI 309.
 - 30 Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the machine. Place vibrators 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 set. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix to segregate.
- E. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until completing placement of a panel or section.
 - 31 Consolidate concrete during placement operations so that concrete is thoroughly worked around reinforcement, other embedded items and into corners.
 - 32 Bring slab surfaces to correct level with a straightedge and strike off. Use bull floats or darbies to smooth surface free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
 - 33 Maintain reinforcing in proper position on chairs during concrete placement.
- F. Cold-Weather Placement: Comply with provisions of ACI 306 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

- G. When air temperature has fallen to or is expected to fall below 40 deg F (4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.
- 34 Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
- 35 Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.
- H. Hot-Weather Placement: When hot weather conditions exist that would impair quality and strength of concrete, place concrete complying with ACI 305 and as specified.
- 36 Cool ingredients before mixing to maintain concrete temperature at time of placement to below 90 deg F (32 deg C). Mixing water may be chilled or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
- 37 Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedding in concrete.
- 38 Fog spray forms, reinforcing steel, and subgrade just before placing concrete. Keep subgrade moisture uniform without puddles or dry areas.
- 39 Use water-reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions, as acceptable to Architect.

3.9 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: Provide a rough-formed finish on formed concrete surfaces not exposed to view in the finished Work or concealed by other construction. This is the concrete surface having texture imparted by form-facing material used, with tie holes and defective areas repaired and patched, and fins and other projections exceeding 3/4 inch in height rubbed down or chipped off.
- B. Smooth-Formed Finish: Provide a smooth-formed finish on formed concrete surfaces exposed to view or to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, painting, or another similar system. This is an as-cast concrete surface obtained with selected form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch defective areas with fins and other projections completely removed and smoothed.
- C. Smooth-Rubbed Finish: Provide smooth-rubbed finish on scheduled concrete surfaces that have received smooth-formed finish treatment not later than 1 day after form removal.
- 40 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. Grout-Cleaned Finish: Provide grout-cleaned finish on scheduled concrete surfaces that have received smooth-formed finish treatment.
- 41 Combine one part portland cement to one and one-half parts fine sand by volume, and a 50:50 mixture of acrylic or styrene butadiene-based bonding admixture and water to form the consistency of thick paint. Blend standard portland cement and white portland cement in amounts determined by trial patches so that final color of dry grout will match adjacent surfaces.
- 42 Thoroughly wet concrete surfaces, apply grout to coat surfaces, and fill small holes. Remove excess grout by scraping and rubbing with clean burlap. Keep damp by fog spray for at least 36 hours after rubbing.
- E. 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.

3.10 MONOLITHIC SLAB FINISHES

- A. Scratch Finish: Apply scratch finish to monolithic slab surfaces to receive concrete floor topping or mortar setting beds for tile, portland cement terrazzo, and other bonded applied cementitious finish flooring material, and where indicated.

- 43 After placing slabs, finish surface to tolerances of F(F) 15 (floor flatness) and F(L) 13 (floor levelness) measured according to ASTM E 1155. Slope surfaces uniformly to drains where required. After leveling, roughen surface before final set with stiff brushes, brooms, or rakes.
- B. Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as specified; slab surfaces to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand-bed terrazzo; and where indicated.
- 44 After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating, using float blades or float shoes only, when surface water has disappeared, or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats or by hand-floating if area is small or inaccessible to power units. Finish surfaces to tolerances of F(F) 18 (floor flatness) and F(L) 15 (floor levelness) measured according to ASTM E 1155. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.
- C. Trowel Finish: Apply a trowel finish to monolithic slab surfaces exposed to view and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or another thin film-finish coating system.
- 45 After floating, begin first trowel-finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and finish surfaces to tolerances of F(F) 20 (floor flatness) and F(L) 17 (floor levelness) measured according to ASTM E 1155. Grind smooth any surface defects that would telegraph through applied floor covering system.
- D. Trowel and Fine Broom Finish: Where ceramic or quarry tile is to be installed with thin-set mortar, apply a trowel finish as specified, then immediately follow by slightly scarifying the surface with a fine broom.
- E. Nonslip Broom Finish: Apply a nonslip broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
- 46 Immediately after float finishing, slightly roughen concrete surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.
- F. Nonslip Aggregate Finish: Apply nonslip aggregate finish to concrete stair treads, platforms, ramps, sloped walks, and where indicated.
- 47 After completing float finishing and before starting trowel finish, uniformly spread 25 lb of dampened nonslip aggregate per 100 sq. ft. of surface. Tamp aggregate flush with surface using a steel trowel, but do not force below surface. After broadcasting and tamping, apply trowel finishing as specified.
- 48 After curing, lightly work surface with a steel wire brush or an abrasive stone, and water to expose nonslip aggregate.

3.11 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place, and cure concrete as specified to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete 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 to template at correct elevations, complying with diagrams or templates of manufacturer furnishing machines and equipment.

3.12 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply according to manufacturer's instructions after screeding and bull floating, but

before power floating and troweling.

- B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.
- C. Curing Methods: Cure concrete by curing compound, by moist curing, by moisture-retaining cover curing, or by combining these methods, as specified.
- D. Provide moisture curing by the following methods:
 - 49 Keep concrete surface continuously wet by covering with water.
 - 50 Use continuous water-fog spray.
 - 51 Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with a 4-inch lap over adjacent absorptive covers.
- E. Provide moisture-retaining cover curing as follows:
 - 52 Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
- F. Apply curing compound on exposed interior slabs and on exterior slabs, walks, and curbs as follows:
 - 53 Apply curing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - 54 Use membrane curing compounds that will not affect surfaces to be covered with finish materials applied directly to concrete.
- G. Curing Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by moist curing with forms in place for the full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.
- H. Curing Unformed Surfaces: Cure unformed surfaces, including slabs, floor topping, and other flat surfaces, by applying the appropriate curing method.
 - 55 Final cure concrete surfaces to receive finish flooring with a moisture-retaining cover, unless otherwise directed.

3.13 REMOVING FORMS

- A. General: Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form-removal operations, and provided curing and protection operations are maintained.
- B. Formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements, may not be removed in less than 14 days or until concrete has attained at least 75 percent of design minimum compressive strength at 28 days. Determine potential compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or members.
- C. Form-facing material may be removed 4 days after placement only if shores and other vertical supports have been arranged to permit removal of form-facing material without loosening or disturbing shores and supports.

3.14 REUSING FORMS

- A. 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-coating compound as specified for new formwork.

- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use patched forms for exposed concrete surfaces except as acceptable to Architect.

3.15 CONCRETE SURFACE REPAIRS

- A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removing forms, when acceptable to Architect.
- B. Mix dry-pack mortar, consisting of one part portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing.
 - 56 Cut out honeycombs, rock pockets, voids over 3/4 inch in any dimension, and holes left by tie rods and bolts down to solid concrete but in no case to a depth less than 1 inch. Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with bonding agent. Place patching mortar before bonding agent has dried.
 - 57 For surfaces exposed to view, blend white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Provide test areas at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.
- C. Repairing Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Architect. Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes and fill with dry-pack mortar or precast cement cone plugs secured in place with bonding agent.
 - 58 Repair concealed formed surfaces, where possible, containing defects that affect the concrete's durability. If defects cannot be repaired, remove and replace the concrete.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface tolerances specified for each surface and finish. Correct low and high areas as specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having the required slope.
 - 59 Repair finished unformed surfaces containing defects that affect the concrete's durability. Surface defects include crazing and cracks in excess of 0.01 inch wide or that penetrate to the reinforcement or completely through nonreinforced sections regardless of width, spalling, popouts, honeycombs, rock pockets, and other objectionable conditions.
 - 60 Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.
 - 61 Correct low areas in unformed surfaces 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. Proprietary underlayment compounds may be used when acceptable to Architect.
 - 62 Repair defective areas, except random cracks and single holes not exceeding 1 inch in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose reinforcing steel with at least 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
- E. Repair isolated random cracks and single holes 1 inch or less in diameter by dry-pack method. Groove top of cracks and cut out holes to sound concrete and clean of dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Place dry-pack before bonding agent has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- F. Perform structural repairs with prior approval of Engineer for method and procedure, using specified epoxy adhesive and mortar.
- G. Repair methods not specified above may be used, subject to acceptance of Engineer.

3.16 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. General: The Owner will employ a testing agency to perform tests and to submit test reports.

- B. Sampling and testing for quality control during concrete placement may include the following, as directed by Engineer.
1. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
 - a. Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.
 - b. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231, pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.
 - c. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F (4 deg C) and below, when 80 deg F (27 deg C) and above, and one test for each set of compressive-strength specimens.
 - d. Compression Test Specimen: ASTM C 31; one set of four standard cylinders for each compressive-strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.
 - e. Compressive-Strength Tests: ASTM C 39; one set for each day's pour exceeding 5 cu. yd. plus additional sets for each 50 cu. yd. more than the first 25 cu. yd. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.
 - f. For drilled piers, u.n.o., there shall be (1) set of compressive strength test for each 10 cu. Yds.
 2. When frequency of testing will provide fewer than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.
 3. When total quantity of a given class of concrete is less than 50 cu. yd., Engineer may waive strength testing if adequate evidence of satisfactory strength is provided.
 4. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.
 5. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength and no individual strength test result falls below specified compressive strength by more than 500 psi.
- C. Test results will be reported in writing to Architect, Structural Engineer, ready-mix producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.
- D. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- E. Additional Tests: The testing agency will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

04 MASONRY

04100 MORTARS

PART 1. GENERAL

Cement Mortar:

This section of the specifications covers materials and procedures required to provide mortar for all masonry work unless otherwise indicated on the plans.

Brands of cementitious materials and source of supply of sand shall remain the same throughout the entire job and shall not be changed except by written permission of the Architect.

Cementitious materials and aggregates shall be stored in such a manner as to prevent deterioration or intrusion of foreign material. Any material that has become unsuitable for good construction shall not be used.

Submit: A letter stating that the proportions of mortar mix to be used. Submit mortar colors for approval and selection by architect.

PART 2. MATERIALS

Cementitious Materials: LIGHT COLORED MORTAR TO MATCH CMU COLOR AS CLOSELY AS POSSIBLE AS PER FOLLOWING SPECIFICATIONS

Masonry Cement: ASTM C91, Type II non-staining, except with 12% maximum air content by volume.

Portland Cement: ASTM C150, Type I, non-staining without air entrainment and of natural color or white as required to produce the required color of mortar or grout.

Aggregates: Comply with ASTM C144, except for joints less than 1/4" use aggregate grade with 100% passing the No. 16 sieve.

Water: Clean and free of deleterious amount of acids, alkalis, or organic materials.

Hydrated Lime: Comply with ASTM C207.

Admixtures:

Calcium chloride ASTM D98 Type I or II may be used to accelerate the set. The amount used shall not be more than one percent of the weight of the masonry cement.

No antifreeze liquids, salts or other substances shall be used in the mortar in an attempt to lower the freezing point.

Mortar coloring shall match existing mortar as selected by architect.

PART 3. EXECUTION

Preparation:

Comply with ASTM C270 Proportion specifications, except, limit materials to those specified herein, and limit cement, lime ratio (by volume) as follows:

Type N: Not more than 1 part lime per part of Portland Cement.

Mortar for masonry shall be made in the proportions of 1 volume of masonry cement and between 2 1/4 and 3 volumes of damp, loose mortar sand.

Mortar which will be subjected to severe lateral loads, violent winds, and other conditions requiring extra wall strength shall be made in proportions of 1 volume of masonry cement plus 1 volume of Portland Cement and between 4 1/2 to 6 volumes of damp, loose mortar sand.

Water: Mix thoroughly in mechanical batch mixer for at least 5 minutes after all materials are in mixer.

Use:

Time Limits: Use and place mortar in final position within 2 1/2 hours after mixing when the air temperature is 80 degrees F. or higher; within 3 1/2 hours if air temperature is less than 80 degrees F. Mortar not used within these time limits shall be discarded.

Re-tempering: Mortars that have stiffened within the time intervals as determined in Section A above because of evaporation of moisture may be re-tempered to restore workability by adding water. Enough water shall be added as may be necessary to produce proper workability.

04150 MASONRY ACCESSORIES

PART 1. GENERAL

Submittals: For information only, submit 2 copies of manufacturer's specifications and installation instructions for each masonry accessory required. Include data substantiating that materials comply with specified requirements. Indicate that installer has received copy of manufacturer's instructions.

PART 2. MATERIALS

Anchoring Devices for Masonry:

General: Provide straps, bars, bolts, and rods of the type and size shown, but fabricated from not less than 16 gauge sheet metal or 3/8" diameter rods stock, unless otherwise shown. Hot dipped galvanized for use in exterior walls.

Flexible Anchors: Where masonry is shown or specified to be anchored to structural framework with flexible anchors, provide anchors which will permit horizontal and vertical movement of masonry but will provide lateral restraint, as follows:

For anchorage to steel framework provide 2-piece anchors with 3/16" steel wire section and rectangular or vee-shaped 3/16" wire tie section sized to extent t within 1" of face of masonry. After welding, paint welded areas with heavy zinc compound.

For devices which extend into exterior wythe, fabricate from steel with 1.5 oz. hot-dip galvanized coating complying with ASTM A153, Class B2.

Individual wire ties for masonry: Fabricate from 1/8" cold-drawn galvanized steel wire, ASTM A82, unless otherwise indicated, of length required for proper embedment in wythes of masonry. Provide ties with ends bent to 90 degree angles to form hooks not less than 2" long.

For frames back-up, provide corrugated galvanized metal ties not less than 22 ga. and not less than 7/8" wide and 7" long with one end crimped for attachment to substrate. Size to extent within 3/4" of face masonry veneer.

Joint Reinforcement - CMU Masonry Continuous Wire Reinforcing and Ties for Masonry: Provide welded wire units prefabricated in straight lengths of not less than 10' with matching corner and tee units.

Fabricate from cold drawn steel wire complying with ASTM A82, with deformed continuous side rods and plain cross-rods, and a unit width of 1 and 1/2" to 2" less than thickness of wall or partition.

For single wythe masonry, provide units fabricated as follows:

Truss type fabricated with single pair of 9 gauge side rods and continuous diagonal cross-rods spaces not more than 16" o.c.

For double wythe masonry, provide units fabricated as follows:

Truss type fabricated with two 9 gauge side rods and a 9 gauge continuous diagonal cross-rods with welded adjustable reinforcement not more than 16" o.c.

For use in exterior walls, hot-dip galvanized after fabrication with 1.5. oz. zinc coating complying with ASTM A153, Class B2.

Manufacturers offering products to comply with the requirements include the following:

AA Wire Products
Dur-O-Wal
Hohmann & Barnard

Submit sample for approval by architect.

Concrete Inserts for Masonry:

For installation of concrete inserts, see concrete sections of these specifications. Advise concrete installer of specific requirements regarding his placement of inserts which are to be used by the masonry installer for anchoring for masonry work.

Control Joints: Provide, where shown on drawings, control joints of factory-extruded solid section rubber conforming to ASTM D-2000 2AA-805, with a durometer hardness of 70-80 when tested in conformance with ASTM D-2240.

Miscellaneous Masonry Accessories:

Reinforcing Bars: Deformed steel reinforcing bars complying with ASTM A615 Grade 60 of the sizes shown.

Bond Breaker Strips: 15 lb. asphalt roofing felt complying with ASTM D226, or 15 lb. coal tar roofing felt complying with ASTM D227.

Plastic weepholes: unless otherwise indicated, provide 1/4" round x 4" long medium density polyethylene plastic tubes to form weepholes.

PART 3. EXECUTION

Installation: See Section 04200 "Concrete Masonry" for installation of masonry accessories specified under this section.

04200 UNIT MASONRY

Part 1 - General

1.1 Related Documents

A. Requirements of Drawings, General and Supplementary Provisions and Division 1 apply to this Section

1.2 Scope

A. Provide all masonry work including but not necessarily limited to:

- Face Brick
- Concrete masonry units
- Accessories to be provided in masonry work
- Building into masonry, members provided by other trades

B. Related work specified elsewhere:

- | | |
|----------------------|---------------|
| Concrete work | Section 03300 |
| Waterproofing | Section 07100 |
| Damproofing | Section 07150 |
| Sheet metal flashing | Section 07600 |
| Caulking & Sealants | Section 07900 |

1.3 Quality Assurance:

A. Construction tolerances:

Variation from plumb: For vertical lines and surfaces of columns, walls and arises do not exceed 1/4" in 10', or 3/8" in a story height not to exceed 20', nor 1/2" in 40' or more. For external corners, expansion joints, control joints and other conspicuous lines, do not exceed 1/4" in any story or 20' maximum, not 1/2 in 40' or more.

Variation from level: For lines of exposed lintels, sills parapets, horizontal grooves and other conspicuous lines, do not exceed 1/4" in any bay or 20' maximum, not 3/4" in 40' or more.

Variation of linear building line: For position shown in plan and related portion of columns, walls and partitions, do not exceed 1/2" in any bay or 20' maximum, not 3/4" in 40' or more.

Variation in cross-sectional dimensions: For columns and thickness of walls, from dimensions shown, do not exceed 1/4" not = 1/2".

B. Prior to ordering material, the Contractor shall erect a 4 ft. x 4 ft. sample panel in mortar of each type of masonry, all as specified, at the jobsite for final approval consideration by the Architect. Locate mock-ups on the site in locations indicated or, if not indicated, as directed by the Architect. The approved panel shall remain on the jobsite, intact, as a visual criterion which the final construction shall match. When directed, demolish the sample panel and remove from site.

1.04 Submittals

A. Submit manufacturer's product data for each type of masonry unit, accessory and other manufactured products, including certifications that each type complies with specified requirements.

Colored masonry mortar samples showing full range of colors available.

B. For verification purposes, submit the following:

Face brick and concrete masonry unit samples for each type of exposed units required. Include in each set the full range of exposed color and texture to be expected in the completed work.

Colored masonry mortar samples for each color required showing full range of color which can be expected in finished work. Label samples to indicate type and amount of colorant used.

1.5 Job Conditions

A. Store and handle masonry units off the ground, under cover and in a dry location. If units become wet do not place until units are in an air dried condition. During erection, cover top of walls with waterproof sheeting at end of each day's work. Cover partially completed structures when work is not in progress. Extend cover a minimum of 24" down both sides and hold cover securely in place.

B. Do not apply concentrated loads for at least three days after building masonry walls or columns.

C. Prevent grout or mortar from staining face of masonry to be left exposed or painted.. Remove immediately grout or mortar in

contact with such masonry. Protect base of walls from rain-splashed mud and mortar splatter by means of coverings spread on ground and over wall surface.

D. Protect sills, ledges and projections from droppings of mortar.

E. Protect masonry against freezing when temperature of surrounding air is 40 deg. F. and falling. Heat materials and provide temporary protection of completed portions of masonry work. Comply with requirements of governing Code and with "Construction & Protection Recommendations for Cold Weather Masonry Constructions of Technical Notes on Brick & Tile Construction by Brick Institute of America (BIA).

2.1 Masonry Units- General

A. Obtain masonry units from one manufacturer, of uniform texture and color for each kind required, for each continuous area and visually related areas.

2.2 Face Brick: N.I.C.

A. Provide nominal standard modular (3-5/8" X 2-1/4" X 7-5/8") ACME Brick Colors selected by Architect Bricks meeting the specified brick in quality, color, pattern, range by Elgin Butler Brick Co. or Henderson Brick Company may be substituted for substitutions and approved by the Architect. Provide special molded shapes where shown and for applications which cannot be sawn from standard brick sizes.

B. For sills, caps and similar applications resulting in exposure of brick surfaces which otherwise would be concealed from view, provide uncored or unfrogged units with all exposed surfaces finished.

C. Quality Standard: ASTM C 216, Grade SW, Type FBS.

2.3 Concrete Masonry Units: PROVIDE COLORED CMU AS FOLLOWS:

COLOR: TEXAS WHEAT BY HEADWATERS MATERIALS OR APPROVED EQUAL.

ALL "EQUAL" SUBSTITUTIONS SHALL SUBMITTED TO ARCHITECT FOR APPROVAL AT LEAST THREE PRIOR TO BID OPENNING.

A. Provide manufacturer's standard units with nominal face dimension of 16: long x 8 (15-5/8" X 7-5/8" actual), unless otherwise indicated. Provide special shapes where required for lintels, corners, jambs, sash, control joints, headers, bonding and other special conditions.

B. Provide bull nose shapes for all exposed outside corners and edges, unless otherwise indicated.

C. Provide hollow-load bearing units complying with ASTM C90, Grade N.

2.4 Mortar Materials: UNLESS NOTED OTHERWISE

A. Portland Cement: ASTM C 150, Type I, except Type III may be used for cold weather construction. Provide white cement as required to produce required mortar color.

B. Hydrated Lime: ASTM C 207, Type S.

Aggregate for mortar: ASTM C144, except for joints less than 1/4", use aggregate graded with 100% passing No. 17 sieve.

Provide approved white and where necessary to obtain the required mortar color.

D. Aggregate for grout: ASTM C404.

E. Colored mortar pigments: commercial iron oxide, manganese dioxide, ultramarine blue, chromium oxide or carbon black, compounded for use in mortar mixes. Do not exceed pigment-to-cement ratios, by weight of 1 to 35 for carbon black 1 to 7 for other pigments. Provide color mortar for glazed accent brick. Provide white mortar for face brick.

F. Water: Clean, free of deleterious materials which would impair strength or bond.

G. Epoxy grout: as formulated and manufactured under license of the Tile Council of America- Formula UG-11.

H. Temperature and humidity range must be cited for control.

I. Use mortar and grout within 2-1/2 hours of initial mixing. Materials should only allowed on boards for no more than 45 minutes on days not exceeding 75 deg. F with humidity of 55% to 70%. On warmer days time should be reduced to no more than 30 minutes.

J. Bricks which are too dry and suck water from mortar will not have a compatible bond.

2.5 Masonry Accessories

A. C continuous wire reinforcing: Provide welded wire units prefabricated in straight lengths of not less than 10', with matching corner and tee units. Fabricate from stainless steel wire complying with ASTM, with deformed continuous side rods and plan cross-rods, and a unit width of 1/1/2" to 2" or less than thickness of wythe or wythes being reinforced.

B. Individual wire ties for masonry: Fabricate from 1/8" stainless steel wire, ASTM, unless otherwise indicated, of length required from proper embedment in wythes of masonry.

C. For use with hollow masonry units laid with cells vertical, provide rectangular shaped ties.

D. For use with solid masonry units, provide ties with ends to 90 deg. angles to form hooks not less than 2" long.

E. Anchors and ties: Provide stainless steel straps, bars, bolts and rods fabricated from not less than 16 Ga. or 3/8" diameter rod stock, unless otherwise indicated.

Provide stainless steel anchors and ties all masonry installations. Do not use corrugated metal ties.

For concrete back-up construction, furnish dovetail slots with filler strips. Fabricate from 24 Ga. stainless steel unless otherwise indicated. Provide hot-dip galvanized steel dovetail anchors of size and type to suit construction requirements.

For installation of anchor slots, see Section 03300. Advise Concrete installer of specific requirements regarding his placement of slots which are to be used by Masonry Installer for anchoring of masonry work.

Reinforcing bars: Deformed steel ASTM A 615, Grade 60 of sizes shown.

G. Bond Breaker strips: 15-lb. asphalt roofing felt complying with ASTM D 266, or 15-lb. coal-tar roofing felt complying with ASTM D 227.

H. Plastic Weep holes: Unless otherwise indicated, provide 1/4" round x 4" long medium density polyethylene plastic tubes to form weep holes.

2.6 Insulation

A. Extruded polystyrene board insulation: Refer to Section 07200.

2.7 Cement Mortar Mixes

A. Do not lower freezing point of mortar by use of admixtures or antifreeze agents. Do not use calcium chloride in mortar or grout.

B. Comply with ASTM C270, Proportion Specifications, except limit materials to those specified herein, and limit cement/lime ratio (by volume) as follows:

Type N: Over 1/2 up to 1-1/4 parts lime per part of Portland cement- for all applications where another type is not indicated.

2.8 Epoxy Mortar Mix

A. Mix two components, place the material and clean up in conformance with manufacturer's directions.

Part 3 Execution

A. Build masonry construction to full thickness shown, except build single-wythe walls to actual thickness of masonry units using units of nominal thickness shown or specified.

B. Build chases and recesses as shown and as required for the work of other trades. Provide not less than 8" of masonry between chases or recess and jamb of openings and between adjacent chases and recesses.

C. Cut masonry units with motor-driven saw designed to cut masonry with clean, sharp, unchipped edges. Cut units as required to provide pattern shown and to fit adjoining work neatly. Use full units without cutting wherever possible.

D. Do not wet concrete masonry units.

E. Do not use frozen materials and materials mixed or coated with ice or frost. For masonry which is specified to be wetted, comply with BIA recommendations. Do not build on frozen work. Remove and replace masonry work damaged by frost or freezing

F. Lay Exposed masonry in bond pattern shown, or if not shown, lay in running bond vertical joint in each course centered on units in courses above and below. Lay concealed masonry with all units in wythe bonded by lapping not less than 2". Bond and interlock each wythe at corners, unless otherwise shown.

G. Layout walls in advance for accurate spacing of surface bond patterns, with uniform joint widths and to properly locate openings, movement-type joints, returns and offsets. Avoid use of less-than-half size units at corners, jambs and wherever possible at other locations.

H. Lay-up walls plumb and true and with courses level, accurately spaced and coordinated with other work.

I. When stopping resuming work, rack back 1/2-masonry unit length in each course; so not tooth. dean exposed surfaces of set masonry, set units lightly (if specified to be wetted), and remove loose masonry units and mortar prior to laying fresh masonry.

J. As work progresses, build-in items specified under this and other Sections. Fill in solidly with masonry around built-in items. Fill space between hollow metal frames and masonry solidly with mortar. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath in joint below and rod mortar or grout into core.

3.2 Mortar Bedding and Jointing

A. Measure and batch material either by volume or weight, such that required proportions for mortar can be accurately controlled and maintained. Measurement of sand exclusively by shovel will not be permitted.

B. Mix mortars with maximum amount of water consistent with workability to provide maximum tensile bond strength within capacity of mortar.

C. Mix mortar ingredients for a minimum for 5 minutes in a mechanical batch mixer. Use water clean and free of deleterious materials which would impair work. Do not use mortar which has begun to set, or if more than 2-1/2 hours has elapsed since initial mixing. Retemper mortar during 2-1/2 hour period as required to restore workability.

D. Lay brick and other solid masonry units with completely filled bed, head and collar joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not slush head joints.

E. Lay hollow masonry units with full mortar coverage on horizontal and vertical face shells; also bed webs in mortar in starting course on footings and foundation walls and in all courses of piers, columns and pilasters, and where adjacent to cells or cavities to be reinforced or to be filled with concrete or grout.

F. Maintain joint widths shown, except for minor variations required to maintain bond alignment. If not otherwise indicated, provide 3/8" joints. Cut joints flush for masonry walls which are to be concealed or be covered by other materials. Tool exposed joints slightly concave. Rake out mortar in preparation for application of sealants or epoxy grouts where required. Remove masonry units disturbed after laying; clean and relay in fresh mortar. Do not pound corners at jambs to fit stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar and reset in fresh mortar.

G. Set masonry units with 8" of outside corners or terminal ends of unit masonry sills, caps and coping in epoxy mortar for permanent bond of the unit. Tool joints same as for cement mortar joints.

3.3 Cavity Walls

A. Keep cavity clean of mortar droppings and other material during construction. Strike joints facing cavity, flush.

B. Tie exterior wythe to back-up with individual metal ties spaced not more than 24" o.c., unless otherwise indicated.

C. Provide weep holes in exterior wythe of cavity, composite and veneer walls located immediately above ledges and flashing" spaced 2'-0" o.d., unless otherwise indicated.

D. At multi-wythe walls, use individual metal ties embedded in horizontal joints to bond wythes together. Provide ties as shown, but not less than one metal tie for 4 s.f. of wall area spaced not to exceed 24: o.c. horizontally and vertically. Stagger ties in alternate courses. Provide additional ties within 1'-0" of all openings and space not more than 2'-0" apart around perimeter of openings. At intersecting and abutting walls, provide ties at not more than 24" o.c. vertically.

3.4 Horizontal Joint Reinforcing

A. Provide continuous horizontal joint reinforcing in all concrete masonry wythes and in all block bonded wythes. Fully embed longitudinal side rods in mortar for their entire length with a minimum cover of 5/8" on exterior side of walls and 1/2" at other locations. Lap reinforcement at minimum of 6" at ends of units. Do no bridge control and expansion joints with reinforcing, as otherwise indicated. Provide continuity at corners and wall intersections by use of prefabricated "L" and "T" sections. Cut and bend units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures and other special conditions.

B. Space continuous horizontal reinforcing at 16" o.c. vertically, unless otherwise indicated.

C. For parapets, space reinforcing at 8" o.c. vertically, unless otherwise indicated.

Reinforce masonry openings greater than 1'-0" wide, with horizontal joint reinforcing placed in two horizontal joints approximately 8" apart, both immediately above lintel and below sill. Extend reinforcing a minimum of 2'-0" beyond jambs of openings, bridging control joints where provided.

3.5 Anchoring Masonry Work

A. Provide anchoring devices of type shown and specified. For conditions not shown or specified, provide standard type for facing and back-up involved.

B. Anchor masonry to structural members where masonry abuts or faces such members. Provide an open space filled with compressible filler between masonry and structural member, unless otherwise shown. Keep space free of mortar or other rigid materials. Anchor masonry to structural members with metal ties embedded in masonry joints and attached to structure. Provide anchors with flexible tie sections, unless otherwise indicated. Space anchors as shown, but not more than 16" o.c. vertically and 16" o.c. horizontally.

C. Anchor single wythe masonry veneer to structural members with metal anchors embedded in masonry joints and attached to structure. Provide anchors with flexible tie section, unless otherwise indicated.

Anchor veneers to concrete back-up or concrete columns with dovetail anchors.

Anchor veneer to framed back-up with metal ties embedded in masonry joints and screwed to studs behind sheathing. Provide anchors with flexible tie section, unless otherwise indicated.

D. Space non-flexible veneer anchors as shown, or if not shown, space not more than 16" o.c. vertically and 24" o.c. horizontally. Provide additional anchors within 1'-0" of openings and space not more than 2'-0" around perimeter.

3.6 Lintels

A. Install loose lintels of steel and other materials where shown.

B. Provide masonry lintels where shown and wherever openings of more than 1'-0" are shown without structural steel or other supporting lintels. Provide precast or formed-in-place masonry lintels. Thoroughly cure precast lintels before handling and installation. Temporarily support formed-in-place lintels.

C. For hollow masonry unit walls, use specially formed "U"-shaped lintel units with reinforcing bars placed as shown and filled with Type S mortar or concrete grout.

D. Provide minimum bearing at each jamb, of 4" for openings less than 6'-0" wide, and 8" for wider openings.

E. Provide continuous bond beams constructed in similar manner as described for lintels.

3.7 Control and Expansion Joints

A. Provide vertical expansion, control and isolation joints in masonry. Build-in related masonry accessory items as masonry work progresses.

B. If location of control joints is not shown, place vertical joints spaced not to exceed 30'-0" o.c. Review locations of joints with Architect before execution.

3.8 Miscellaneous

A. Install copper flashings, copper expansion bellows, copper regrets and nailers for flashing and other related work where shown to be built into masonry work in accordance with manufacturer's instructions.

B. Coordinate installation of unit masonry work with installation of limestone work.

3.9 Repair, Pointing and Cleaning

A. Remove and replace masonry units which are loose, chipped, broken, stained or otherwise damaged, or if units do not match adjoining units as intended. Provide new units to match adjoining units and install in fresh mortar or grout pointed to eliminate evidence of replacement.

B. During tooling of joints, enlarge any voids or holes, except weep holes, and completely fill with mortar. Point-up all joints at corners, openings and adjacent work to provide a neat, uniform appearance, properly prepared for application of caulking or sealant.

C. After mortar is thoroughly set and cured, clean masonry as follows:

Remove large mortar particles by hand with wooden paddles and non-metallic scrape hoes or chisels.

Test cleaning methods on sample wall panel; leave 1/2" panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.

D. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film or waterproof masking tape.

E. Saturate wall surfaces with water prior to application of cleaners; remove cleaners promptly by rinsing thoroughly with clear water.

F. Use bucket and brush hand cleaning method described in BIA Technical Note No. 20 Revised to clean brick masonry made from clay or shale, except use masonry cleaner indicated below.

Detergent

Clean concrete unit masonry to comply with masonry manufacturer's directions and applicable NCMA Trek bulletins.

G. Provide final protection and maintain conditions in a manner acceptable to Installer, which ensures unit masonry work being without damage and deterioration at time of substantial completion.

04230 REINFORCED UNIT MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. Requirements of Section "Unit Masonry" apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of each type of reinforced unit masonry work is indicated on drawings and in schedules.

1.3 SUBMITTALS

- A. Shop Drawings: Submit shop drawings for fabrication, bending, and placement of reinforcement bars. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures". Show bar schedules, diagrams of bent bars, stirrup spacing, lateral ties and other arrangements and assemblies as required for fabrication and placement of reinforcement for unit masonry work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Refer to Section "Unit Masonry" for masonry materials and accessories not included in this section.
- B. Reinforcement Bars: Provide deformed bars of following grades complying with ASTM A 615, except as otherwise indicated.
 - 1. Provide Grade 60 for bars No. 3 to No. 18, except as otherwise indicated.
- C. Shop-fabricate reinforcement bars which are shown to be bent or hooked.

PART 3 - EXECUTION

3.1 PLACING REINFORCEMENT

- A. General: Clean reinforcement of loose rust, mill scale, earth, ice or other materials which will reduce bond to mortar or grout. Do not use reinforcement bars with kinks or bends not shown on drawings or final shop drawings, or bars with reduced cross-section due to excessive rusting or other causes.

Position reinforcement accurately at the spacing indicated.

Support and secure vertical bars against displacement. Horizontal reinforcement may be placed as the masonry work progresses. Where vertical bars are shown in proximity, provide a clear distance between bars of not less than the nominal bar diameter or 1", whichever is greater.

For columns, piers and pilasters, provide a clear distance between vertical bars as indicated, but not less than 1-1/2 times the nominal bar diameter or 1-1/2", whichever is greater. Provide lateral ties as indicated.

Splice reinforcement bars where shown; do not splice at other points unless acceptable to the Architect. Provide lapped splices, unless otherwise indicated. In splicing vertical bars or attaching to dowels, lap ends, place in contact and wire tie.

Provide not less than minimum lap indicated, or if not indicated, as required by governing code.

Embed metal ties in mortar joints as work progresses, with a minimum mortar cover of 5/8" on exterior face of walls and 1/2" at other locations.

Embed prefabricated horizontal joint reinforcement as the work progresses, with a minimum cover of 5/8" on exterior face of walls and 1/2" at other locations. Lap units not less than 6" at ends. Use prefabricated "L" and "T" units to provide continuity at corners and intersections. Cut and bend units as recommended by manufacturer for continuity at returns, offsets, column fire-proofing, pipe

enclosures and other special conditions.

Anchoring: Anchor reinforced masonry work to supporting structure as indicated.

Anchor reinforced masonry walls to non-reinforced masonry where they intersect.

3.2 INSTALLATION, GENERAL

A. Refer to Section "Unit Masonry" for general installation requirements of unit masonry.

Temporary Formwork: Provide formwork and shores as required for temporary support of reinforced masonry elements. Construct formwork to conform to shape, line and dimensions shown. Make sufficiently tight to prevent leakage of mortar, grout, or concrete (if any). Brace, tie and support as required to maintain position and shape during construction and curing of reinforced masonry.

Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and all other reasonable temporary loads that may be placed on them during construction.

Allow not less than the following minimum time to elapse after completion of members before removing shores or forms, provided suitable curing conditions have been obtained during the curing period:

10 days for girders and beams.

7 days for slabs.

7 days for reinforced masonry soffits.

3.3 INSTALLATION OF REINFORCED CONCRETE UNIT MASONRY

A. GENERAL

Do not wet concrete masonry units (CMU).

Lay CMU units with full-face shell mortar beds. Fill vertical head joints (end joints between units) solidly with mortar from face of unit to a distance behind face equal to not less than the thickness of longitudinal face shells. Solidly bed cross-webs of starting courses in mortar. Maintain head and bed joint widths shown, or if not shown, provide 3/8" joints.

B. WALLS

1. Pattern Bond: Lay CMU wall units in 1/2-running bond with vertical joints in each course centered on units in courses above and below, unless otherwise indicated. Bond and interlock each course at corners and intersections. Use special-shaped units where shown, and as required for corners, jambs, sash, control joints, lintels, bond beams and other special conditions.

2. Maintain vertical continuity of core or cell cavities, which are to be reinforced and grouted, to provide minimum clear dimension indicated and to provide minimum clearance and grout coverage for vertical reinforcement bars. Keep cavities free of mortar. Solidly bed webs in mortar where adjacent to reinforced cores or cells.

3. Where horizontal reinforced beams (bond beams) are shown, use special units or modify regular units to allow for placement of continuous horizontal reinforcement bars. Place small mesh expanded metal lath or wire screening in mortar joints under bond beam courses over cores or cells of non-reinforced vertical cells, or provide units with solid bottoms.

Grouting Technique: At the Contractor's option, use either low-lift or high-lift grouting techniques subject to requirements which follow.

C. LOW-LIFT GROUTING

1. Provide minimum clear dimension of 2" and clear area of 8 sq. in. in vertical cores to be grouted.

2. Place vertical reinforcement prior to laying of CMU. Extend above elevation of maximum pour height as required for splicing. Support in position at vertical intervals not exceeding 192 bar diameters nor 10 ft.

3. Lay CMU to maximum pour height. Do not exceed 4' height, or if bond beam occurs below 4' height stop pour at course below bond beam.

4. Pour grout using chute or container with spout. Rod or vibrate grout during placing. Place grout continuously; do not interrupt pouring of grout for more than one hour. Terminate grout pours 1-1/2" below top course of pour.

5. Bond Beams: Stop grout in vertical cells 1-1/2" below bond beam course. Place horizontal reinforcement in bond beams; lap at corners and intersections as shown. Place grout in bond beam course before filling vertical cores above bond beam.

D. HIGH-LIFT GROUTING

1. Do not use high-lift grouting technique for grouting of CMU unless minimum cavity dimension and area is 3" and 10 sq. in., respectively.
2. Provide cleanout holes in first course at all vertical cells which are to be filled with grout.
3. Use units with one face shell removed and provide temporary supports for units above, or use header units with concrete brick supports, or cut openings in one face shell.
4. Construct masonry to full height of maximum height grout pour specified, prior to placing grout.
5. Limit grout lifts to a maximum height of 4' and grout pour to a full height of wall, unless otherwise indicated.
6. Place vertical reinforcement before grouting. Place before or after laying masonry units, as required by job conditions. Tie vertical reinforcement to dowels at base of masonry where shown and thread CMU over or around reinforcement. Support vertical reinforcement at intervals not exceeding 192 bar diameters nor 10'.
7. Where individual bars are placed after laying masonry, place wire loops extending into cells as masonry is laid and loosen before mortar sets. After insertion of reinforcement bar, pull loops and bar to proper position and tie free ends.
8. Place horizontal beam reinforcement as the masonry units are laid.

E. PREPARATION OF GROUT SPACES

1. Prior to grouting, inspect and clean grout spaces. Remove dust, dirt, mortar droppings, loose pieces of masonry and other foreign materials from grout spaces. Clean reinforcement and adjust to proper position. Clean top surface of structural members supporting masonry to ensure bond. After final cleaning and inspection, close cleanout holes and brace closures to resist grout pressures.
2. Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist displacement of masonry units and breaking of mortar bond. Install shores and bracing, if required, before starting grouting operations.
3. Place grout by pumping into grout spaces unless alternate methods are acceptable to the Architect.
4. Limit grout pours to sections which can be completed in one working day with not more than one hour interruption of pouring operation. Place grout in lifts which do not exceed 4ft. Allow not less than 30 minutes, nor more than one hour between lifts of a given pour. Rod or vibrate each grout lift during pouring operation.
5. Place grout in lintels or beams over openings in one continuous pour.
6. Where bond beam occurs more than one course below top of pour, fill bond beam course to within 1" of vertically reinforced cavities, during construction of masonry.
7. When more than one pour is required to complete a given section of masonry, extend reinforcement beyond masonry as required for splicing. Pour grout to within 1-1/2" of top course of first pour. After grouted masonry is cured, lay masonry units and place reinforcement for second pour section before grouting. Repeat sequence if more pours are required.

04270 GLASS UNIT MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Interior panels.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 4 Section "Unit Masonry" for brick and concrete unit masonry.
2. Division 7 Section "Joint Sealers" for sealants installed in joints of glass unit masonry.
3. Division 8 Section "Aluminum Windows" for aluminum window units installed within glass unit masonry panels.

C. Products furnished but not installed under this Section include dovetail slots for anchorage of glass unit masonry. Installation is specified in Division 3 Section "Cast-in-Place Concrete."

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product data for each type of product specified including glass block, cementitious materials, waterproofing admixtures for mortar, and glass unit masonry accessories.

C. Samples for initial selection purposes in form of manufacturers actual glass block units for each form, pattern, and color indicated.

1. Samples showing full range of mortar colors available.

D. Samples for verification purposes in form of sample panels consisting of 4 full-size glass block units for each form, pattern, and color indicated with mortar joints of color indicated or selected by Architect.

1.4 QUALITY ASSURANCE

A. Fire Performance Characteristics: Where fire-resistance-rated glass unit masonry is

indicated, provide materials and construction that are identical to those of window assemblies tested for fire endurance per ASTM E 163 and that are listed for rating indicated by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

B. Single-Source Responsibility for Glass Block: Obtain each type and pattern of glass block from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Hollow Glass Block:
 - a. Fidenza Vetraria SpA.
 - b. Pittsburgh Corning Corp.
 - c. Saint-Gobain.
 - d. Westerwald A.G.

2.2 GLASS BLOCK

A. Hollow Glass Block: Non-load-bearing blocks made by fusing together two halves of clear, colorless pressed glass to produce partially evacuated hollow units with manufacturer's standard coating factory applied on edge surfaces complying with the following requirements for pattern, size, and other characteristics:

1. Transparent Pattern: Wavy undulation faces with max. light transmission/subtle distortion. - Decora Pattern by PC GlassBlock or Equal.
2. Square Unit Sizes: Actual sizes as indicated below:
 - a. 8 inches square by 8 inches thick.

2.3 MORTAR MATERIALS

A. Portland Cement: ASTM C 150, Type I or Type II, color as follows:

1. Cement Color: White.

2.4 GLASS UNIT MASONRY ACCESSORIES

A. Panel (Joint) Reinforcement: Ladder-type welded wire units prefabricated with deformed continuous side rods and plain cross rods into straight lengths of not less than 10 feet, and complying with the following requirements:

1. Zinc-Coated (Galvanized) Steel Wire: ASTM A 82 for uncoated wire and ASTM A 641 for Class 3 zinc coating (0.80 oz. per sq. ft. of uncoated wire surface).
 - a. Application: Use for reinforcement of interior panels.
2. Hot-Dip Galvanized Steel Wire: ASTM A 82 for uncoated wire and ASTM A 153, Class B2 for zinc coating applied by hot-dip process to products after fabrication and assembly.
3. Austenitic Stainless Steel Wire: ASTM A 580, AISI Type 304 (UNS S30400) alloy.
 - a. Application: Use for reinforcement of exterior panels.
4. Wire Size: 0.1483-inch diameter.
5. Spacing of Side Rods: 2 inches center to center, unless otherwise indicated.
6. Spacing of Side Rods: 1-5/8 inches for 3-1/8-inch-thick units.
7. Spacing of Cross Rods: Not more than 16 inches apart.

B. Panel Anchors: Glass unit masonry manufacturer's standard perforated steel strips, 0.0359-inch uncoated thickness by 1-3/4 inches wide by 24 inches long, and hot-dip galvanized after perforating to comply with ASTM A 153, Class B2.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Construction Tolerances: Set glass unit masonry to comply with the following tolerances:

1. Variation from Plumb: For lines and surfaces of vertical elements and arrises, do not exceed plus or minus 1/4 inch in 10 feet, plus or minus 3/8 inch in 20 feet, or plus or minus 1/2 inch maximum.
2. Variation from Level: For grades indicated for bed joints, and other conspicuous lines, do not exceed plus or minus 1/4 inch in 10 feet or plus or minus 1/2 inch maximum.
3. Variation of Linear Building Line: For positions shown in plan and related portions of walls and partitions, do not exceed plus or minus 1/4 inch in 10 feet, plus or minus 3/8 inch in 20 feet, or plus or minus 1/2 inch maximum.
4. Variation in Alignment: For alignment between tops of walls and partitions and the bottom of walls and partitions, do not exceed plus or minus 1/2 inch.
5. variation in Mortar Joint Thickness: For bed joints do not exceed plus or minus 1/8 inch, and for head joints do not exceed minus 1/4 inch or plus 3/8 inch.

B. Sill, Head, and Jamb Preparation: Apply a heavy coat of asphalt emulsion to sill; allow to dry before placing mortar. Place expansion strips at jambs and heads taking care to extend them to sill. Trim 4-inch-wide expansion strips to produce width required to

fit thickness of glass block and construction indicated.

1. Adhere glass fiber expansion strips to heads and jambs with gobs of asphalt emulsion.

3.2 SETTING GLASS UNIT MASONRY

A. General: Set first and succeeding courses of glass unit masonry with completely filled bed and head mortar joints, with no furrowing.

B. Install glass unit masonry to comply with dimensional tolerances specified with courses accurately spaced and coordinated with other construction; maintain the following joint widths:

1. Joint Widths: 1/4 inch unless otherwise indicated.

2. Joint Widths: 3/8 inch unless otherwise indicated.

C. Install panel reinforcing in horizontal joints at spacing indicated and to run continuously from end to end of panels; comply with the following requirements:

1. Vertical Spacing of Panel Reinforcing: As follows:

a. For interior panels constructed of 3-7/8-inch-thick units, not more than 24 inches on center.

2. Do not bridge expansion joints with panel reinforcing.

3. Place panel reinforcing in joints immediately above and below all openings within glass unit masonry panels.

4. Lap panel reinforcing not less than 6 inches where more than one length is necessary.

5. Embed panel reinforcing in mortar bed by placing 1 half of mortar bed first, then pressing panel reinforcing into place and covering with upper half of mortar bed, and then troweling it smooth.

D. Install panel anchors at locations indicated and in same horizontal joints where panel reinforcing occurs. Extend panel anchors at least 12 inches into joints and bend within expansion joints at edges of panels and across the head. Attach panel anchors as follows:

1. For in-place unit masonry, attach panel anchors with 1/4-inch-diameter expansion anchors, 2 per panel anchor.

2. For new unit masonry, embed other ends of panel anchors, after bending portions crossing expansion joint, in horizontal mortar joints closest in elevation to joints in glass unit masonry containing panel anchors.

3. For steel members, attach panel anchors with 1/4-inch-diameter steel bolts in tapped holes in steel members.

E. Use rubber mallet to tap units into position. Do not use steel tools, and do not allow units to come into contact with metal accessories and frames.

F. Use wedges in mortar joints of lower courses where needed to prevent mortar from being squeezed out of joints.

G. Keep expansion joints free of mortar.

H. Rake out mortar from joints in exterior panels to a uniform depth equal to joint width to accommodate pointing material.

I. Fill raked joints and voids with pointing mortar. Apply in layers; fully compact each layer and allow to become thumbprint hard before applying next layer.

J. Pointing of joints in exterior walls with sealant, including installation of joint fillers after final mortar set, is specified in Division 7 Section "Joint Sealers."

K. Tool exposed joints slightly concave using a jointer larger than joint width; perform tooling while mortar is still plastic and before it takes final set.

L. Remove wedges, if used, and fill voids with mortar.

M. Remove surplus mortar from face of glass block at time joints are tooled. Remove mortar while it is still plastic using a clean wet sponge or an ordinary household scrub brush with stiff bristles. Do not use harsh cleaners, acids, abrasives, steel wool, or wire brushes when removing mortar or cleaning glass unit masonry.

N. Install expansion strips at jambs, heads, mullions, and other locations indicated.

3.3 CLEANING

A. Perform final mortar removal by cleaning completed glass unit masonry surfaces with clean wet sponge or cloth. Rinse sponge or cloth frequently in clean water to remove abrasive particles. Allow any remaining film on block to dry to a powder.

B. On surfaces adjacent to glass unit masonry remove mortar and other residue resulting from installation of glass block in a manner that is approved by the manufacturers of the materials involved.

C. Remove excess sealants with commercial solvents of type recommended by sealant manufacturer. Exercise care not to damage sealant in joints.

D. Perform final cleaning of glass unit masonry when surface is not exposed to direct sunlight. Start at top of panel using generous amounts of clean water. Remove water with clean, dry, soft cloths; change cloths frequently to eliminate dried mortar particles and aggregate.

05 METALS

05120 STRUCTURAL STEEL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes fabrication and erection of structural steel work, as shown on drawings including schedules, notes, and details showing size and location of members, typical connections, and types of steel required.

1. Structural steel is that work defined in American Institute of Steel Construction (AISC) "Code of Standard Practice" and as otherwise shown on drawings.
2. Miscellaneous Metal Fabrications are specified elsewhere in Division 5.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product data or manufacturer's specifications and installation instructions for following products. Include laboratory test reports and other data to show compliance with specifications (including specified standards).

1. Structural steel (each type), including certified copies of mill reports covering chemical and physical properties.
2. High-strength bolts (each type), including nuts and washers.
3. Structural steel primer paint.
4. Shrinkage-resistant grout.

C. Shop drawings prepared under supervision of a licensed Structural Engineer, including complete details and schedules for fabrication and assembly of structural steel members, procedures, and diagrams.

1. Include details of cuts, connections, camber, holes, and other pertinent data. Indicate welds by standard AWS symbols and show size, length, and type of each weld.
2. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed as work of other sections.

D. Certified copies of each survey conducted by a licensed Land Surveyor, showing elevations and locations of base plates and anchor bolts to receive structural steel and final elevations and locations for major members. Indicate discrepancies between actual installation and contract documents.

1.4 QUALITY ASSURANCE

A. Codes and Standards: Comply with provisions of following, except as otherwise indicated:

1. American Institute of Steel Construction (AISC) "Code of Standard Practice for Steel Buildings and Bridges."

a. Paragraph 4.2.1 of the above code is hereby modified by deletion of the following sentence:

1) "This approval constitutes the owner's acceptance of all responsibility for the design adequacy of any detail configuration of connections developed by the fabricator as a part of his preparation of these shop drawings."

2. AISC "Specifications for Structural Steel Buildings," including "Commentary."

3. "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts" approved by the Research Council on Structural Connections.

4. American Welding Society (AWS) D1.1 "Structural Welding Code - Steel."

5. ASTM A 6 "General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use."

B. Qualifications for Welding Work: Qualify welding procedures and welding operators in accordance with AWS "Qualification" requirements.

1. Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests.
2. If recertification of welders is required, retesting will be Contractor's responsibility.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site at such intervals to ensure uninterrupted progress of work.
- B. Deliver anchorage devices, which are to be embedded in cast-in-place concrete or masonry, in ample time to not delay work.

C. Store materials to permit easy access for inspection and identification. Keep steel members off ground by using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration. If bolts and nuts become dry or rusty, clean and relubricate before use.

1. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Metal Surfaces, General: For fabrication of work that will be exposed to view, use only materials that are smooth and free of surface blemishes including pitting, rust and scale seam marks, roller marks, rolled trade names, and roughness. Remove such blemishes by grinding, or by welding and grinding, prior to cleaning, treating, and applying surface finishes.

B. Structural Steel Shapes, Plates, and Bars: ASTM A 36.

C. Cold-Formed Steel Tubing: ASTM A 500, Grade B.

D. Hot-Formed Steel Tubing: ASTM A 501.

E. Steel Pipe: ASTM A 53, Type E or S, Grade B; or ASTM A 501.

1. Finish: Black, except where indicated to be galvanized.

F. Steel Castings: ASTM A 27, Grade 65-35, medium-strength carbon steel.

G. Headed Stud-Type Shear Connectors: ASTM A 108, Grade 1015 or 1020, cold-finished carbon steel with dimensions complying with AISC Specifications.

H. Unfinished Threaded Fasteners: ASTM A 307, Grade A, regular low-carbon steel bolts and nuts.

1. Provide hexagonal heads and nuts for all connections.
 2. Provide either hexagonal or square heads and nuts, except use only hexagonal units for exposed connections.

I. High-Strength Threaded Fasteners: Heavy hexagon structural bolts, heavy hexagon nuts, and hardened washers, as follows:

1. Quenched and tempered medium-carbon steel bolts, nuts, and washers, complying with ASTM A 325.

a. Where indicated as galvanized, provide units that are zinc coated, either mechanically deposited complying with ASTM B 695, Class 50, or hot-dip galvanized complying with ASTM A 153.

J. Electrodes for Welding: Comply with AWS Code.

K. Structural Steel Primer Paint: Fabricator's standard rust-inhibiting primer.

L. Nonmetallic Shrinkage-Resistant Grout: Premixed, nonmetallic, noncorrosive, nonstaining product containing selected silica sands, Portland cement, shrinkage compensating agents, plasticizing and water-reducing agents, complying with CE-CRD-C621.

1. Products: Subject to compliance with requirements, provide one of the following:

- a. 100 Non-Shrink Grout (Non-Metallic); Conspec, Inc.
- b. Supreme Grout; Cormix, Inc.
- c. Sure Grip Grout; Dayton Superior.
- d. Euco N.S.; Euclid Chemical Co.
- e. Crystex; L & M Construction Chemicals, Inc.
- f. Masterflow 713; Master Builders.
- g. Sealtight 588 Grout; W. R. Meadows.
- h. Propak; Protex Industries, Inc.
- i. Set Non-Shrink; Set Products, Inc.
- j. Five Star Grout; U.S. Grout Corp.

2.2 FABRICATION

A. Shop Fabrication and Assembly: Fabricate and assemble structural assemblies in shop to greatest extent possible. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on final shop drawings. Provide camber in structural members where indicated.

1. Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence that will expedite erection and minimize field handling of materials.

2. Where finishing is required, complete assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in final structure free of markings, burrs, and other defects.

B. Connections: Weld or bolt shop connections, as indicated.

C. Bolt field connections, except where welded connections or other connections are indicated.

1. Provide high-strength threaded fasteners for principal bolted connections, except where unfinished bolts are indicated.

2. Provide unfinished threaded fasteners for only bolted connections of secondary framing members to primary members (including purlins, girts, and other framing members taking only nominal stresses) and for temporary bracing to facilitate erection.

D. High-Strength Bolted Construction: Install high-strength threaded fasteners in accordance with AISC "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts."

E. Welded Construction: Comply with AWS Code for procedures, appearance and quality of welds, and methods used in correcting welding work.

F. Assemble and weld built-up sections by methods that will produce true alignment of axes without warp.

G. Holes for Other Work: Provide holes required for securing other work to structural steel framing and for passage of other work through steel framing members, as shown on final shop drawings.

H. Provide threaded nuts welded to framing and other specialty items as indicated to receive other work.

I. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame-cut holes or enlarge holes by burning. Drill holes in bearing plates.

2.3 SHOP PAINTING

A. General: Shop-paint structural steel, except those members or portions of members to be embedded in concrete or mortar. Paint embedded steel that is partially exposed on exposed portions and initial 2 inches of embedded areas only.

1. Do not paint surfaces to be welded.

2. Do not paint surfaces scheduled to receive sprayed-on fireproofing.

3. Apply 2 coats of paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

B. Surface Preparation: After inspection and before shipping, clean steelwork to be painted. Remove loose rust, loose mill scale, and spatter, slag, or flux deposits. Clean steel in accordance with Steel Structures Painting Council (SSPC) as follows:

1. SP-2 "Hand-Tool Cleaning."

C. Painting: Immediately after surface preparation, apply structural steel primer paint in accordance with manufacturer's instructions and at a rate to provide dry film thickness of not less than 1.5 mils. Use painting methods that result in full coverage of joints, corners, edges, and exposed surfaces.

2.4 SOURCE QUALITY CONTROL

A. General: Materials and fabrication procedures are subject to inspection and tests in mill, shop, and field, conducted by a qualified inspection agency. Such inspections and tests will not relieve Contractor of responsibility for providing materials and fabrication procedures in compliance with specified requirements.

1. Promptly remove and replace materials or fabricated components that do not comply.

B. Design of Members and Connections: Details shown are typical; similar details apply to similar conditions, unless otherwise indicated. Verify dimensions at site whenever possible without causing delay in the work.

1. Promptly notify Architect whenever design of members and connections for any portion of structure are not clearly indicated.

PART 3 - EXECUTION

3.1 ERECTION

A. Surveys: Employ a licensed land surveyor for accurate erection of structural steel. Check elevations of concrete and masonry bearing surfaces, and locations of anchor bolts and similar devices, before erection work proceeds, and report discrepancies to Architect. Do not proceed with erection until corrections have been made or until compensating adjustments to structural steel work have been agreed upon with Architect.

B. Temporary Shoring and Bracing: Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads. Remove temporary members and connections when permanent members are in place and final connections are made. Provide temporary guy lines to achieve proper alignment of structures as erection proceeds.

C. Temporary Planking: Provide temporary planking and working platforms as necessary to effectively complete work.

1. Pack grout solidly between bearing surfaces and bases or plates to ensure that no voids remain. Finish exposed surfaces, protect installed materials, and allow to cure.

2. For proprietary grout materials, comply with manufacturer's instructions.

D. Field Assembly: Set structural frames accurately to lines and elevations indicated. Align and adjust various members forming part of complete frame or structure before permanently fastening. Clean bearing surfaces and other surfaces that will be in permanent contact before assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

E. Level and plumb individual members of structure within specified AISC tolerances.

F. Establish required leveling and plumbing measurements on mean operating temperature of structure. Make allowances for difference between temperature at time of erection and mean temperature at which structure will be when completed and in service.

G. Splice members only where indicated and accepted on shop drawings.

H. Gas Cutting: Do not use gas cutting torches in field for correcting fabrication errors in primary structural framing. Cutting will be permitted only on secondary members that are not under stress, as acceptable to Architect. Finish gas-cut sections equal to a sheared appearance when permitted.

I. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint. Apply paint to exposed areas using same material as used for shop painting.

1. Apply by brush or spray to provide minimum dry film thickness of 1.5 mils.

3.2 QUALITY CONTROL

A. Correct deficiencies in structural steel work that inspections and laboratory test reports have indicated to be not in compliance with requirements. Perform additional tests, at Contractor's expense, as necessary to reconfirm any noncompliance of original work and to show compliance of corrected work.

- B. Field-Bolted Connections: Inspect in accordance with AISC specifications.
- C. Field Welding: Inspect and test during erection of structural steel as follows:
 - 1. Certify welders and conduct inspections and tests as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
 - 2. Perform visual inspection of all welds.

06 WOOD

06100 ROUGH CARPENTRY

PART 1 - GENERAL

1.01 Related Documents

A. Requirements of Drawings, General and Special Conditions and DIVISION 1 apply to this section.

1.02 Scope

A. Provide all rough carpentry work including but not necessarily limited to:

- Wood grounds, nailers and blocking.
- Wood furring
- Sheathing

B. Related work specified elsewhere:

Concrete formwork	SECTION 03010
Finish Carpentry	SECTION 06200
Architectural woodwork	SECTION 06400

1.02 Definitions

A. Rough carpentry includes carpentry work not specified as part of other sections and which is generally not exposed, except as otherwise indicated.

1.03 Submittals

A. Product Data: Submit manufacturer's specifications and installation instructions for materials listed below:
Insulating sheathing

Submit chemical treatment manufacturer's instructions for handling, storing installation and finishing of treated materials.

For each type preservative treatment specified, include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained and conformance with applicable standards.

For water-borne treatment include statement that moisture content of treated materials was reduced to levels indicated prior to shipment to project site.

For fire-retardant treatment, include certification by treating plant that treated material complies with specified standard and other requirements.

1.04 Product Handling

A. Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels; provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials.

For lumber and plywood pressure treated with waterborne chemicals, provide spacers between each course to provide circulation.

1.05 Project Conditions

A. Fit Carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds and similar supports to allow attachment of other work.

PART 2 – PRODUCTS

2.01 Lumber

A. Comply, for each use, with the "Simplified Practice Recommendations R16, American Lumber Standards for Softwood Lumber" by the U.S. Department of Commerce, and with the rules of the applicable manufacturers' association of the authorized inspection bureau under which each species of lumber is produced.

2.02 Plywood

A. Comply for each use, with the requirements of the U.S. Product Standard PS-1 for "Softwood Plywood/Construction and Industrial", except as otherwise specified herein. Provide plywood of any PS-1 species classification group, except where particular species is shown or specified or where PS-1 limits groups for a particular grade specified.

2.03 Factory-mark

A. Each piece of lumber and plywood to identify the type, grade agency providing the inspection service, the producing mill and other

qualities as specified herein. Omit markings and provide certificate of inspection for material shown or scheduled to receive transparent or natural finish, if markings would be visible after finishing.

2.04 Size and Shapes

A. Nominal sizes shown and specified refer to undressed lumber dimensions. Dress lumber 4 sides (S4S) unless otherwise shown or specified, and work to shapes and patterns shown. Detailed dimensions show actual lumber sizes required.

2.05 Coordination

A. Obtain measurements and verify dimensions shown and shop drawings details before proceeding with carpentry work, wherever possible.

B. Correlate location of furring, nailers, blocking, grounds and similar supports so that attached work will comply with design requirements.

C. Fit carpentry work to other work. Scribe and cope as required for accurate fit.

D. Time delivery and installation of carpentry work to avoid delaying other trades whose work is dependent on or affected by the carpentry work and to comply with protection and storage requirements.

E. Installer must examine all parts of the supporting structure and the conditions under which the carpentry work is to be installed and notify the Contractor in writing of any condition detrimental to the proper and timely completion of the work. Do not proceed with the installation until unsatisfactory conditions have been corrected in a manner acceptable to the installer. Keep carpentry materials dry during delivery, and/or storage. Store lumber and plywood in stacks with provision for air circulation within stacks. Protect bottom of stacks against contact with damp or wet surfaces. Protect Exposed materials against weather.

G. Advise Contractor of heating or cooling requirements for installation areas and for maintaining required temperature until Owner's acceptance of the work.

H. Protect installed carpentry work from damage by work of other trades until Owner's acceptance of the work. Advise Contractor of required protection procedures.

PART 3 - MATERIALS

3.01 Lumber

A. Construction Lumber: Standard Grade Douglas Fir/\Western Larch, Western Hemlock (WWPA or WCLA) or No. 2 Dimension Southern Pine (SPIB).

B. Wood for support or attachment of other work such as cant strips, bucks, nailers blocking furring, grounds, stripping and similar members: No. 2 Common Grade of any WWPA or WCLA Species or No. 2 Southern Pine Boards (SPIB). Lumber to be treated where noted on drawings. See Section 06300 Wood Treatment.

3.02 Backing panels for electrical or telephone equipment

A. Fire-retardant treated Standard Grade interior type plywood with exterior glue, 3/4" minimum thickness.

3.03 Anchorage and Fastening Materials

A. Select proper type, size, material and finish for each application.

PART 4 - EXECUTION

4.01 Installation

A. Use only sound, thoroughly seasoned, well-manufactured materials of the longest practical lengths and sized to minimize jointing.

B. Use materials free from warp which cannot be easily corrected by anchoring and attachment. Sort out and discard warped material and material with other defects which would impair the quality of the work. Remove from the site and replace with good quality material at no additional cost to the owner.

C. Securely attach carpentry work to substrates by anchoring and fastening as shown and as required by recognized standards. Provide washers under bolt heads and nuts in contact with wood.

D. Nail plywood to comply with recommendation of the American Plywood Association.

E. Countersink nail heads on exposed carpentry work and fill hoes.

F. Set carpentry work accurately to required levels and lines with members plumb and true and accurately cut and fitted. Shim with

wood scraps for full-bearing on concrete or masonry substrates.

4.02 Attachment and Anchorage

A. Use galvanized nails, except as otherwise shown or specified herein. Use finishing nails for finish work. Do not wax or lubricate fasteners that depend on friction for holding power. Select fasteners of size that will not penetrate members where opposite side exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood. Pre-drill as required. Do not drive threaded friction type fasteners; turn into place. Tighten bolts and lag screws at installation and retighten as required for tight connections prior to closing in or at completion of work. Secure cedar with ring shank casing nails.

4.03 Wood Grounds, Nailers, Blocking and Sleepers

A. Provide wherever shown and where required for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached.

B. Coordinate location with other work involved; refer to shop drawings of such work.

C. Attach to substrates securely with anchor bolts and other attachment devices as shown and as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise shown.

D. Set true to line and level, plumb, with intersections true to required angle. Built into masonry as work progresses, cutting to fit masonry unit sizes involved. Anchor to form work before concrete placement.

E. Provide grounds of dressed, preservative treated, key-beveled lumber not less than 1-1/2" wide and of the thickness required to bring face of ground to exact thickness of finish material involved. Remove temporary grounds when no longer required.

F. Fill and sand gouges, gaps and chipped edges with a hard setting patching compound recommended by panel manufacturer. Allow patched to dry and sand flush with a wide belt sander. Sand uneven joints between panels flush.

4.04 Wood Furring

A. Install plumb and level with closure strips at all edges and opening. Shim with wood as required.

4.05 Furring to receive Gypsum Drywall

A. Unless otherwise shown" provide a 2 x 2 furring at 16" O.C. vertically.

4.06 Plywood

A. Comply with the recommendations of the American Plywood Association (APA).

B. Provide thickness shown, or if not shown, provide as recommended by the APA : "Guide to Plywood Sheathing for Floors, Walls, and Roofs" for the spacing of supports or types of substrates involved in the work.

3.07 Optional Framing

A. The Contractor may, at his option, accomplish general framing work with metal studs in lieu of wood framing as indicated.

B. Applicable Standards

1. ASTM C150 and ASTM C33.
2. FS FF-N-105.

07 THERMAL AND MOISTURE PROTECTION

07100 WATERPROOFING

PART 1. GENERAL

Underslab Waterproofing: Furnish and install all waterproofing shown and specified.

The general extent of the work shall be as follows:

Waterproofing under slab.

Wall waterproofing.

Related Work: Section 07150 Dampproofing

PART 2. MATERIALS

Felt: #45, perforated, asphalt saturated felt.

Six (6) mil polyethylene vapor barrier for slab on grade and air infiltration barrier at exterior walls.

PART 3. EXECUTION

Three Course Base Flashing: Applied at all steel lintels and beams, and at base of exterior walls at all typical locations shown.

Membrane to consist of one layer of 30# felt and two layers of mastic.

Felt shall be laid in a heavy coating of mastic, then mastic shall be applied on top of the layers of felt. Angle laps shall be made where felt is spliced. The felt shall be of sufficient width to cover wall within 1/2" of outside face.

Where flashings are applied on concrete, provide a first coat of concrete primer. Connect the flashing to the structure in such a manner as to prevent leakage.

The combined felt and mastic shall be sufficiently heavy to prevent leakage of water through the flashings.

Underslab Waterproofing: Underslab membrane shall be applied under all slabs and beams of enclosed spaces and exterior sidewalks, walks, and entry platforms.

Membrane shall consist of 6 mil polyethylene lap joints minimum of 12 inches and tape with waterproof tape, also, tape all patches, and penetration thru the slab.

Wall dampproofing of exterior masonry walls will be with Thompson's waterseal; shall be applied with a brush or spray. One gallon to cover 100-175 sq. ft. one coat to be applied.

Gyplap sheathing waterproofing provide one layer of 6 mil polyethylene film behind sheathing attached to metal stud wall. Film shall be lapped in a minimum of 12" and taped with waterproof tape at all joints and patches. Provide continuous layer of gyplap sheathing with all joints mastic with cement for vertical applications above grade.



Protectosil® AQUA-TRETE® SG

STAIN-RESISTANCE & SACRIFICIAL ANTIGRAFFITI TREATMENT



PRODUCT NAME

Protectosil® AQUA-TRETE® SG
Water- and stain-resistance treatment/
sacrificial anti-graffiti coating.

MANUFACTURER

Evonik Degussa Corporation
379 Interstate Parkway, P.O. Box 677
Parsippany, NJ 07054-0677
1 (800) 828-0919
info.protectosil@evonik.com
www.protectosil.com

PROTECTOSIL PRODUCTS ARE MANUFACTURED AT THE EVONIK DEGUSSA CORPORATION'S THEODORE, ALABAMA PLANT UNDER A QUALITY SYSTEM CERTIFIED TO ISO-9001 AND ISO-14001 REQUIREMENTS.

PRODUCT DESCRIPTION

This product is a clear, breathable, zero-VOC treatment for concrete, brick, concrete masonry units, tiles, EIFS, pavers, natural stone, paint and other building materials. **Protectosil AQUA-TRETE SG** is a multifunctional system that provides superior water and stain resistance and also performs as a sacrificial anti-graffiti coating. The primary function of **Protectosil AQUA-TRETE SG** is to repel water- and oil-based materials that cause staining, thereby making cleaning easier. The unique multifunctional chemistry makes the **Protectosil AQUA-TRETE SG** inherently UV stable. This feature allows longer surface repellency than is offered by competing technologies. **Protectosil AQUA-TRETE SG** decreases such problems as dirt buildup, staining and graffiti tagging.

The sacrificial anti-graffiti properties protect surfaces from different types of graffiti, including spray paint, permanent markers, ink, bituminous paints, and ether-water- or solvent-borne paints. By reducing the amount of contaminants and graffiti, **Protectosil AQUA-TRETE SG** prevents any adverse change in the surface appearance of the substrate. The natural moisture vapor transmission remains unaffected, leaving treated surfaces fully breathable and eliminating problems caused by entrapped moisture, including blushing and freeze-thaw damage to the substrate.

APPROPRIATE APPLICATIONS

All mineral building materials, both interior and exterior, can be treated to prevent staining due to waterborne and oil-based substances.

For use on concrete buildings, to mitigate efflorescence runoff onto windows.

For use with EIFS, to reduce water absorption and help keep material drier.

Treat areas where food stains occur on mineral building materials, as in food courts, pedestrian malls, sports areas and restaurants.

For use on buildings, walls, sound barriers, piers, columns, bridges or other areas where unwanted graffiti generally appears.

Other substrates that can be protected include sandstone, terra-cotta, hand-molded bricks, pressed ornamental tiles, ceramic, limestone, marble, granite and other natural stones.

ADVANTAGES

The proprietary mixture of a special oleophobic material and bonding agents in **Protectosil AQUA-TRETE SG** creates an area of extremely low surface tension on a variety of substrates. This effect renders the surface resistant to the absorption of water-based and oil-based contaminants.

Protectosil AQUA-TRETE SG not only provides stain resistance against oil-based materials, but also makes it easier to use conventional cleaners to clean up spills. This ability to repel oils yet still allow the use of conventional cleaners (as opposed to harsh solvent-chemical cleaners) is a unique advantage of **Protectosil AQUA-TRETE SG**. The sacrificial anti-graffiti properties of **Protectosil AQUA-TRETE SG** provide a clear, nearly invisible barrier against the most common graffiti products. If necessary, additional **Protectosil AQUA-TRETE SG** can be applied to only the affected area, without visible difference on the substrate. By incorporating **Protectosil AQUA-TRETE SG** into your integrated design, you can earn vital Leadership in Energy & Environmental Design (LEED) credits for both new and existing construction projects.

The main benefits of the product are:

- Excellent resistance to food products
- Reduction of staining due to atmospheric pollutants
- No wetting out of substrate
- Reduced mineral runoff onto windows
- Breathable system
- Easy removal of graffiti
- No blushing, peeling or yellowing
- Resistance to alkali attack
- Zero VOC
- Keeps substrate cleaner

(Continued)

LIMITATIONS

Will leave a residue on nonporous materials such as glass and metal. Shrubby and plant life should be protected from overspray. Should not be applied if the surface temperature is below 40°F (5°C) or above 100°F (40°C). If rain is expected within 2 hours following application, or if high winds or other conditions prevent proper application, if rain has preceded the application, the surface should be allowed to dry for a minimum of 8 hours.

TECHNICAL DATA

ProtectoShield AQUA-TRETE SG is a mixture of proprietary oleophobic materials in water.

Color	slightly yellow
Active Substance	oleophobic compound
Solvent	water
Flash Point	>200°F
Density	7.9 lb/gal
VOC	0 g/l

TEST DATA

Absorption of automotive fluids: time to fully absorb into the concrete surface

Motor Oil	
Untreated surface	4.5 hours
ProtectoShield AQUA-TRETE SG	8+ days

Transmission Fluid	
Untreated surface	2.75 hours
ProtectoShield AQUA-TRETE SG	8+ days

Engine Coolant	
Untreated surface	0.75 hour
ProtectoShield AQUA-TRETE SG	8+ days

Food Products	Stain Resistance
Ketchup	Excellent
Mustard	Excellent
Soy sauce	Excellent
Vegetable oil	Excellent

INSTALLATION

All surfaces must be cleaned to remove all traces of dirt, dust, efflorescence, mold, salt, grease, laitance, curing compounds and other foreign materials. Acceptable surface cleaning methods include shotblasting, sandblasting, waterblasting and using chemical cleaners.

ProtectoShield AQUA-TRETE SG is supplied ready to use and should not be altered or diluted in any way. It should be applied using a power roller with a 1" nap or a brush. Do not apply to a wet substrate. A test patch should be applied to the substrate to verify coverage rate, application method and desired results.

ProtectoShield AQUA-TRETE SG should be applied at a coverage rate to obtain the desired repellent effect. A test patch should be applied and a field test run to determine whether the repellency is acceptable. For sacrificial unglazed applications, two coats are required.

On low porosity surfaces such as ceramic tile or polished marble, **ProtectoShield AQUA-TRETE SG** may leave a residue or visible film. This can be averted by using a soft cloth to remove any excess material. If **ProtectoShield AQUA-TRETE SG** has dried, it can be buffed to remove any bluishness.

Protect glass, metal, plastic and other nonmetallic substrates from overspray. **ProtectoShield AQUA-TRETE SG** will not etch glass but will leave a residue on nonporous surfaces. Clean equipment immediately with soap and water.

Precautions: **ProtectoShield AQUA-TRETE SG** containers should be kept closed when not in use and should be stored at temperatures between 33°F (2°C) and 120°F (50°C), away from rain and standing water. **ProtectoShield AQUA-TRETE SG** must be protected from freezing. Please refer to the material safety data sheet for detailed information.

Remove stains and spills from treated surfaces as soon as possible. Use soap and water, mild detergents, or citrus-based cleaners. Surfaces can also be cleaned with low pressure power washing (5000 psi max.). Do not use harsh chemical cleaners such as acids or high-pH products. Periodically retreat surfaces to maintain original performance.

AVAILABILITY

ProtectoShield AQUA-TRETE SG is available in 5- and 35-gallon drums, F.O.B. at various warehouses throughout the United States and Canada. Contact your local ProtectoShield representative or your regional manager for specific cost information. You can obtain contact information on our website, www.protectoshield.com, or by calling 1 (800) 828-0919.

TECHNICAL SERVICE

Technical service engineers and chemists are available to answer questions about product performance, application methods and compatibility with other building components. You can speak to one of our chemists directly by calling our toll free number, 1 (800) 828-0919.

For more information, MSDS and the most updated product information, and to find your local representation, go to www.protectoshield.com.

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07150 DAMPPROOFING

PART 1. GENERAL

Subcontract the dampproofing work to an experienced firm which specializes in bituminous materials.

The installer must examine the substrates and the conditions under which the dampproofing is to be applied, and advise the contractor in writing of unsatisfactory conditions. Do not proceed with the dampproofing work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

Do not proceed with dampproofing work until blocking, nailers, piping, conduit and other projections through the substrate have been installed, with substrate properly patched and sealed or flashed to receive the dampproofing.

PART 2. MATERIALS

Obtain primary dampproofing materials from only one manufacturer.

Manufacturers offering bituminous dampproofing products to comply with the requirements include the following (each manufacturer does not necessarily offer every product required):

- Barrett/Celotex
- Philip Carey Corp.
- Flintkote Co.
- Gulf States Asphalt Co., Inc.

Asphalt Compound: Manufacturer's standard asphalt and solvent compound, recommended for below-grade exterior and for above-grade interior applications, compounded to penetrate the substrate and build to a moisture-resistant, firm, elastic coating. Provide semifibrated type semi-mastic compound where shown or specified.

Asphalt Dampproofing Materials:

Asphalt Mastic: Material shall be of trowelling consistency and shall form a tough and durable, yet elastic, coating.

PART 3. EXECUTION

General: Clean the substrate of dirt, oil, loose materials and other substances which would interfere with penetration, bond or performance of dampproofing materials.

When ambient temperature is 40 degrees F. or less and falling, do not proceed with dampproofing. Do not apply dampproofing materials to frozen substrates or to any substrate in a condition not complying with manufacturer's recommendations.

Protect other work from spillage of dampproofing materials, and prevent materials from penetrating and clogging drains and conductors. Replace or restore other work which is soiled or otherwise damaged by the installation of the dampproofing and associated work.

Cold Bitumen on exterior surfaces: Prime substrate if recommended by manufacturer's instructions, using type and quantity of primer recommended by manufacturer.

Apply coat of cold, fibrated mastic asphalt dampproofing material, by hand troweling onto the substrate at a uniform rate of 1.0 gal. per 15 sq. ft. to produce a uniform dry film, not less than 1/16" thick.

07200 INSULATION AND FIRE SAFING

PART 1. GENERAL

Installer: Subcontract each type of insulation and fire safing work in this section to the installer of the associated roofing or waterproofing, for individual responsibility.

Thermal Conductivity: The thicknesses shown are for the thermal conductivity (K-value at 75 degrees F.) specified for each material. Provide thicknesses as indicated on the plans.

Examination of Substrate: The installer must examine the substrate and the conditions under which the insulation work is to be performed, and notify the contractor in writing of any unsatisfactory conditions. Do not proceed with the insulation work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

Protection from deterioration: Do not allow insulation materials to become wet or soiled. Comply with manufacturer's recommendations for handling, storage and protection during installation.

Fire and Insurance Ratings: Comply with fire-resistance and flamability ratings as shown and specified, and comply with code interpretations by governing authorities and factory mutual requirements for methods of installation and systems.

PART 2. MATERIALS

Approved Manufacturers:

Owens-Corning Fiberglass Corp., San Antonio, Texas.
Manville Building Products, Denver, Colorado.
Partek North America, Inc., Englewood, Colorado
Dow Chemical Company, Midland, Michigan 48674

Wall Batt Insulation R-19, 3-1/2" thick for all drywall exterior walls.

Wall rigid board insulation R-6, 1" thick for all exterior walls over mastic.

Ceiling batt insulation R-30, 5-1/2" thick for all bottom of deck locations (between joists) secured with 2"x4" "hog" wire with white vinyl facings attached to batts.

Miscellaneous Materials:

Adhesive for bonding insulation: The type recommended by the insulation manufacturer, and complying with fire-resistance requirements.

Mastic Sealer: Type recommended by insulation manufacturer for bonding edge joints between units and filling voids in the work.

Mechanical Anchors: Type and size shown, or if not shown, as recommended by the insulation manufacturer for the type of deck used, and complying with fire and insurance rating requirements.

Acceptable fire barrier systems for thru-fire wall penetrations as follows:

3-M Fire Barrier Caulk CP-25 and putty 303.

3-M Fire Barrier Wrap/strip FS-195 installation as per manufacturers recommendations and specifications.

Provide for fire safing hand packed as required for positive fire protection to maintain separation of spaces.

PART 3. EXECUTION

Do not proceed with the installation of roof or deck insulation unless the materials, equipment and tradesmen required for the installation or the roofing or waterproofing membrane over the insulation are at the project site and ready to follow with this work immediately (same day) behind the insulation work. Do not install any more insulation each day than can be covered with waterproof membrane by the end of that working day.

Do not overload the building structure by storing any materials or the use of equipment on the deck. Consult the architect for allowance loading factors.

Extend insulation full thickness as shown over entire surface to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation and mastic. Form cant strips and tapered areas as shown and as required for proper drainage of the membrane.

Set units in adhesive, applied in accordance with the requirements of the applicable fire and insurance ratings, and applied in accordance with the recommendations of the manufacturers of both the insulation and adhesive.

Prime substrate as recommended by insulation manufacturer.

All building insulation shall be placed with sides and ends butted tight.

Any torn, trampled or otherwise damaged insulation shall be replaced.

Work shall be coordinated with other trades to insure proper installation.

Sub contractor to coordinate the installation of all safing systems for penetrations thru fire walls, roofs, floors and all areas requiring a tenant to tenant or a tenant to mall, or a tenant to mechanical room separation.

Installation of fire safing systems will performed in strict accordance with the manufacturers specifications and recommendation. Contractor to submit 3 marked-up floor plans for locations of installations. All voids to be packed tight as per requirements, and struck smooth for a neat

appearance. Sub contractor to provide owners maintenance engineer with surplus materials in the event that future packings must be added, or existing packings must be changed.

Materials should be packed in original containers and labels intact and readable. Stored as required until such time as they are turned over to the owners representative.

07241 EXTERIOR INSULATION AND FINISH SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

This Section includes the following:

- Applications over masonry surfaces.
- Applications over gypsum sheathing.

Related Sections: The following Sections contain requirements that relate to this Section:

- Division 3 Section "Cast-In-Place Concrete" for concrete substrates behind system.
- Division 4 Section "Unit Masonry" for masonry substrates behind system.
- Division 5 Section "Cold-Formed Metal Framing" for steel stud framing behind system.
- Division 6 Section "Rough Carpentry" for gypsum sheathing and wood framing behind system.
- Division 7 Section "Joint Sealants" for sealing joints in system with elastomeric joint sealants.
- Division 9 Section "Gypsum Sheathing" for gypsum sheathing behind system.

1.3 DEFINITIONS

Exterior insulation and finish systems refer to exterior assemblies composed of an inner layer of board insulation and an outer layer composed of a glass-fiber-mesh-reinforced base coat applied directly to board insulation and a textured protective finish coat. These assemblies are applied to supporting substrates of construction indicated.

Designation PB for class of exterior insulation and finish systems specified in this Section is based on the classification developed by the EIFS Industry Members Association (EIMA).

System in this Section refers to Class PB exterior insulation and finish systems:

System manufacturer refers to the manufacturer of exterior insulation and finish systems.

1.4 PERFORMANCE REQUIREMENTS

General: Provide systems that comply with the following performance requirements:

Bond Integrity: Free from bond failure within system components or between system and supporting wall construction, resulting from exposure to fire, wind loads, weather, or other in-service conditions.

Weather tightness: Resistant to water penetration from exterior into system and assemblies behind it or through them into interior of building that results in deterioration of thermal-insulating effectiveness or other degradation of system and assemblies behind system, including substrates, supporting wall construction, and interior finish.

Physical Properties of Class PB: Provide exterior insulation and finish systems whose physical properties and structural performance comply with the following requirements when tested per methods referenced. Accelerated Weathering Characteristics: Sample of size suitable for test equipment and consisting of 1-inch- (25.4-mm-) thick exterior insulation system mounted on 1/2-inch- (12.7-mm-) thick gypsum board, cured for 28 days, shows no evidence of cracking, flaking, or deleterious effects after testing for 2,000 hours per Method 1 of ASTM G 23.

Water Penetration: Sample, consisting of 1-inch- (25.4-mm-) thick exterior insulation and finish system mounted on 1/2-inch- (12.7-mm-) thick gypsum board, cured for 28 days, shows no water penetration into the plane of the innermost face of the test specimen under 2.86 psf (137 Pa) of air pressure difference across the specimen during a 15-minute test period when tested per ASTM E 331.

Water Resistance: Sample, consisting of 1-inch- (25.4-mm-) thick exterior insulation and finish system mounted on 1/2-inch- (12.7-mm-) thick board, cured for 28 days, shows no deleterious effects after testing for 14 days per ASTM D 2247. Salt-Spray Resistance: Sample, consisting of 1-inch- (25.4-mm-) thick exterior insulation and finish system mounted on 1/2-inch- (12.7-mm-) thick gypsum board, cured for 28 days, shows no deleterious effects after testing for 300 hours per ASTM B 117.

Absorption-Freeze Resistance: Three samples, 4 by 8 by 1 inch (101.6 by 203.2 by 25.4 mm) in size, consisting of exterior insulation and finish system coated on all sides with base and finish coats including reinforcing fabric, cured for 28 days, show no visible change when subjected to 4 days' underwater soak followed by 60 cycles of alternating exposure for 2 hours to minus 10 deg C and 2 hours to plus 20 deg C.

Mildew Resistance: Sample, consisting of finish coat applied to 2 by 2 inch (50.8 by 50.8 mm) clean glass substrate, cured for 28 days, shows no mildew growth when tested per MIL Standard 810C, Method 508.

Abrasion Resistance: Sample, consisting of 1-inch- (25.4-mm-) thick exterior insulation and finish system mounted on 1/2-inch- (12.7-mm-) thick gypsum board, cured for a minimum of 28 days, shows no evidence of cracking, checking, or loss of film integrity after exposure to 500 liters of sand when tested per ASTM D 968, Method A.

Impact Resistance: Sample, consisting of 1-inch- (25.4-mm-) thick exterior insulation and finish system when constructed, conditioned, and tested per EIMA 101.86, produces the following impact classification and range:

Standard Impact Resistance: 25-49 inch-lb.

High Impact Resistance: 90-150 inch-lb.

Negative Wind Load Performance: Sample assembly, 48 by 48 inches (1220 by 1220 mm) in size, consisting of studs, sheathing, and 1-inch- (25.4-mm-) thick exterior insulation and finish system, shows capability to withstand wind loads indicated when tested per:ASTM E 330. Normal thermal movement is defined as that resulting from the following maximum change (range) in ambient temperature. Base design calculations on actual surface temperatures of materials due to both solar heat gain and nighttime sky heat loss.

Temperature Change (Range): 100 deg F (56 deg C).

Wind Loads: Uniform pressure (velocity pressure) of 20 lb. per sq. ft. (960 Pa), acting inwards or outwards.

Deflection: Limit deflection of framing members to less than 1/240 of the span of the member.

1.5 SUBMITTALS

General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

Product data for each component of exterior insulation and finish systems specified.

Shop drawings showing fabrication and installation of system including plans, elevations, sections, details of components, joint locations and configurations within system and between system and construction penetrating it, and attachments to construction behind system.

Samples for initial selection in the form of manufacturer's color charts and small-scale samples consisting of actual units or sections of units showing the full range of colors, textures, and patterns available for each type of textural choices indicated.

Samples for verification in the form of 24-inch- (600-mm) square panels for each finish, color, texture, and pattern specified. Prepare samples using same tools and techniques intended for actual work.

Installer certificates signed by manufacturer certifying that Installers comply with requirements under the "Quality Assurance" Article.

Qualification data for firms and persons specified in the "Quality Assurance"

Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses-, names and address of architects and owners, and other information specified.

Product test reports from a qualified independent testing agency evidencing compliance of exterior insulation and finish systems with requirements based on comprehensive testing of current products.

Research reports or evaluation reports of the model code organization acceptable to authorities having jurisdiction that evidence system's compliance with building code in effect for Project.

1.6 QUALITY ASSURANCE

Installer Qualifications: Engage an experienced Installer who is certified in writing by system manufacturer as qualified to install manufacturer's system.

Manufacturer Qualifications: Firm experienced in manufacturing systems similar to those indicated for this Project and that have a record of successful in-service performance.

Fire-Test-Response Characteristics: Provide materials and construction that are identical to those tested with the following fire-test-response characteristics, as determined by testing per ASTM test method indicated below, by UL or other testing and inspecting agencies acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing and inspecting

agency.

Flame Spread of Insulation Board and Finish Coats: 25 or less when tested individually per ASTM E 84.

Smoke Developed of Insulation Board and Finish Coats: 450 or less when tested individually per ASTM E 84.

Full-Scale Fire Test: Tested mockup, in the form indicated below, that represents completed wall assembly of which system is a part, shows no tendency to propagate flame over the surface or through finish to the core, or to cause delamination of finish when vertically mounted exterior face is exposed 15 minutes to a fire source using spread of flame test per ASTM E 108 modified for testing vertical walls as indicated below:

Provide 2 panels, 72 by 120 inches (1830 by 3050 mm), consisting of protective finish coating and 4-inch- (102-mm-) thick insulation applied to 1/2-inch- (12.7 mm-) thick gypsum board, cured for 28 days, with protective finish coating removed to leave surface of insulation exposed on one panel in an area 4 inches (102 mm) high by 24 inches (610 mm) wide centered 24 inches (610 mm) above the bottom edge of panel.

Radiant Heat Exposure, Unrestricted Installation: Tolerable level of incident radiant heat energy of at least 12.5 kW/sq. m when tested according to BOCA National Building Code Section 1406.2.

Fire Resistance Characteristics: Where indicated, provide materials and construction identical to those of assemblies whose fire resistance has been determined per ASTM E 119 by testing and inspecting agency acceptable to authorities having jurisdiction.

Single-Source Responsibility: Obtain materials for system from one source and by a single manufacturer or by manufacturers approved by the system manufacturer as compatible with other system components.

Mockup: Prior to installing system, construct mockups for each form of construction and finish required to verify selections made under sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final unit of Work.

Locate mockups on site in the location and of the size indicated or, if not indicated, as directed by Architect.

Notify Architect one week in advance of the dates and times when mockups will be constructed.

Demonstrate the proposed range of aesthetic effects and workmanship.

Obtain Architect's acceptance of mockups before start of final unit of Work.

Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work. Protect mockups from weather and from construction activities. Brace to resist design wind loads and provide waterproof coverings for construction materials not intended to be permanently exposed to the weather. When directed, demolish and remove mockups from Project site.

Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings."

1.7 DELIVERY, STORAGE, AND HANDLING

Deliver products in original, unopened packages with manufacturer's labels identifying products legible and intact.

Store materials inside and under cover; keep them dry and protected from the weather, direct sunlight, surface contamination, aging, corrosion, damaging temperatures, damage from construction traffic, and other causes. Stack insulation board flat and off the ground.

1.8 PROJECT CONDITIONS

Environmental Conditions: Do not install system when ambient outdoor air and substrate temperatures are 40 deg F (4 deg C) and falling unless temporary protection and heat are provided to maintain ambient temperatures above 40 deg F (4 deg C) during installation of wet materials and until they have dried thoroughly and become weather resistant, but for not less than 24 hours after installation.

1.9 COORDINATION AND SCHEDULING

Coordinate installation of system with related units of Work specified in other Sections to ensure that wall assemblies, including sheathing, flashing, trim, and joint sealers, are protected against damage from the effects of weather, age, corrosion, and other causes.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

Manufacturers: Subject to compliance with requirements, provide Class PB system by one of the following:

Dryvit Systems, Inc.
C-Cure Corporation
Parex Incorporated.
Pleko Products, Inc.
Senergy, Inc.
Simplex Products Div., Anthony Industries, Inc.
STO Industries.
Thoro System Products.
United States Gypsum Co.

2.2 MATERIALS

Compatibility: Provide adhesive, board insulation, reinforcing fabrics, base and finish coat materials, sealants, and accessories that are compatible with one another and approved for use by system manufacturer.

Colors and Textures of Finish Coat: Comply with the following requirements:

Provide Architect's selections from manufacturer's custom colors and textures for type of finish coat indicated.

Primer-Sealer: If required by system manufacturer, provide standard substrate conditioner designed to seal substrates from moisture penetration and to improve the bond between substrate of type indicated and adhesive used for application of insulation.

Adhesive for Application of Insulation: System manufacturer's standard formulation designed for indicated use, compatible with substrate, and complying with the following requirements:

Factory-mixed formulation designed for adhesive attachment of insulation to substrates of type indicated, as approved by system manufacturer.

Insulation Board: Expanded Polystyrene; ASTM C578, Type 1; Flame spread less than 25 smoke developed less than 450 per ASTM E84, UL 723; minimum density 14.412 kg/m³ (.9 lb./ft.³; K-6.09 per millimeter (0.24 inch); 19 mm (3/4") thickness minimum as indicated on Drawings; meeting the following:

1. Air dried (aged) six weeks, or equivalent prior to installation.
2. Edges: Square within 8 mm. per meter (1/32" per foot).
3. Thickness: Tolerance of plus or minus 1.6 mm (1/16").
4. Size: .6m x 1.22 m (2' x 4').
5. Length and width: Tolerance of plus or minus 1.6 mm (1/16").

Reinforcing Fabric: Balanced, alkali-resistant open-weave glass-fiber fabric treated for compatibility with other system materials, made from continuous multi-end strands with tensile strength of not less than 145 lb. (645 N) and 150 lb. (667 N) in warp and fill directions per ASTM D 5035, complying with ASTM D 578 and the following requirements for minimum weight:

Standard Reinforcing Fabric: 4.2 oz./sq. yd. (136 g/sq. m).
Intermediate Reinforcing Fabric: 10.3 oz./sq. yd. (322 g/sq. m).
Impact-Resistant Reinforcing Fabric: 15 oz./sq. yd. (508 g/sq. m).

Corner Grid: Intermediate weight, premarked for easy bending, for reinforcing at exterior corners.

Strip Reinforcing Fabric: 3.75 oz./sq. yd. (127 g/sq. m) for use at opening surrounds.

Base Coat Materials: System manufacturer's standard mixture complying with the following requirements for material composition and method of combining materials:

Job-combined formulation of manufacturer's standard polymer emulsion adhesive and manufacturer's standard dry mix containing Portland cement.
Job-mixed formulation of Portland cement complying with ASTM C 150, Type I, white or natural color; and system manufacturer's standard 100% acrylic adhesive designed for use indicated.

Finish Coat Materials: System manufacturer's standard mixture complying with the following requirements for material composition and method of combining materials:

Factory-mixed formulation of polymer emulsion binder, colorfast mineral pigments, sound stone particles, and fillers.

Water: Clean and potable.

Trim Accessories: Type as designated or required to suit conditions indicated and to comply with system manufacturer's requirements.

2.3 MIXING

General: Comply with system manufacturer's requirements for combining and mixing materials. Do not introduce admixtures, water, or other materials except as approved by system manufacturer. Mix materials in clean containers.

Use materials within time period specified by system manufacturer or discard.

PART 3 - EXECUTION

3.1 EXAMINATION

Examine substrates, with Installer present, to determine if they are in satisfactory condition for installation of system. Do not proceed with installation of system until unsatisfactory conditions have been corrected.

3.2 PREPARATION

Protect contiguous work from moisture deterioration and soiling resulting from application of systems. Provide temporary covering and other protection needed to prevent spattering of exterior finish coatings on other work.

Protect system, substrates, and wall construction behind them from inclement weather during installation. Prevent infiltration of moisture behind system and deterioration of substrates.

Prepare and clean substrates to comply with system manufacturer's requirements to obtain optimum bond between substrate and adhesive for insulation.

Apply primer-sealer over substrates where required by system manufacturer for improving adhesion or for protecting substrates from premature degradation.

3.3 INSTALLATION

Comply with manufacturer's current published instructions for installation of system as applicable to each type of substrate indicated.

Adhesively attach insulation to comply with the following requirements:

Apply adhesive to insulation by the ribbon and dab method or notched trowel method in a manner that results in adhesive coating the entire surface of gypsum sheathing once insulation is adhered to the sheathing.

Trowel shall be stainless steel with 3/8" x 3/8" notches spaced 3/8" apart.

Allow adhered insulation to remain undisturbed for period prescribed by system manufacturer, but not less than 24 hours, prior to beginning rasping and sanding insulation or application of base coat and reinforcing fabric.

Apply insulation boards over dry substrates in courses with long edges oriented horizontally. Begin first course at bottom of wall. Work from perimeter toward interior of panels when possible.

Stagger vertical joints in successive courses to produce running bond pattern. Locate joints so that no piece of insulation is less than 12 inches (300 mm) wide or 6 inches (150 mm) high. Offset joints at least 6 inches (150 mm) from corners of window and door openings.

Offset joints of insulation at least 4 inches (100 mm) from joints in sheathing.

Interlock ends at internal and external corners.

Abut boards tightly at joints within and between each course to produce flush, continuously even surfaces without gaps or raised edges between insulation boards. If gaps occur, fill with insulation cut to fit gaps exactly; insert without use of adhesive.

Cut insulation to fit openings, corners, and projections precisely and to produce edges and shapes conforming to details indicated.

Rasp or sand flush entire surface of insulation to remove irregularities projecting more than 1/32 inch (0.8 mm) from surface of insulation and to remove yellowed areas due to sun exposure; do not create depressions deeper than 1/16 inch (1.6 mm).

Interrupt insulation where expansion joints are indicated in substrates behind exterior insulation and finish systems.

Form joints for sealant application with back-to-back casing beads for joints within system and with perimeter casing beads at dissimilar adjoining surfaces. Make gaps between casing beads and between perimeter casing beads and adjoining surfaces of width indicated.

Treat exposed edges of insulation board by back wrapping, including those forming substrates of sealed joints within

system or between system and other work, by encapsulating with base coat, reinforcing fabric, and finish coat, unless otherwise indicated.

Coordinate flashing installation with installation of insulation to produce a wall system that does not allow water to penetrate behind protective coating.

Architect shall review the EPS foam installation prior to application of base coat.

Apply base coat to exposed surfaces of insulation in minimum thickness specified by system manufacturer. Embed reinforcing fabric of type indicated below in wet base coat to produce wrinkle-free installation with fabric continuous or lapped at corners and lapped or otherwise treated at joints to comply with system manufacturer's requirements.

Completely embed fabric, applying additional base coat material if necessary, so that reinforcing fabric pattern is not visible.

Standard reinforcing fabric, except for surfaces below 8'-0" A.F.F., at which provide high impact-resistant reinforcing fabric.

Additional Reinforcing Fabric: Apply strip reinforcing fabric around openings extending 4 inches (100 mm) beyond perimeter. Apply additional 8 by 16 inch (200 by 400 mm) strip reinforcing fabric diagonally at corners of openings (re-entrant corners). Apply 8-inch- (200-mm-) wide strip reinforcing at both inside and outside corners unless base layer of fabric is lapped at least 4 inches (100 mm) on each side of corners.

Embed strip reinforcing fabric in base coat before applying first layer of reinforcing fabric.

Double Base Coat Application: Where indicated, apply a second base coat in same manner as first application, except without reinforcing fabric. Do not apply until first base coat has cured.

Architect shall review base coat prior to application of finish coat.

Apply finish coat over dry base coat in thickness required by system manufacturer to produce a uniform finish of texture equal to Dryvit "**SANDPEBBLE FINE**" and color matching Architects color chip.

3.4 CLEANING AND PROTECTION

Remove temporary covering and protection of other work. Promptly remove coating materials from window and door frames and other surfaces outside areas indicated to receive system coatings.

Provide final protection and maintain conditions in a manner acceptable to Installer and system manufacturer that ensures system's being without damage or deterioration at time of Substantial Completion.

074100 MANUFACTURED METAL ROOFING PANELS

Part 1 - General

1.1 Description

A. Section Includes preformed metal roof system including clips, perimeter and penetration flashing, closures, and fasteners

1.2 Related Sections

- A. Division 5 Section – Steel Roof Deck Substrate
- B. Division 7 Section – Building Insulation,
- C. Division 7 Section - Sheet Metal Flashing and Trim

1.3 Submittals

A. Shop Drawings by manufacturer only, including the following:

1. *Full Roof Plan with panel layout*
2. *Elevations, Sections, and Details*
3. *Location, gauge, and finish of all related components*
4. *Relationships with adjoining work*
5. *Include fastener types and spacing*
6. *Drawings will be stamped by a professional engineer in the state of the project location*
 - a. **Provide written certification that the submitted roofing system and related details comply with local building code and as specified herein.**
 - b. **Submit negative wind uplift pressure calculations using the project and building code data**

B. Product Data

1. *Manufacturer's data sheet including all accessories*

C. Samples

1. *12" long section of specified panel width and finish*
2. *Panel Clip*

D. Design Test Reports – must meet or exceed design and performance criteria

1. *ASTM E 1592-95*
2. *ASTM E 1680-95*
3. *ASTM E 1646-95*

E. Sample Warranties

1. *Specified Finish Warranty*
2. *Specified Weathertightness Warranty (as requested)*

F. Letter from manufacturer stating roof contractor has been trained to install the specified metal roofing system

1.4 Installer Qualifications

- A. 5 years experience specializing in the installation of structural standing seam metal roof systems
- B. Must be trained by the manufacturer to install the specified system

1.5 Delivery, Storage, and Handling

- A. Protect components using best practices to prevent abrasion damage, mechanical abuse, staining discoloration, or corrosion during manufacturing, shipment and storage.
- B. Secure panels where they are protected from wind and moisture, while allowing proper drainage and air circulation
- C. Any unsatisfactory components will be rejected and/or reproduced to meet quality criteria

1.6 Job Conditions

- A. Coordinate work with related or adjoining trades to prevent damage to stored or installed components
- B. Verify acceptable storage loads on roof slopes
- C. Precise location of all roof penetrations shall be verified prior to final roof layout

1.7 Quality Criteria

- A. A792-96 – Specification for steel sheet, 55% Aluminum-Zinc Alloy coated by the hot-dip process
- B. E1592-95 – Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference
- C. ASTM E 1680-95 - Standard test method for air leakage through roof panel assembly
- D. ASTM E 1646-95 - Standard test method for water penetration of roof panel assemblies by uniform static air pressure difference.

1.8 Design and Performance Criteria

- A. Thermal Movement
 - 1. *Metal Roofing system, including flashing, shall accommodate thermal movement without buckling or excess stress on the structure.*
 - 2. *All panel and trim attachments will be designed to specifically satisfy the requirements of the roof design (shown in shop drawings).*

1.9 Warranties

- A. Finish/Substrate Warranty – Manufacturer’s 20 year warranty covering checking, crazing, peeling, chalking, fading, and adhesion

Part 2 – Products

2.1 Materials

- A. Galvalume Steel, type AZ-55, grade 50 as per ASTM A792-96
- B. Gauge: 24 GA (0.024)

2.2 Metal Roofing System

- A. "Permaseam" as provided by Architectural Building Components (www.archmetalroof.com) Houston, Texas (800) 423-1105
1. *Width: 16" or 18"*
 2. *Finished seam height will be a minimum of 1-3/4"*
 3. *Texture: Smooth OR Striations (as selected by architect)*
 4. *Panels greater than 60' will be manufactured at the project location utilizing factory roll-forming equipment and operated by factory personnel. No laps will be accepted.*
 5. *Butyl sealant shall be applied during roll forming by manufacturer.*
- B. Substitutions shall fully comply with specified requirements in appearance, assembly, and performance
1. *Substitutions must be submitted within 7 days of bid date with complete product data*
 2. *No post-bid substitution requests will be considered*

2.3 Finishes (choose one)

- A. **Fluorocarbon Coating:** Consists of primer, applied at a nominal dry film thickness of .25 mil and a color coat, applied at a nominal dry film thickness of .75 mil, giving a 1.0 mil nominal dry film on topcoat. Paint finish should be Kynar 500 as selected from manufacturers standard color selection. The back side of the material should be .25 mil. Primer and a 0.25 polyester washcoat. Color: to be selected from manufacturer's standard colors
- B. Bare Galvalume Plus

2.4 Accessories

- A. Clips shall be 16 GA galvanized steel and be able to accommodate thermal movement
- B. All fasteners for clip, trim, and structural member attachment will be supplied by metal roof system manufacturer
- C. Trim and flashing will be of the same gauge and finish unless approved otherwise by the metal roof system manufacturer.
1. *All sheet metal valleys will be supplied in continuous lengths up to 32'*
 2. *Trim will be installed specifically as displayed in the manufacturer provided shop drawings. Any suggested changes must be approved in writing by the metal roof system manufacturer*
- D. Sealants and Sealant Tapes will be specified and supplied by the metal roof system manufacturer

Part 3 – Execution

2.1 Deck Inspection

- A. Determine, with the presence of the installer, that structural conditions are satisfactory.
- B. Conflicts resulting from inspection should be resolved prior to roof panel installation.

3.2 Pre-Roofing Conference

- A. Prior to beginning metal roof system assembly, a conference shall be held to review work to be completed:
1. *Required attendees: Contractor, metal roofing subcontractor, metal roof system manufacturer's warranty inspector, and any other subcontractors*

who have equipment penetrating the roof or projects that require roof access.

3.3 Panel Installation

- A. Protective film should be removed prior to extended exposure to sunlight, heat, and other weather elements
- B. Panels should be handled at seams to prevent buckling
- C. Limit traffic on installed panel to prevent unnecessary damage to the finish
- D. Install continuous length panels plumb, level, and straight with seams and ribs parallel
- E. Install panels without excessive waves, warps, or buckles
- F. Minimum required underlayment shall be fully installed prior to roof panel loading or installation on roof surface
- G. All clips being secured directly on insulation shall require a bearing plate as provided by the manufacturer
- H. Refer to manufacturer shop drawings for:
 - 1. *Clip spacing*
 - 2. *Location(s) for fixing the roof panels*
- I. All panels shall have field applied butyl sealant between seams at the eave condition

3.4 Roofing and Flashing Installation

- A. All trim shall be installed using the fastener type and spacing as displayed on the manufacturer shop drawings
- B. Trim attachments shall not restrict the thermal movement requirements of the panel
- C. Fabricate and install sheet metal flashing in accordance with SMACNA manual
- D. In the process of sheet metal installation, allow no sealant to migrate onto exposed surfaces
- E. Any damaged product should be removed and replaced immediately upon recognition
- F. Touch up paint should be used minimally for minor scratches. Major scratches or paint failures shall be recognized at damaged and require replacement
- G. Clean exposed surfaces upon completion of installation to prevent finish damage

End of Section 07 61 13

07900 CAULKING AND SEALANTS

PART 1. GENERAL

Samples: Color samples shall be submitted to Architects for approval prior to installation. Caulking compound shall be compatible with adjacent materials and be of non-staining type. Caulking and sealants at exterior walls to match color of adjacent face brick. Submit a sample length of a joint between two pieces of metal or a sample area on the site for the approval of the architect.

PART 2. MATERIALS

Joint Fillers and Gaskets:

Size and Shape: Provide the sizes and shapes of units as shown or, if not shown, and recommended by the manufacturer for the joint size and conditions shown. Wherever joint movement is a factor in the determination of size, consult with the Architects to determine the nature and magnitude of anticipated joint movements for the temperature and condition of the project at the time of installation.

Caulking and Sealants:

At all exterior location, at all exterior doors and glass frames (both exterior and interior of frames) and windows, at exterior joints in walls and at all other locations where sealant is indicated, provide products manufactured by Tremco, for the appropriate application.

At all locations other than those noted, or where noted "caulk", provide Tremco Dymonic.

Bituminous and fiber joint filler: Provide flexible, compressible, closed cell polyethylene of not less than 10 psi compression deflection (25%); except provide higher compression deflection strength as may be necessary to withstand installation forces and provide proper support for sealants; surface water absorption of not more than 0.1 lbs. per sq. ft.

Ethafoam SB; Dow Chemical
Ethafoam, Permaglaze Co.
Sonofoam; Sonneborn
Joint Backing; Tremco

PART 3. EXECUTION

Joint surfaces shall be clean, dry and free of dirt, oil, grease, water or frost. Follow compound manufacturer's recommended procedure for joint preparation.

Back up material shall be inserted in the joints and detailed or as required to allow the correct balance of joint and sealant dimensions.

Prior to application of compound all joint surfaces shall be primed in accordance with manufacturer's recommendations.

Apply the compound with gun nozzle of proper size and shape for the joint. The finished joint shall conform to the size, shape and color of the approved sample. Do not trim edges of caulking with knife or other instruments if joints are tooled. Do not permit excess caulking or priming material to remain on the exposed faces of materials or on adjacent surfaces.

Color: Provide each concealed material in manufacturer's standard color which has the best overall performance characteristics for the application shown. Color as selected by architect.

Compatibility: Before purchase of any filler or gasket material, confirm that it is compatible with the substrate, sealants and other materials used in the joint system.

Adhesives: Pressure sensitive adhesives, compatible with each material in the joint system, may be applied (at installers option) to one face of joint fillers and gaskets to facilitate installation and permanent anchorage in place. Do not allow adhesives to contaminate sealant bond surfaces in the joint system.

Apply sealant with a gun with proper size nozzles or with a knife as required. Use sufficient pressure to fill all voids and joints solid to the back-up material.

Surface of sealant shall be a full smooth bead, free of ridges, wrinkles, sags, air pockets and imbedded purities.

After all joints have been completely filled, they shall be neatly tooled to eliminate air pockets or voids, and to provide a smooth, neat appearance.

Immediately clean adjacent materials which have been soiled, leave work in a neat, clean condition. All joints to be watertight at completion of the project.

09 FINISHES

09100 LATH, PLASTER AND STUCCO

PART 1. GENERAL

Description: Supply and install all Lath and Plaster Work as shown on drawings and as specified herein.

Coordination: Work herein under requires coordination with trades whose work connects with, is affected, or concealed by lathing and plastering. Before proceeding, make certain all required inspections have been made.

Inspection: Inspect surfaces to receive lath and plaster before starting work and do not start until surfaces are acceptable. Starting work under this section implies acceptance of surfaces.

Delivery and Storage: Deliver all manufactured materials in original packages bearing manufacturer's name and brand. Use only one brand of each material throughout job. Store materials in dry areas.

General Requirements: Comply with all applicable requirements of the Texas Bureau for Lathing and Plastering, Inc. "Manual for Lathing and Plastering", and Texas Lathing and Plastering Contractor's Assoc. Standards, except where more stringent requirements are called for herein or in Local Building Codes. Do all cutting and patching required to accommodate work of other trades.

PART 2. MATERIALS

Metal Lath: Expanded type, diamond shaped, copper bearing steel, weighing 3.4#/sq. yd., painted. Use galvanized lath for exterior surfaces.

Installation: Apply to true surfaces, straight, without warps or buckles, long dimension of lath at right angles to supports; lower sheet lapped over upper sheet where used on walls. Secure lath to supports at 6 inch intervals. Secure the side laps to supports, and tie between supports. Lap 1/2 inch at sides and 1 inch at ends; and laps must be staggered and supported. No sheet ends allowed less than one support distant from any angle or corner. Bend sheets for internal corners or use corner laths. Install strip lath over joints between dissimilar base materials where surfaces lie in the same plane and where base materials cannot be effectively bonded together. Fasten securely at 6 inches o.c. Fasten lath to light gauge drywall studs with specified screws at 6 inch centers.

Accessories: Install all accessories to plumb, true and level lines, and backing plates as located by the Trade furnishing these items.

Corner Beads: #1 type, expanded metal flanges integral with nose of bead, galvanized, weighing 208 #/1000 l.f. Install at all external corners. Use single length except where standard length is not sufficient. Miter or cope as required; fasten with tie wire at 6 inches o.c., both sides.

Corner laths: As specified for expanded metal lath 3 inches legs bent to a 105 degree corner, weighing 140#/1000 l.f. Install at interior angles and where one or both abutting surfaces are metal lath. Corner laths are not required where metal lath is continued around corner at junction of walls and where ceiling lath turns down wall.

Casing Beads: #66 type, expanded metal flange, galvanized, depth as required by plaster thickness, weighing approximately 289 #/100 l.f. for 3/4 inch and 7/8 inch types. Install at all edges of plaster, continuously, including where plaster butts all other materials, by securing to lath at 6 inches o.c.

Control Joints: 7/8 inch ground, expanded metal flanges, galvanized minimum 28 gauge (type #15).

Expansion Joints: #40 type, 7/8 inch ground, expanded metal flanges, galvanized, weighing 417 #/1000 L.F. Install where indicated on drawings, tied to lath at 6 inches o.c. Cut lath passing under expansion joints.

Channels: 3/4 inch furring channel weighing 300 #/1000 l.f. and 1-1/2" runner channel weighing 500 #/1000 l.f., 16 gauge painted. Use galvanized channels for exterior surfaces.

Wire: Soft, annealed, galvanized steel; 8 gauge for hangers, 16 gauge for channel ties and 18 gauge for lath ties.

Miscellaneous Items: Furnish all miscellaneous components not specified herein but shown on drawings and any other items required to complete the installation.

Water: Clean and free of deleterious matter.

Hydrated Lime: Conforming to ASTM C-206, Type S.

Quick Lime: Conforming to ASTM C-5.

Gypsum Plaster: Conforming to ASTM C-28.

Lightweight aggregate, perlite.

Lime Putty: Shake quick lime in watertight box, run through #8 sieve of 16 gauge wire, and let stand a minimum of 14 days; or prepare from hydrated lime as recommended by the manufacturer of the hydrated lime, soaking in water for 16 to 24 hours. Keep moist and screen through a #10 sieve before using.

Scratch Coat: Apply full and thick with sufficient force to form good keys; deeply cross-hatched; set firm and hard before brown coat is applied.

Brown Coat: Apply with sufficient pressure to force plaster into scratches; built out to within 1/16 inch of screeds and grounds; rod, darby, and float to true, plumb surfaces and angles; leave rough for finish coat.

Thickness: 7/8 inch thick, measured from back of metal lath.

Plaster Type

Scratch Coat: 1 part gypsum plaster and 2 parts light weight aggregate.

Brown Coat: 1 part gypsum plaster and 3 parts light weight aggregate.

Light Weight Float Finish: 1 part gypsum plaster and not more than 2 parts light weight aggregate by weight.

Apply light weight float finish to approximately 1/8 inch thickness, free from blemishes and devoid of directional marks.

Portland Cement Plaster

Portland Cement: Conforming to ASTM C-150, Type 1.

Sand for Cement Plaster: Conforming to ASA A42.2.

Exterior, Cement Plaster:

Scratch Coat: 1 part Portland cement, 4 parts sand and hydrated lime equal to 25% of volume of cement.

Apply with sufficient material and pressure to shove material through metal lath and form a good key; 3/8 inch minimum thickness, score in horizontal direction with metal scorer with clipped teeth to provide good mechanical key for second coat.

Brown Coat: 1 part Portland cement, 5 parts sand and hydrated lime equal to 25% of the volume of cement.

Finish Coat: Provide three samples, 3' x 3' of various finish textures to Architect for approval.

Curing: Keep each base coat moist for at least 48 hours; commence moistening as soon as plaster has hardened sufficiently so to prevent injury; apply water in a fine fog spray; avoid soaking; curing shall proceed over holidays, Saturdays and Sunday if necessary. If atmospheric conditions are hot and dry, curing time shall be extended as necessary at no additional cost to the Owner. Allow plaster base coats to cure for a minimum of 7 days before applying finish coat.

Thickness: 7/8 inch thick; measured from back of lath.

PART 3. INSTALLATION

General: Provide ventilation to properly dry plaster during and subsequent to application. In glazed buildings accomplish by keeping windows open sufficiently to provide air circulation; in enclosed areas lacking normal ventilation, mechanically remove moisture laden air.

Lathing: Apply lath with long dimension at right angles to supports; lap sides and ends as recommended by manufacturer. Stagger vertical laps. Make no vertical joints at any corner, bend lath around all corners, internal and external.

Attach lath to studs by fastening at spacings required by Local Building Codes. All attachments; corrosion resistant.

Accessories: install all accessories to plumb, true and level lines, and backing plates as located by Trade furnishing items.

Install beads, corner laths, control joints, reglets, screeds and like items, using single lengths wherever possible. Provide corner beads at all exterior corners shown, mitering or coping as required, and fastening at 6 inches on center, both sides. Provide casing beads wherever interior plaster angles are shown and wherever one or both abutting surfaces are metal lathed, except corner laths are not required where metal lath is continuous around corner at junctions of walls, or where ceiling lath turns down a walls. Tie outer edges only to adjoining lath at 6 inches on center.

Plastering: Do not apply plaster below 55 degrees F. temperature. Apply no plaster to frosty surfaces. Dampen any surfaces on which suction must be reduced with fog-spray. Maintain all screeds plumb and true. Fill fissures or breaks in brown coat before application of finish coat. Make coats uniform in thickness with average thickness about 1/8 inch; minimum thickness anywhere; 1/16 inch. Apply finish coats to partially dry base coat, or to a thoroughly dry base coat that has been evenly wetted by brushing or

spraying; avoid use of excessive water. Trowel all finish surfaces of plaster to perfectly true and even surface without scratches, ridges, voids, cracks, etc. Except when hand mixing small batches is approved, use approved mechanical mixers. Clean mixers, mixing boxes and tools after mixing each batch. Thoroughly mix with water until uniform in color and consistency. Re tempering not permitted.

Discard plaster which has begun to stiffen. Mixed in strict accordance with manufacturer's printed directions.

Except in the case of specifically formulated plasters which require only water added at job site, proportion by volume as specified.

Cleaning and Patching: Clean floors of droppings immediately after each coat is applied. At any exterior locations, remove droppings or splashes from all concrete, masonry or other finish surfaces.

Patch after all other work except painting has been completed. Cut out damaged or broken plaster to straight lines with clean, sharp edges. Cut out cracks to width of at least 1 inch. Fill areas to be patched with base materials then give a finish coat of same material as adjoining plaster. Patched areas shall match adjoining work in finish and texture. Joinings shall be flush and smooth so joints between patch and existing plaster are imperceptible.

Clean-up: At completion of work, remove excess plaster from beads, screeds, etc., and leave work clean and ready for painting. Promptly remove plaster, rubbish, surplus material, scaffolding and other equipment from job site. Leave areas broom clean.

09300 TILE

PART 1 GENERAL

1.1 RELATED-DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
1. Unglazed ceramic mosaic tile.
 2. Glazed wall tile.
 3. Porcelain tile.
- B. Related Sections: The following sections contain requirements that relate to this Section:
1. Division 3 Section "Concrete Work" for monolithic slab finishes specified for tile substrates.
 2. Division 7 Section Joint Sealers for sealing of expansion, contraction, control, and isolation joints in tile surfaces.
 3. Division 9 Section "Gypsum Drywall" for cementitious backer units installed as part of gypsum wallboard systems.
- C. Allowance
1. Contractor to provide a unit price allowance of \$5 per square foot to cover the tile itself and shipping costs associated with the tile.
 2. All labor, equipment, adhesives and any necessary items and/or manpower to accomplish the installation of the tile is to be provided by contractor.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified.
- C. Shop drawings indicating tile patterns and locations and widths of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
1. Locate precisely each joint and crack in tile substrates by measuring, record measurements on shop drawings, and coordinate them with tile joint locations, in consultation with Architect.
- D. Samples for initial selection purposes in form of manufacturer's color charts consisting of actual tiles or sections of tile showing full range of colors, textures, and patterns
- Available for each type and composition of tile indicated. Include samples of grout and accessories involving color selection.
- E. Samples for verification purposes (three each) of each item listed below, prepared on samples of size and construction indicated, products involve color and texture variations, in sets showing full range of variations expected.
1. Each type and composition of tile and for each color and texture required, at least 12 inches square, mounted on plywood or hardboard backing and grouted.
 2. Full-size units of each type of trim and accessory for each color required.
- F. Master grade certificates for each shipment, type, and composition of tile, signed by tile manufacturer and Installer.
- G. Material test reports from qualified independent testing laboratory indicating and interpreting test results relative to compliance of tile and tile setting and grouting products with requirements indicated.
- H. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, plus other information specified.

1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility for Tile: Obtain each color, grade, finish, type, composition, and variety of tile from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- B. Single-Source Responsibility for Setting and Grouting Materials: Obtain ingredients of a uniform quality from one manufacturer for each cementitious and admixture component and from one source or producer for each aggregate.
- C. Installer Qualifications: Engage an experienced Installer who has successfully completed tile installations similar in material, design, and extent to that indicated for Project.
- D. Field-Constructed Mock-Up: Before installing tile, erect mock-ups for each form of construction and finish required to verify selections made under sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Build mock-ups to comply with the following requirements, using materials indicated for final unit of Work.
1. Locate mock-ups on site in location and size indicated or, if not indicated, directed by Architect.
 2. Demonstrate the proposed range of aesthetic effects and workmanship.

3. Obtain Architect's acceptance of mock-ups before start of final unit of Work.
4. Retain and maintain mock-ups during construction in undisturbed condition as a standard for judging completed unit of Work.
 - a. When directed, demolish and remove mock-ups from Project site.
 - b. Accepted mock-ups in undisturbed condition at time of Substantial Completion may become part of completed unit of Work.

E. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings".

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement of ANSI A137.1 for labeling sealed tile packages.

B. Prevent damage or contamination to materials by water, freezing, foreign matter, and other causes.

1.6 PROJECT CONDITIONS

A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.

B. Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.

C. Maintain temperatures at 50 deg F (10 deg C) or more in tiled areas during installation and for 7 days after completion, unless higher temperatures are required by referenced standard or manufacturer's instructions.

1.7 EXTRA MATERIALS

A. Deliver extra materials to Owner. Furnish extra materials that match products installed as described below, packaged with protective covering for storage and identified with labels clearly describing contents.

1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers/Products: Subject to compliance with requirements, provide products by one of the following:

1. Tile:

@WALLS:

@FLOOR:

2. Mortar and Grout:

- a. American Olean Tile Co., Inc.
- b. Bostik Construction Products Div.
- c. L & M Mfg. Inc.
- d. Mapei Corp.
- e. Summitville Tiles, Inc.

2.2 PRODUCTS, GENERAL

A. ANSI Standard for Ceramic Tile: Comply with ANSI A137.1 "American National Standard Specifications for Ceramic Tile for types, compositions, and grades of tile indicated.

1. Furnish tile complying with Standard Grade" requirements unless otherwise indicated.

B. ANSI Standard for Tile Installation Materials: Comply with ANSI standard referenced with products and materials indicated for setting and grouting.

C. Colors, Textures, and Patterns: Where manufacturer's standard and premium products are indicated for tile, grout, and other products requiring selection of colors, surface textures,

patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:

1. Match color, texture, and pattern indicated by reference to manufacturer's standard and premium designations for these characteristics.

D. Factory Blending: For tile exhibiting color variations within the ranges selected during sample submittals, blend tile in factory and package accordingly so that tile units taken from one package show the same range in colors as those taken from other packages and match approved samples.

2.3 TILE PRODUCTS

A. Unglazed Porcelain Tile: Provide factory-mounted flat tile complying with the following requirements:

1. Composition: As indicated.
2. Nominal Facial Dimensions: 2 x 2 inch with coved and straight base.
3. Nominal Thickness: As indicated.
4. Face: As indicated.

B. Glazed Wall Tile: Provide flat tile complying with the following requirements:

1. Nominal Facial Dimensions: As indicated.
2. Nominal Thickness: As indicated.
3. Face: As indicated.

C. Unglazed Porcelain Tile: Provide flat tile complying with the following requirements:

1. Nominal Facial Dimensions: 8 x 8 and 12 x 12 inch
2. Nominal Thickness: As indicated.

D. Trim Units: Provide tile trim units to match characteristics of adjoining flat tile and to comply with following requirements:

1. Size: As indicated, coordinated with sizes and coursing of adjoining flat tile where applicable.
2. Shapes: As follows, selected from manufacturer's standard shapes:
 - a. Base for Thin set Mortar Installations: Straight.
 - b. External Corners for Thin set Installations: Surface bullnose.
 - c. Internal Corners: Field-buttet square corners, except use coved base and cap angle pieces designed to member with stretcher shapes.
 - d. Tapered Transition Tile: Shape designed to effect transition between thickness of tile floor and adjoining floor finishes of different thickness, tapered to provide a reduction in thickness from 1/2 inch to 1/4 inch across nominal 4 inch dimension.

2.4 WATERPROOFING FOR THIN SET FLOOR TILE INSTALLATIONS

A. Latex Rubber Waterproofing: Manufacturer's standard factory-prepackaged, job mixed, proprietary two-part formulation consisting of liquid latex rubber and powder for trowel application and glass fiber fabric reinforcing.

B. Available Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

C. Products: Subject to compliance with requirements, provide one of the following:

1. Latex Rubber Waterproofing:
 - a. "Laticrete 301/335 Waterproof Membrane"; Laticrete International Inc.

2.5 SETTING MATERIALS

A. Portland Cement Mortar Installation Materials (thick set tile): Provide materials complying with ANSI A108.1 and as specified below.

1. Cleavage Membrane: Asphalt felt, ASTM D 226, Type I (No. 15), or polyethylene sheeting ASTM D 4397, 4.0 mils thick.
2. Reinforcing Wire Fabric: Galvanized welded wire fabric, 2 inches by 2 inches W0.3 by W0.3 (16 ASW gage or 0.0625 inch diameter); comply with ASTM A 185 and ASTM A 82 except for minimum wire size.

B. Latex-Portland Cement Mortar (thin set tile): ANSI A118.4, composition as follows:

1. Prepackaged dry mortar mix composed of Portland cement, graded aggregate, and the following dry polymer additive in the form of a reemulsifiable powder to which only water is added at job site.

C. Chemical-Resistant, Water-Cleanable Ceramic Tile Setting and Grouting Epoxy (food preparation areas): ANSI A118.3.

1. Provide product capable of resisting continuous and intermittent exposure to temperatures of up to 140 deg F (60 deg C) and 212 deg F (100 deg C), respectively, as certified by mortar manufacturer for intended use.

2.6 GROUTING MATERIALS

A. Latex-Portland Cement Grout: ANSI A118.4, color as selected from manufacturer's premium range, composition as follows:

1. Latex additive (water emulsion) serving as replacement for part or all of gauging water, added at job site with dry grout mixture, with type of latex and dry grout mix as follows:
 - a. Latex Type: Manufacturer's custom.

B. Chemical-Resistant Epoxy Grout: ANSI A118.3, color as selected from manufacturer's premium range.

1. Provide product capable of resisting continuous and intermittent exposure to temperatures of up to 140 deg F (60 deg C) and 212 deg F (100 deg C), respectively, as certified by mortar manufacturer for intended use.

2.7 ELASTOMERIC SEALANTS

A. General: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that comply with requirements of Division 7 Section "Joint Sealers, including ASTM C 920 as referenced by Type, Grade, Class, and Uses.

B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints unless otherwise indicated.

C. One-Part Mildew-Resistant Silicone Sealant: Type S; Grade NS; Class 25; Uses NT, G, A, and as applicable to nonporous joint substrates indicated, O; formulated with fungicide, intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and temperature extremes.

D. Chemical-Resistant Sealants: For chemical-resistant floors, provide sealants compatible with chemical-resistant mortars and grouts, approved for use indicated by manufacturers of both mortar/grout and sealant and with chemical-resistance properties equivalent to mortar/grout.

E. Multipart Pourable Urethane Sealant for Use T: Type M; Grade P; Class 25; Uses T, M, A, and as applicable to joint substrates indicated, O.

F. Products: Subject to compliance with requirements, provide one of the following:

1. One-Part Mildew-Resistant Silicone Sealant (for vertical surfaces):
 - a. "Dow Corning 786"; Dow Corning Corp.
 - b. "SCS 1702"; General Electric Co.
 - c. "863 #345 Whiter; Pecora Corp.
 - d. "Rhodorsil 6B White"; Rhone-Poulenc Inc.
 - e. "Proglaze White"; Tremco Corp.
2. Multipart Pourable Urethane Sealant (for horizontal surfaces):
 - a. "Chem-Calk 550"; Bostik Construction Products Div.
 - b. "Vulkem 245"; Mameco International, Inc.
 - c. "Urexpan NR-200"; Pecora Corp.
 - d. "THC-900"; Tremco Corp.

2.8 MIXING MORTARS AND GROUT

A. Mix mortars and grouts to comply with requirements of referenced standards and manufacturers including those for accurate proportioning of materials, water, or additive content; type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce mortars and grouts of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and areas where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

1. Verify that substrates for setting tile are firm, dry, clean, and free from oil or waxy films and curing compounds.
2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.

B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Blending: For tile exhibiting color variations within the ranges selected during sample submittals, verify that tile has been blended in factory and packaged accordingly so that tile units taken from one package show the same range in colors as those taken from manufacturer or blend tiles at Project site before installing.

3.3 INSTALLATION, GENERAL

A. ANSI Tile Installation Standard: Comply with parts of ANSI 108 series of tile installation standards included under "American National Standard Specifications for the Installation of Ceramic Tiles that apply to type of setting and grouting materials and methods indicated.

B. TCA Installation Guidelines: TCA "Handbook for Ceramic Tile Installations; comply with TCA installation methods indicated.

C. Extend tile work into recesses and under or behind equipment and fixtures to form a complete covering without interruptions except as otherwise shown. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so that plates, collars, or covers overlap tile.

E. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths unless otherwise shown.

F. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw cut joints after installation of tiles.

1. Locate joints in tile surfaces directly above joints in concrete substrates.

2. Prepare joints and apply sealants to comply with requirements of Division 7 Section "Joint Sealers."

G. Grout tile to comply with the requirements of the following installation standards:

1. For ceramic tile grouts (sand-portland cement, dry-set, commercial Portland cement, and latex-portland cement grouts), comply with ANSI A108.10.

2. For chemical-resistant epoxy grouts, comply with ANSI A108.6.

3.4 WATERPROOFING FOR THIN SET FLOOR TILE INSTALLATIONS

A. Install waterproofing in compliance with waterproofing manufacturer's instructions to produce a waterproof membrane of uniform thickness bonded securely to substrate.

B. Do not install tile over waterproofing until waterproofing has cured and been tested to determine that it is watertight.

3.5 FLOOR INSTALLATION METHODS

A. Ceramic Tile: Install tile to comply with requirements indicated below for setting bed methods, TCA installation methods related to types of subfloor construction, and grout types:

1. Water-Cleanable Tile-Setting Epoxy Adhesive: ANSI A108.6.

a. Grout: Chemical-resistant epoxy.

2. Latex-Portland Cement Mortar: ANSI A108.5.

3.6 WALL TILE INSTALLATION METHODS

A. Install types of tile designated for wall application to comply with requirements indicated below for setting-bed methods, TCA installation methods related to subsurface wall conditions, and grout types:

1. Latex-Portland Cement Mortar: ANSI A108.5.

3.7 CLEANING AND PROTECTION

A. Cleaning: Upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove latex-portland cement grout residue from tile as soon as possible.

2. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's printed instructions, but no sooner than 14 days after installation. Protect metal surfaces, cast iron, and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.

3. Remove temporary protective coating by method recommended by coating manufacturer that is acceptable to brick and grout manufacturer. Trap and remove coating to prevent it from clogging drains.

B. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbanded, and otherwise defective tile work.

C. Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer that ensures that tile is without damage or deterioration at time of Substantial Completion.

1. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.

2. Prohibit foot and wheel traffic from tiled floors for at least 7 days after grouting is completed.

D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

09385 DIMENSION STONE TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes dimension stone tile and related setting materials.

1.3 DEFINITIONS

A. Dimension stone tiles are fabricated from natural stone to produce modular units that are less than 3/4 inch thick.

B. Manufacturer is the term used in this Section to refer to firms that either fabricate dimension stone tiles or are the major distributors of dimension stone tiles. Some firms may also own the quarry from which the dimension stone for tiles is obtained.

1.4 SUBMITTALS

A. General: Submit the following according to Conditions of Contract and Division 1 Specifications Sections.

B. Product data for the following:

1. Each stone tile type.
2. Setting and grouting materials.
3. Waterproof membrane materials.

C. Maintenance data to include in Maintenance Manual specified in Division 1 Section "Project Closeout."

D. Samples for verification purposes in the form of 16-inch-square samples of each type of stone tile required, showing full range of colors, textures, finishes, and other variations related to visual characteristics to be expected in the finished Work.

1. Prepare samples from same material to be used for the Work.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Firm experienced in supplying products similar to those indicated for this Project with a record of successful in-service performance.

B. Installer Qualifications: Engage an experienced Installer who employs only persons trained in installing stone tile products similar to those required for this Project.

C. Single-Source Responsibility: Provide material produced by a single manufacturer for each stone tile type.

D. Field-Constructed Mockup: Prior to installing stone tile, construct sample panel for each tile type specified to verify selections made under sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final unit of Work.

1. Demonstrate the proposed range of aesthetic effects and workmanship.
2. Obtain Architect's acceptance of mockups before start of final unit of Work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Comply with instructions and recommendations of the manufacturer for special delivery, storage, and handling requirements.

1.7 PROJECT CONDITIONS

A. Maintain ambient temperatures between 60 deg F (15.6 deg C) and 90 deg F (32.2 deg C) during installation and curing, unless otherwise required by manufacturer's instructions.

1.8 SEQUENCING AND SCHEDULING

A. Install stone tile and accessories only after other finishing operations, including painting, have been completed.

1.9 WARRANTY

A. special Project Warranty: Submit a written warranty, executed by the Contractor, Installer, and the Manufacturer, agreeing to repair or replace stone tile that fails in materials or workmanship within the specified warranty period. This warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

1. Warranty Period: 2 years after date of Substantial Completion.

1.10 EXTRA MATERIALS

A. Deliver extra materials to Owner. Furnish extra full-sized stone tiles matching installed tile in a quantity equal to 2 percent of the amount of each tile type installed, packaged with protective covering for storage and identified with labels clearly describing contents.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, producers quarriers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Slate:
 - a. Walker Zanger (713) 880-9292

2.2 STONE TILE, GENERAL

A. Comply with referenced standards and other requirements indicated for each material.

B. Provide stone tiles that are free of cracks, seams, starts, and other defects impairing their function for use indicated; are from a single quarry for each type, variety, color, and quality of stone specified; and have the following characteristics:

1. Tile Size: 16 by 16 inches, Rich Autumn.
2. Match Architect's sample for tile color, veining, texture, shadings, markings, mottling, and other distinguishable characteristics related to type of stone specified.
3. Sealer - Provide one coat of Bellinzone Sealer as recommended by tile supplier and wipe off excess.

09900 PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes surface preparation, painting, and finishing of exposed interior and exterior items and surfaces.

1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop-priming and surface treatment specified under other Sections.

B. Paint exposed surfaces whether or not colors are designated in schedules, except where a surface or material is specifically indicated not to be painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces. If color or finish is not designated, the Architect will select from standard colors or finishes available.

1. Painting includes field-painting exposed pipes and hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment. Painting is not required on prefinished items, finished metal surfaces, concealed surfaces, operating parts, and labels.

1.3 SUBMITTALS

A. Samples for Verification Purposes: Provide samples of each color and material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrate.

1. Submit samples on the following substrates for the Architect's review of color and texture only:

a. Concrete: Provide two 4-inch-square samples for each color and finish.

b. Concrete Masonry: Provide two 4-by-8-inch samples of masonry, with mortar joint in the center, for each finish and color.

c. Painted Wood: Provide two 12-inch-square samples of each color and material on hardboard.

d. Stained or Natural Wood: Provide two 4-by-8-inch samples of natural and stained wood finish on actual wood surfaces.

e. Ferrous Metal: Provide two 4-inch-square samples of flat metal and two 8-inch-long samples of solid metal for each color and finish.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:

1. Benjamin Moore and Co. (Moore).
2. Coronado Company.
3. Devco and Reynolds Co. (Devco).
4. PPG Industries, Pittsburgh Paints (PPG)
5. Pratt and Lambert (P & L).
6. The Glidden Company (Glidden).
7. The Sherwin-Williams Company (S-W).

2.2 PAINT MATERIALS, GENERAL

A. Material Compatibility: Provide block fillers, primers, finish coat materials, and related materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by the manufacturer based on testing and field experience.

B. Material Quality: Provide the manufacturer's best-quality trade sale paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable.

C. Colors: Provide custom colors of the finished paint systems to match the Architect's samples.

2.3 MASONRY BLOCK FILLER

A. Filler Coat Materials: Provide the manufacturer's Painting recommended factory-formulated, latex-type concrete masonry block

fillers that are compatible with the finish materials indicated. Provide Loxon block surfacer (A24W200) by Sherwin Williams for interior cmu walls or equal.

2.4 PRIMERS

A. Primers: Provide the manufacturer's recommended factory-formulated primers that are compatible with the substrate and finish coats indicated.

2.5 UNDERCOAT MATERIALS

A. Undercoat Materials: Provide the manufacturer's recommended factory-formulated undercoat materials that are compatible with the substrate and finish coats indicated. Provide Loxon Exterior Acrylic Masonry Primer by Sherwin Williams or equal.

2.6 EXTERIOR FINISH PAINT MATERIAL

A. Finish Paint: Provide the manufacturer's recommended factory-formulated finish-coat materials that are compatible with the substrate and undercoats indicated. Provide Elastomeric Coating (A5 Series) by Sherwin Williams or equal.

2.7 INTERIOR FINISH PAINT MATERIAL

A. Finish Paint: Provide the manufacturer's recommended factory-formulated finish-coat materials that are compatible with the substrate and undercoats indicated.

2.8 MISCELLANEOUS WOOD-FINISHING MATERIALS

A. Wood-Finishing Materials: Provide the manufacturer's recommended factory-formulated, wood-finishing materials that are compatible with the substrate and undercoats indicated.

1. Varnish-Type Surface Sealer:

a. Sherwin Williams (A66-300 Series) Oil Varnish or equal.

2. Oil-Type Interior Wood Stain: Slow-penetrating, oil-type wood stain.

a. Moore: 241 Moore's Interior Wood Finishes Penetrating Stain or equal.

3. Cut Shellac: Quick-drying, rosin-free, clear, general-purpose shellac varnish.

a. Sherwin Williams (B26V34 Series) FastDry Sanding Sealer or equal.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions under which painting will be performed for compliance with paint application requirements. Surfaces receiving paint must be thoroughly dry before paint is applied.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

1. Notify the Architect about anticipated problems using the materials specified over substrates primed by others.

3.2 PREPARATION

A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted, or provide surface-applied protection prior to surface preparation and painting. Remove these items, if necessary, to completely paint the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.

B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease prior to cleaning. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

C. Surface Preparation: Clean and prepare surfaces to be painted according to the manufacturer's instructions for each particular substrate condition and as specified.

3.3 APPLICATION

A. General: Apply paint according to manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

3.4 EXTERIOR PAINT SCHEDULE

- A. General: Provide the following paint systems for the various substrates indicated.
- B. Exterior Stucco - Provide Elastomeric Coating (A5 Series) by Sherwin Williams or equal as per manufacturer recommendation.
1. Lusterless (Flat) Acrylic Finish: Two coats with total dry film thickness not less than 2.5 mils.
 - a. First and Second Coats: Exterior acrylic emulsion.
 2. Concrete Floor Sealer - follow manufacturers printed preparation and application instructions.
 - a. Sherwin Williams (B90 Series) ArmorSeal Floor Coatings @ Mechanical Room (109)& Apparatus Bay (114) or equal.
- C. Concrete Masonry Units:
1. Semi-gloss Acrylic Finish: Two coats over block filler with total dry film thickness not less than 2.5 mils, excluding the block filler.
 - a. Block Filler: High-performance, latex block filler.
 - 1) Provide Loxon Exterior Acrylic Masonry Primer by Sherwin Williams or equal.
 - b. First and Second Coats: Exterior acrylic emulsion
- D. Ferrous Metal: Primer is not required on shop-primed items.
1. Full-Gloss Alkyd Enamel: Two finish coats over primer.
 - a. Primer: Synthetic rust-inhibiting primer) Moore: Ironclad Retardo Rust-Inhibitive Paint #163.
 - b. First and Second Coats: Gloss alkyd enamel.
 - 1) Moore: Impervo High-Gloss Enamel #133.
- E. Galvanized Metal:
1. Galvanized Metal Primers:
 - a. Moore: Ironclad Galvanized Metal Latex Primer #155.
 2. First and Second Coats: Gloss alkyd enamel: Weather-resistant, high-gloss enamel.
 - a. Moore: Impervo High-Gloss Enamel #133.

3.5 INTERIOR PAINT SCHEDULE

- A. General: Provide the following paint systems for the various substrates, as indicated.
- B. Concrete and Masonry (other than concrete masonry units):
1. Semigloss Latex Finish: Three coats with total dry film thickness not less than 3.5 mils by Sherwin Williams or equal.
 - a. Undercoat: Interior enamel undercoat:
 - 1) Provide Loxon block surfacer (A24W200) by Sherwin Williams for interior cmu walls or equal.
 - b. Finish Coat: Interior, semigloss, odorless, Latex.
 - 1) By Sherwin Williams or equal.
- C. Concrete Masonry Units:
1. Semigloss, Latex Finish: Two coats over filled surface with total dry film thickness not less than 3.5 mils, excluding filler coat.
 - a. Block Filler: High-performance latex block filler.
 - 1) Provide Loxon Exterior Acrylic Masonry Primer by Sherwin Williams or equal.
 - b. Undercoat: Interior enamel undercoat.

1) Moore: Moore's Alkyd Enamel Underbody #217.

c. Finish Coat: Interior, semigloss, Latex)

1) Sherwin Williams or equal. Color to be selected by Architect.

D. Gypsum Drywall Systems and Plaster:

1. Odorless Semigloss Latex Finish: Three coats with total dry film thickness not less than 2.5 mils.

a. Primer: White, interior, latex-based primer.

1) Moore: Moore's Latex Quick-Dry Prime Seal #201 or equal.

b. First and Second Coats: Interior, semigloss, Latex

1) By Sherwin Williams or equal.

E. Woodwork and Hardboard:

1. Semigloss Enamel Finish: Three coats.

a. Undercoat: Interior enamel undercoat.

1) Moore: Moore's Alkyd Enamel Underbody #217.

b. First and Second Coats: Interior, semigloss, odorless, alkyd enamel.

1) Moore: Moore's Satin Impervo Enamel #235.

F. Stained Woodwork:

1. Stained-Varnish Rubbed Finish: Three finish coats over stain plus filler on open-grain wood. Wipe filler before applying first varnish coat.

a. Stain Coat: Oil-type interior wood stain.

1) Moore: 241 Moore's Interior Wood Finishes Penetrating Stain.

b. First Coat: Cut shellac.

1) Moore: 413 Moore's Interior Wood Finishes Quick-Dry Sanding Sealer.

G. Ferrous Metal:

1. Semi-gloss Enamel Finish: Two finish coats over primer with total dry film thickness not less than 2.5 mils.

a. Primer: Synthetic, quick-drying, rust-inhibiting primer.

1) Moore: Ironclad Retardo Rust-Inhibitive Paint #163.

2. Semigloss Enamel Finish: Two coats over primer with total dry film thickness not less than 2.5 mils.

a. Primer: Synthetic, quick-drying, rust-inhibiting

1) Moore: Ironclad Retardo Rust-Inhibitive Paint #163.

b. Undercoat: Interior enamel undercoat) Moore: Moore's Alkyd Enamel Underbody #217.

c. Finish Coat: Interior, semigloss, odorless, alkyd enamel.

1) Moore: Moore's Satin Impervo Enamel #235.

H. Concrete Sealer - All interior finished spaces, parking decks are not included.

1. Sherwin Williams.

2. Thoro Company.

3. Cornado.

4. Huls America, Inc. CHEM-Trete.

5. Tnemec Company.

10 SPECIALTIES

10400 IDENTIFYING DEVICES & EXTERIOR LETTERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Identifying Devices required for this work includes Room Signs & Exterior Letters.
- B. Provide all labor, materials, accessories and incidentals necessary for a complete installation. Locate all items where indicated by Architect.

1.2 QUALITY ASSURANCE

- A. For installation use only personnel who are skilled in the work required.

1.3 SUBMITTALS

- A. Shop drawings and manufacturer's data are required for work in this Section.
- B. Submit color selection charts where required. Unless otherwise indicated, all required color selections shall be made by the Architect from manufacturer's standard range of available colors.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver in manufacturer's unopened, undamaged packages with manufacturer's labels and content description intact and legible.
- B. Storage and handling until installation to be in undamaged, original packages.
- C. Remove protective covers at final clean-up.

1.5 JOB CONDITIONS

- A. Install these items after finish work is complete or substantially approved by the Architect.

1.6 GUARANTEE

- A. Provide manufacturer's standard warranty for each scheduled item.

PART 2 - PRODUCTS

2.1 ROOM SIGNS (MANUFACTURER "SOUTHWELL" OR EQUAL)

- A. Graphics: Interior spaces shall be identified with the following spaces named on individual sign: (The Owner reserves the right to change the wording of room names listed below.)

EXTERIOR GRADE SIGNAGE:

WOMEN'S RESTROOM	(1 REQ. - Letters & Symbol)
MEN'S RESTROOM	(1 REQ. - Letters & Symbol)
MAINTANCE CLOSET	(1 REQ.)
MECHANICAL ROOM	(1 REQ.)

2.2 MATERIALS: EXTERIOR GRADE

- A. Type: Engraved laminated plastic single faced.
Size: 3 inches high by required length for letters. (10 inches minimum.) for rooms and 6" wide X 8" high for restrooms.
Letter Style: Helvetica Regular (3/4" high).
Color: Blue with white letters.
Mounting: Adhesive.

2.3 HANDICAP IDENTIFICATION

A. Character Proportion: Letters and numbers on signs to have a width-to-width ratio between 3:5 and 1:1 and a stroke width-to-height ratio between 1:5 and 1:10 utilizing and utilizing an upper case "X" for measurement.

B. Tactile Characters and Symbols: Characters, symbols, or pictographs on signs required to be tactile, shall be raised 1/32" minimum. Letters and numbers shall be Helvetica Regular Characters; shall be at least 5/8" high, but should be no higher than 2", and shall be proportioned as noted above.

C. Mounting Height: Tactile signage used for room identification shall be mounted on the wall on the latch side of doors at a height of 60" above the floor and 8" from door frame. Locate on door where no wall space is available.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Inspection:

1. Inspect installed work of other trades and that such work is complete to a point where this work may commence.
2. Verify that installation may be made in accordance with approved shop drawings and manufacturer's instructions.

B. Discrepancies:

1. In the event of discrepancy notify Architect.
2. Do not proceed with installation until discrepancies have been resolved.

3.2 INSTALLATION

A. Install where indicated, anchoring all components firmly in place in complete accordance with approved Shop Drawings and the manufacturer's recommendations.

3.3 ADJUST AND CLEAN

A. Not more than three (3) days prior to final inspection for acceptance, clean and adjust all hardware. Clean all surfaces.

PART 4 - CAST EXTERIOR LETTERS

4.1 MANUFACTURER

A. Cast letters where shown on the drawings shall be those manufactured by The Southwell Co.,

4.1 MATERIALS

- A. Material: Aluminum alloy and surfaced smooth.
Size: 12 inches high.
Style: Garmond H-444
Finish: Baked Enamel
Color: Medium Orange
Mounting: P-8 Projected Mounting\

11 EQUIPMENT

BASEBALL BACKSTOP



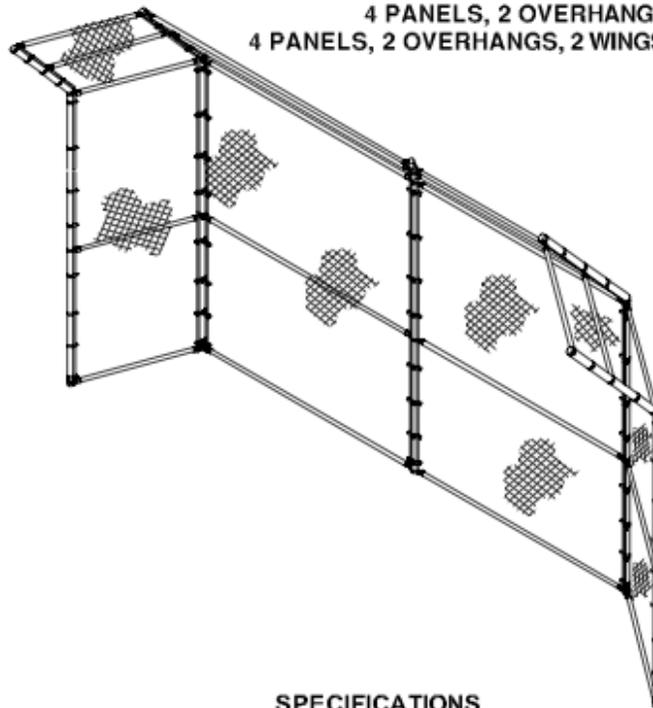
Enriching Childhood Through Play
1-800-235-2440

3012 BACKSTOP

ISSUED/REVISED: 4/24/09

- = INSTALLATION DETAIL
- = PARTS LIST REFERENCE

	3-PANELS, 12' HIGH	3012
	3-PANELS, ONE OVERHANG, 12' HIGH	3112
	3-PANELS, ONE OVERHANG, w/2 WINGS, 12' HIGH	3312
	4 PANELS, 12' HIGH	4120
	4 PANELS, 2 OVERHANGS, 12' HIGH	4122
	4 PANELS, 2 OVERHANGS, 2 WINGS, 12' HIGH	4124



SPECIFICATIONS

UPRIGHT AND UPRIGHT OVERHANG ASSEMBLY: Shall be fabricated of 2 3/8" O.D. standard galvanized pipe. Overhang assembly shall be an all welded construction and shall be in 6'-7" and 6'-1" lengths. Welds are primed and painted with air dry aluminum.

PIPE RAIL: Shall be fabricated of 1 5/8" O.D. galvanized pipe.

TENSION BAR: Shall be fabricated of 1/4" x 3/4" galvanized steel.

RAIL END FITTING: Shall be fabricated of 1 5/8" die-cast aluminum.

BRACE BAND: Shall be fabricated of 7/8" x 12 gauge pressed steel 2 1/2" O.D.

TENSION BAND: Shall be fabricated of 7/8" x 14 gauge pressed steel 2 1/2" O.D.

TIES: Shall be 6 gauge aluminum, 8 1/4" long.

FENCE: Shall be fabricated of 9 gauge 2" mesh galvanized chain link.

HARDWARE: All nuts, bolts, screws, inserts, and lockwashers used in the assembly of all play equipment, shall be stainless steel, yellow dichromate plated steel, blue-coat plated steel, mechanically galvanized or powder coated/yellow dichromate plated steel. All primary fasteners shall be 300 series stainless steel. Fasteners with yellow dichromate treatment have an electro deposited, 99.9% pure zinc substrate applied from a specially formulated solution sealed with a yellow dichromate top coat designed to work in conjunction with the zinc plating. Yellow dichromate has a 320% longer life to white corrosion and 275% longer to red corrosion than does hot-dip galvanizing.

NOTE: All weights are based on average comparisons of each part.

SPECIFICATIONS: GAME TIME® has a policy of continuous improvement and reserves the right to discontinue or change specification without notice.

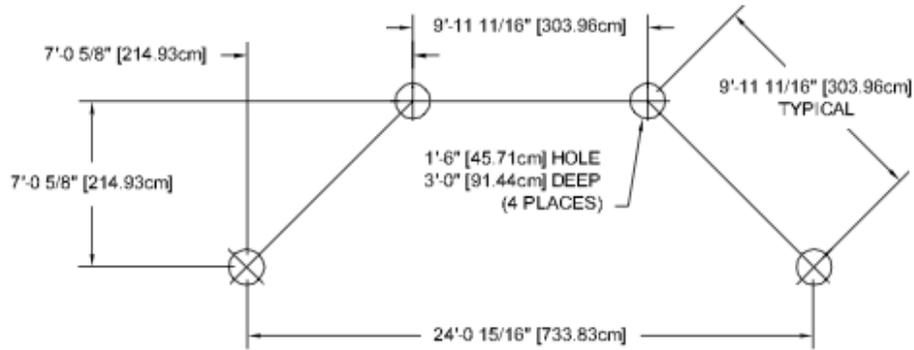


IMPORTANT PRODUCT INFORMATION AND SAFETY WARNINGS



- ❑ All equipment should be installed on a soft, resilient, energy-absorbing ground surface. NEVER INSTALL PLAY EQUIPMENT ON CONCRETE OR ASPHALT. A fall on a hard surface can result in serious injury to the equipment user.
- ❑ ALWAYS FOLLOW INSTALLATION INSTRUCTIONS WHEN ERECTING EQUIPMENT.
- ❑ Worn surfaces around equipment should be restored. Concrete footings should never be exposed. Surface depth should comply with installation instructions.
- ❑ Equipment should be placed to eliminate conflicting traffic patterns.
- ❑ All protruding nuts and bolts should be covered; sharp edges on pipes should be capped or removed. Check for bent, broken or severely worn pipe and replace.
- ❑ Test overall stability and rigidity of all play equipment. Check for proper assembly, installation and ground anchoring.
- ❑ Check for and repair damage caused by wear or vandalism, a major factor in injury-causing situations.
- ❑ GAMETIME® PROVIDES ITS CUSTOMERS WITH COMPLETE SPECIFICATION SHEETS AND INSTALLATION INSTRUCTIONS. THE SPECIFICATION SHEET CONTAINS THE LISTING OF EVERY PART USED IN A PIECE OF EQUIPMENT AND SHOULD BE KEPT IN THE CUSTOMER'S FILES FOR ACCURATE REFERENCE WHEN REPLACEMENT PARTS ARE NEEDED.
- ❑ Never add components not intended for use with this product.
- ❑ Regular maintenance is necessary on this and all park and recreational equipment to ensure the safety of the user.
- ❑ Proper maintenance of GAMETIME® equipment requires regular tightening of all bolts, nuts, and set screws.

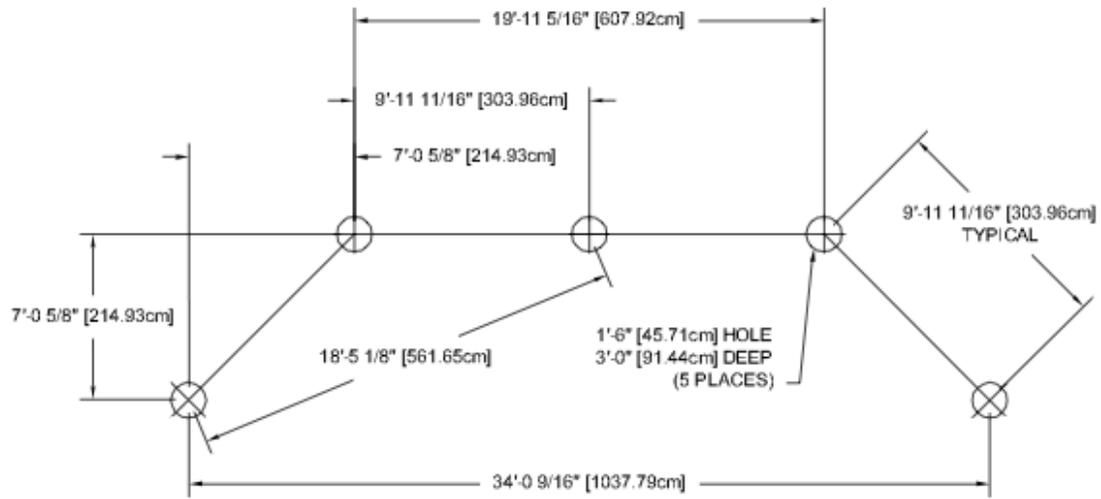
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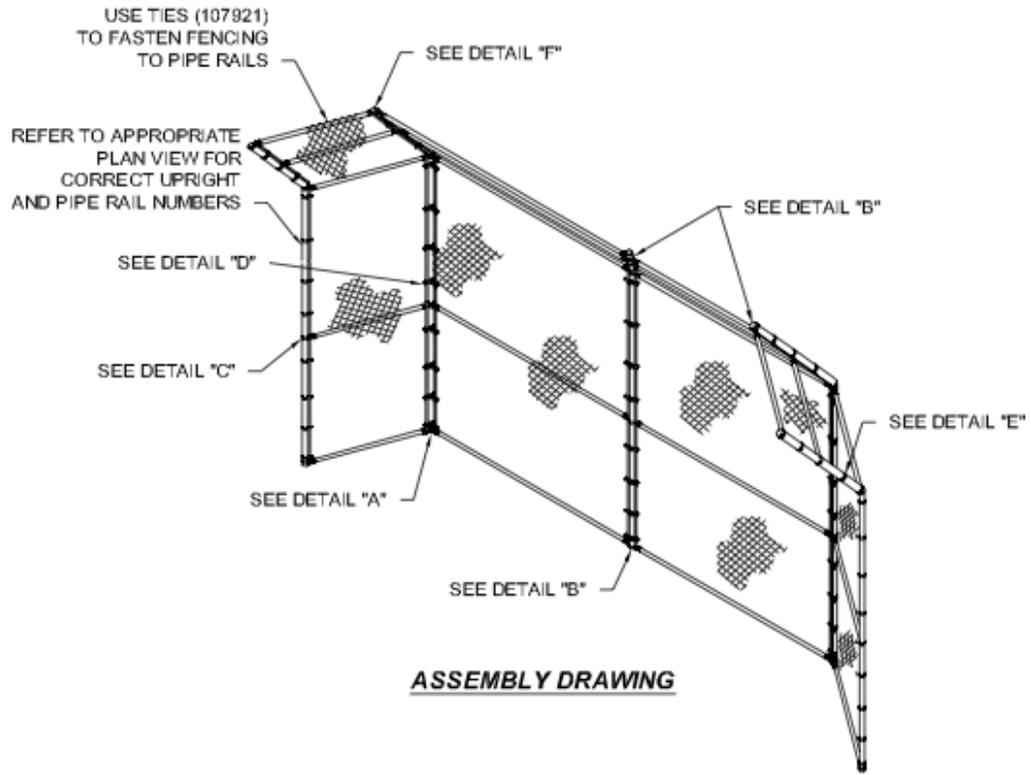
GROUND PLAN
3012, 3112, 3312

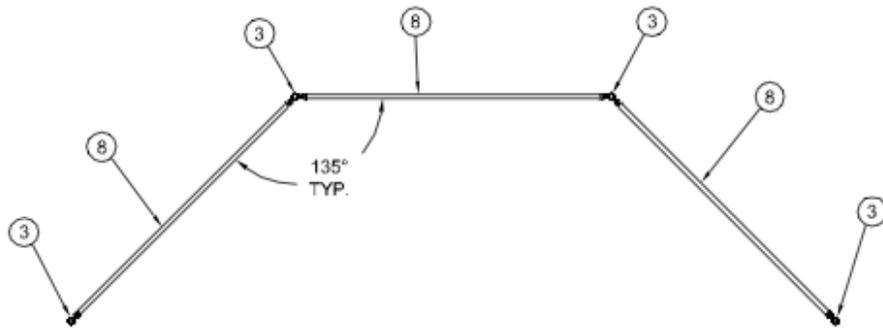
NOTES:

- CONCRETE REQUIRED (PERMANENT INSTALLATION)
.68 CUBIC YARDS [.52 CUBIC METERS]
- HOLE DEPTHS INDICATED ON ALL GROUND PLANS ARE MEASURED FROM THE FINISHED SURFACE. ALL FOOTING DIMENSIONS ARE BASED ON LEVEL FINISHED SURFACE.

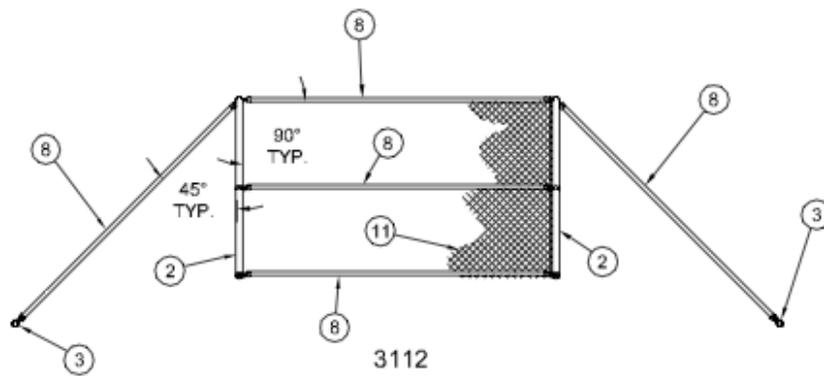


GROUND PLAN
4120, 4122, 4124

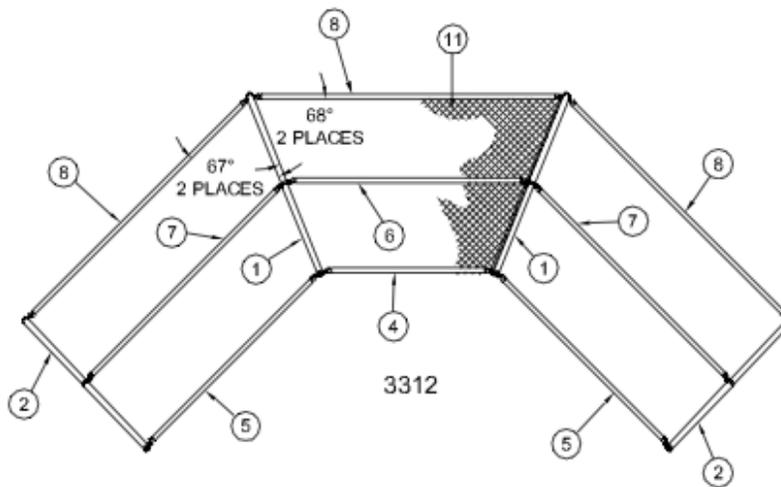




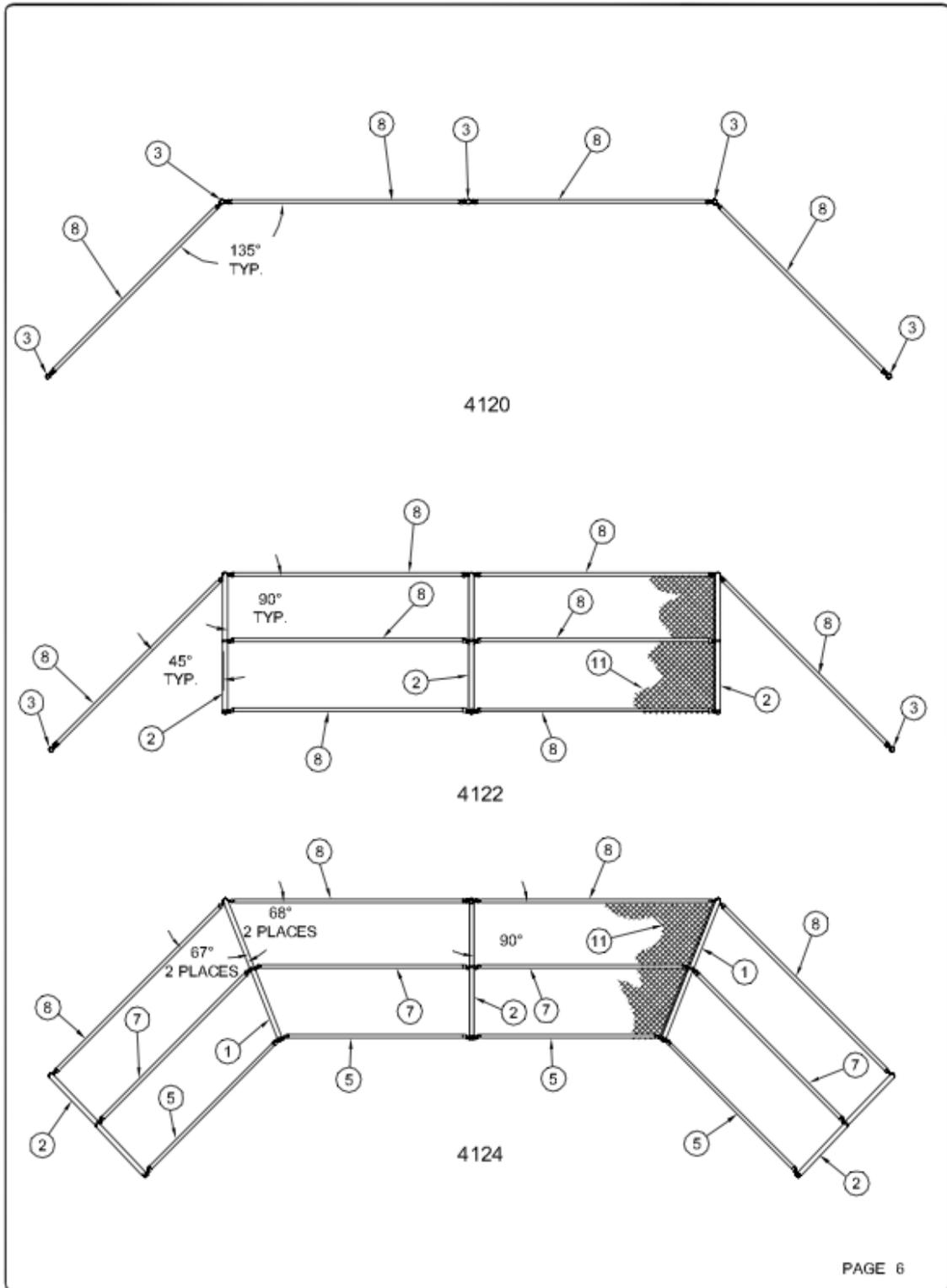
3012

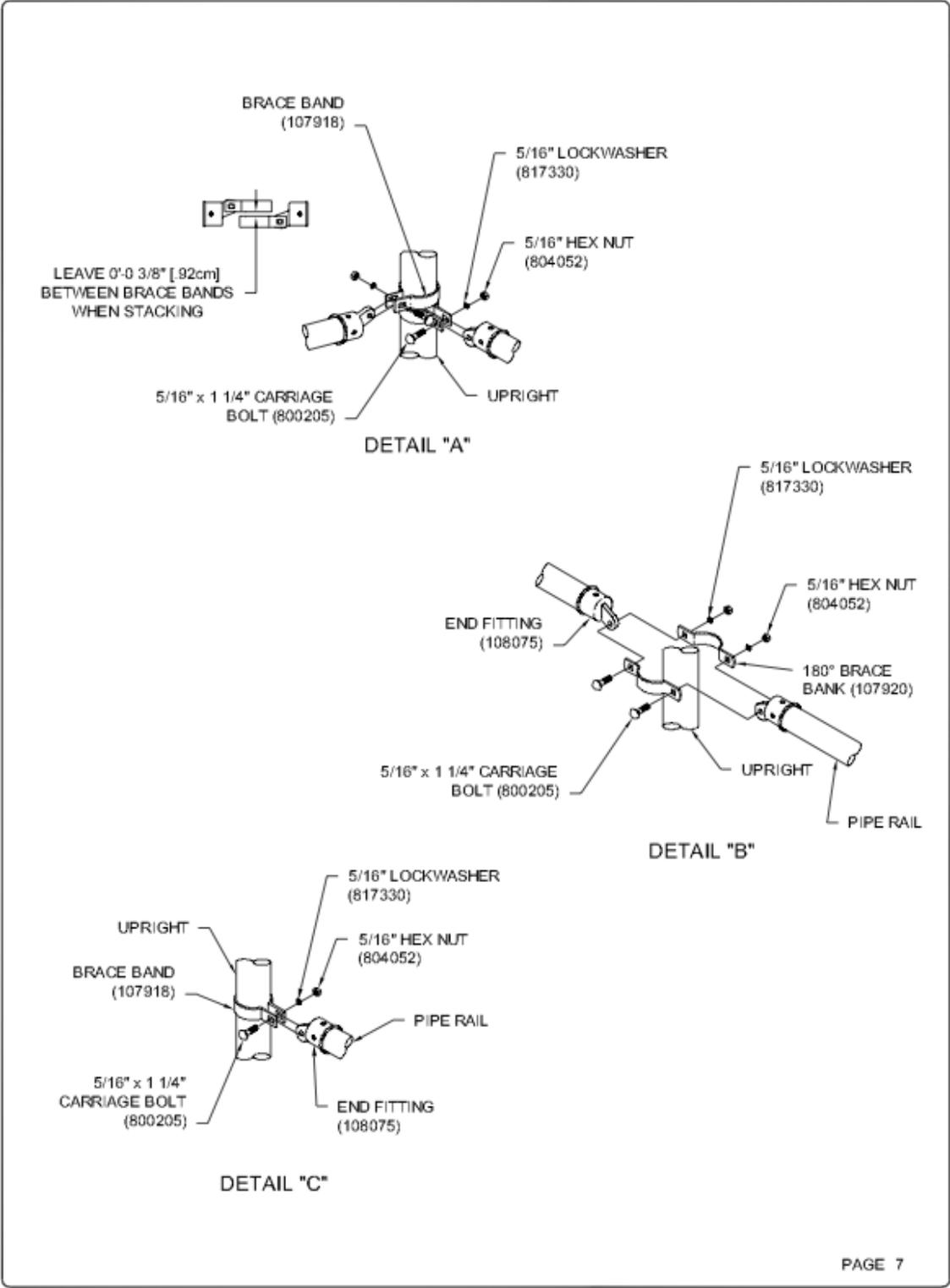


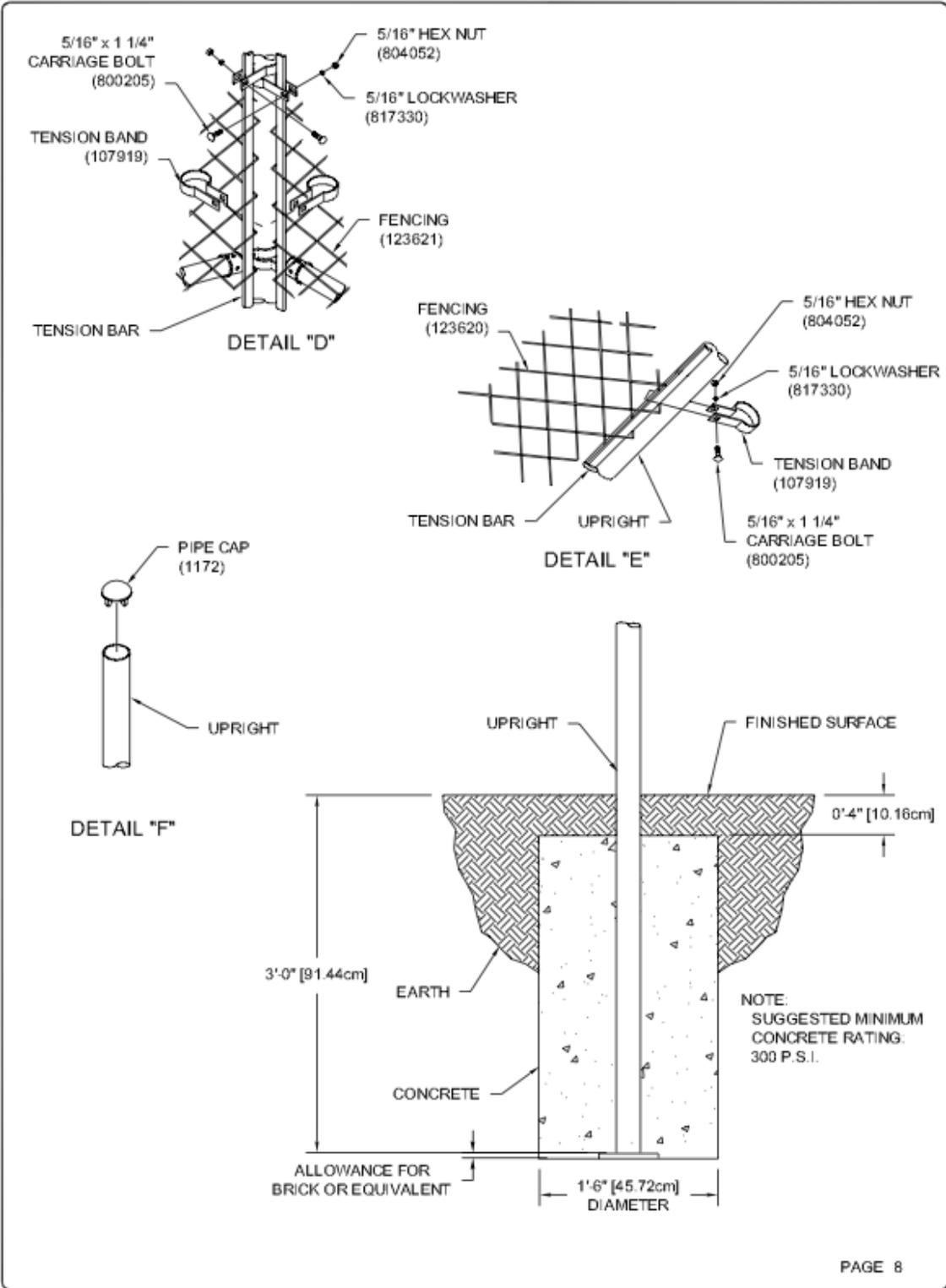
3112



3312







SET UP INSTRUCTIONS

NOTE: This Specification Booklet Should Be Kept in Customers File For Future Reference.

NOTE: Do not over tighten bolts. To over tighten may cause buckling or dimpling of some parts.

NOTE: Read installation instructions thoroughly before starting assembly.

NOTE: Do not tighten any nuts, bolts, rods, etc. until the unit is completely assembled.

NOTE: Assembly and leveling time will be greatly reduced if a transit is used to set location and depth of ground holes.

Step 1: Dig required footing holes as per footing Detail and Ground Plan.

Step 2: Establish grade so that the upright posts will all be level at the top. Place a brick or equivalent in the center of each hole. This should be allowed for in hole depth. See Footing Detail.

Step 3: Drive caps into upper ends of uprights (see Detail "F"). Assemble 1 5/8" O.D. pipe rails to uprights with rail end fittings and brace bands (see Details "A", "B", and "C"). Refer to appropriate Plan View for upright and pipe rail numbers. Tighten 3/8" set screws in rail end fittings when assembling pipe rails (set screws are to aid in assembly only).

NOTE: Place fence on the playing field side of the framework, and bolt ends and wire tie ends on the spectator side.

Step 4: Separate fence into 10'-0" widths by opening one strand from each end and twist cut from the weave. Thread tension bar in to the ends of the fence and secure to the uprights with tension bands (see Details "D" and "E"). Tension bands should be approximately 18" apart. When stretching the fence it may be necessary to remove one or more strands of fabric to achieve the proper tension. The fence should be quite tight. Fasten the fence to the 1 5/8" O.D. rails using the aluminum wire ties placed approximately 12" apart. An angle cut of the fence is required on the overhang for SF-244 and SF-247 backstops. See Plan View. Place assembled frame and wire in the holes and brace with 2 x 4's. Make sure uprights and cross bracing are plumb and level.

Step 5: Pour concrete to within 4" of finish surface. Allow 48 hours minimum for concrete to harden.

Note: Loctite (supplied by others) should be used on all threaded hardware.

PARTS LIST

REF NO	DESCRIPTION	NUMBER REQUIRED						PART NUMBER
		3012	3112	3312	4120	4122	4124	
1	Upright Overhang Ass'y (6'-7"/200.7)	0	0	2	0	0	2	107901
2	Upright Overhang Ass'y (6'-1"/185.4)	0	2	2	0	3	3	107902
3	Upright (15' Lg./457.2)	4	2	0	5	2	0	107903
4	Pipe Rail (5'-3/4" Lg./154.3)	0	0	1	0	0	0	107904
5	Pipe Rail (7'-3" Lg./221.0)	0	0	2	0	0	4	107905
6	Pipe Rail (7'-3 3/4" Lg./222.9)	0	0	1	0	0	0	107906
7	Pipe Rail (8'-4 3/4" Lg./255.9)	0	0	2	0	0	4	107907
8	Pipe Rail (9'-5 3/4" Lg./288.9)	9	11	9	12	16	12	107908
9	Tension Bar (6' Lg./182.9)	12	14	18	16	20	24	107909
10	9 Gauge Fence (12/365.8 High, 10/304.8 Lg.)	3	3	3	4	4	4	123621
11	9 Gauge Fence (8/182.9 High, 10/304.8 Lg.)	0	1	3	0	2	4	123620
	Hardware Complete	1	0	0	0	0	0	107922
	Hardware Complete	0	1	0	0	0	0	107923
	Hardware Complete	0	0	1	0	0	0	107924
	Hardware Complete	0	0	0	1	0	0	107925
	Hardware Complete	0	0	0	0	1	0	107926
	Hardware Complete	0	0	0	0	0	1	107927
	Rail End Fitting	18	22	30	24	32	40	108075*
	2 1/2" Brace Band	18	22	22	18	22	22	107918*
	2 1/2" Tension Band	48	58	78	64	84	104	107919*
	2 1/2" (180") Brace Band	0	0	4	6	10	18	107920*
	Pipe Cap	4	4	4	5	5	5	1172*
	5/16" X 1 1/4" Carriage Bolt	66	80	138	80	116	144	800205*
	5/16" Lockwasher	66	80	138	88	116	144	817330*
	5/16" Hex Nut	66	80	138	88	116	144	804052*
	Ties	99	121	165	132	176	220	107921*
	3/8" x 3/8" Set Screw	36	44	60	48	64	80	811549*

*Unless Otherwise Specified, All Units of Measure are Each
* Included in Hardware*

**Warning: During Installation, Hardware And Small Parts Are Choking Hazards
For Young Children. Store Unused Parts Appropriately Until Assembly Is Completed.
Once Assembly Is Completed, Remove Any Unused Parts From The Play Environment
And Dispose/Save Them In A Secure Location.**