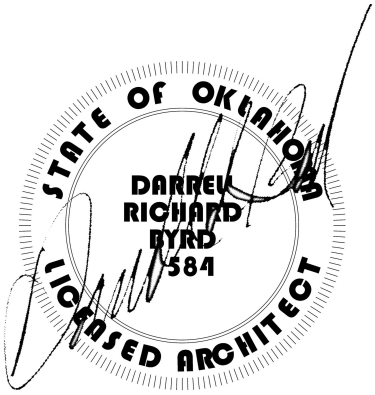
OAK GROVE FIRE DISTRICT PROJECT – 2016

OWNER: Oak Grove Fire District
395 S. 273rd E. Ave.
P.O. Box 430
Catoosa, Oklahoma 74015

PROJECT LOCATION: Oak Grove Road and East 51st St. S.
Wagoner County, Oklahoma 74014

ARCHITECT: PROPERTY ARTS INC.
DARRELL R. BYRD, A.I.A.
3220 West Lansing Street
Broken Arrow, Oklahoma 74012
918-893-5560

ISSUE DATE: March, 2016



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STATE OF OKLAHOMA
DARREL RICHARD BYRD
584
LICENSED ARCHITECT

DIVISION A - BIDDING

SECTION 00100 NOTICE TO BIDDERS:

Please be advised that BOARD OF WAGONER COUNTY COMMISSIONERS solicits sealed bids for the construction of the **Oak Grove Fire District Project - 2016,** Wagoner County, Oklahoma. The construction project will be bid as outlined in the proposal. Sealed bids will be accepted at the Wagoner County Clerk's Office, 307 E. Cherokee, Wagoner, Oklahoma 74467, until **4:00** p.m. **May 13th**, 2016. Bids will then be presented to the Commissioners and opened on **May 16th**, 2016.

Any bids received more than ninety-six (96) hours before the time set for opening of bids (excluding Saturdays, Sundays and holidays), will not be considered and will be returned unopened.

The Information For Bidders, Form of Proposal, Drawings, Specifications and other Contract Documents may be examined at the Wagoner County Clerk's Office.

The Contract and Bidding Documents, including the Drawings and Specifications, may be obtained from the office of the Architect at 3220 West Lansing, Broken Arrow, Oklahoma, for a deposit of Forty Dollars ($40.00) per set. Deposits are NOT refundable. Appointments will be required for the distribution of Document sets (phone 918-893-5560). No partial sets will be distributed. Each Bidder must deposit, with his proposal, security in the amount of five percent (5%) of the base bid as a guarantee of good faith in the form of a Cashier's Check, or acceptable Bidder's Bond payable, without exception, to Wagoner County. Wagoner County reserves the right to reject any or all bids. No bidder may withdraw his bid for a period of thirty (30) days following the date of the bid opening.

The Owner also reserves the right to select the Contractor based on the merits and experience of the Contractor and not just the low bidder.

END OF SECTION

DIVISION A - BIDDING

SECTION 00115 INFORMATION FOR BIDDERS

A one lump sum proposal will be received from each Contractor bidder covering all phases of trades relative to his bid. The proposal shall state all portions of the project covered in his bid, and shall be consistent with the related Construction Documents.

PROPOSAL: Proposals must be authoritatively executed. Proposals carrying riders, alterations of construction time or qualifications that modify the amount of the bid as submitted, will be rejected as irregular. In case of a difference between written words and figures in a proposal, the amount stated in written words shall govern. The bid shall be submitted on the proposal form furnished herein and the bidder shall complete all blanks on the form using an ink pen or other permanent marker. Proposals shall be submitted in a sealed envelope addressed to the Owner (Wagoner County) and plainly showing on the outside of the envelope the name and address of the bidder, the project name and the contents of the envelope. Certified check, cashiers check or Bid Bond as required and acceptable shall accompany each proposal to the Owner in the amount equal to five percent (5%) of the total amount of the proposal submitted. Said security shall be payable without condition to the Owner as a guarantee that the bidder, if awarded the contract, will enter into a contract agreement in accordance with the specified requirements and within ten days of notification of award. Securities will be returned to unsuccessful bidders upon awarding the project to others, and to the successful bidder upon execution of the Contract.

BONDS:

A. Bid Bonds: As required in the NOTICE TO BIDDERS.

B. Performance Bonds: To insure the proper and prompt completion of the work in accordance with the provisions of the Contract and bidding Documents; bond to be in a sum equal to the Contract price as bid.

C. Statutory Bond: To assure payment of all obligations for materials or labor arising under the construction contract, in a sum equal to the contract price as bid.

D. One Year Maintenance Bond: To protect against defective workmanship and materials for a period of one (1) year after the acceptance of the project; bond to be in a sum equal to the contract price.

E. In lieu of bonds, and for contracts less than $100,000, Contractor may furnish a Performance Irrevocable Letter of Credit, a Payment Irrevocable Letter of Credit, and a Warranty Irrevocable Letter of Credit. For contracts not exceeding $25,000, Contractor may furnish an Affidavit of the Payment of All Indebtedness by said Contractor and his Credit.

F. Public Liability and Worker's Compensation Insurance: Coverage is to be in amounts reasonably satisfactory to the Owner, with certificates of coverage being provided to the Owner naming the Owner additional insured thereunder.

1. Statutory workmen's compensation as required by the Labor Laws of the State of Oklahoma.
2. Comprehensive General Liability $1,000,000/each person and $1,000,000/each occurrence, with completed operations coverage.
3. Property damage $1,000,000/each occurrence and $1,000,000 aggregate.
4. Contractor's protective liability $1,000,000/each person and $1,000,000/each occurrence, including property damage of $2,000,000/each occurrence and $1,000,000 aggregate.

G. Builders Risk Insurance: Coverage is to be in the amount of the final construction amount, with certificates of Coverage being provided to the Owner naming the Owner as additional insured thereunder.

CONDITIONS RELATING TO CONSTRUCTION:

Bidders are required to inform themselves fully of all conditions relating to construction and labor under which the work will be performed. Contractors must employ such methods and means in carrying out the work as will not cause any interruption or interference with any other Contractor, or the use of the existing facilities.

EXAMINATION OF THE PREMISES:

Before submitting proposals for the work, each bidder must examine the premises prior to submitting a proposal, to satisfy himself as to existing conditions under which he will be obligated to operate.

END OF SECTION

DIVISION A – BIDDING

SECTION 00130 BID FORM PROPOSALS

PROPOSAL FOR: Oak Grove Fire District Project - 2016

OWNER: Oak Grove Fire District
395 S. 273rd E. Ave.
P.O. Box 430
Catoosa, Oklahoma 74015

ARCHITECT: Property Arts Inc.
Darrell R. Byrd, A.I.A.
3220 W. Lansing St.
Broken Arrow, Oklahoma 74012
918-893-5560

BIDDER: _____
(Company Name)

_____
(Address)

_____
(City, State)

_____
(Type of Entity)

NOTE: Give the full name and address of every bidder, if partnership, full name and address of every partner. Give legal name if a corporation and State in which incorporated, together with name and address of President and Treasurer.

The bidder named above hereby tenders his bid and declares that the only person or persons interested in this proposal is or are named above, that the bid is made without collusion with any other bidder and is in all respects without collusion or fraud. The bidder further declares he has examined the annexed form of contract and bond, the specifications and the contract drawings herein referred to, and has read the "NOTICE TO BIDDERS AND INFORMATION FOR BIDDERS" hereto attached; and that all necessary and proper machinery, equipment, facilities and means to do all the work and furnish all the materials necessary or proper to carry out such

contract in the manner, on the terms, and under the conditions set forth therein and in the specifications, and to accept in full payment therefore the following sums, to-wit:
Bidder understands the urgency of completing the project as quickly as possible. With this understanding, Bidder proposes to complete the work in _____ calendar days from receipt of a formal notice to proceed. Single general bid shall be for the following: Furnish labor and materials to complete the **Oak Grove Fire District Project - 2016**, Wagoner County, Oklahoma, as shown on drawings and specifications. Bidder agrees to perform this work for the sum of:

BASE BID: NEW FIRE STATION BUILDING AND ASSOCIATED SITEWORK

_____Dollars
(Written)
($_____)
(Figures)

ADDENDA:

The undersigned acknowledges receipt of the following Addenda.
(Give number and date of each):

_____

_____

_____

NOTE: If an individual makes the bid, it shall be signed with his usual business signature, with his business address and place of residence; if by a firm, co-partnership name shall be signed by a member of the firm and the name and address of each member shall be given; if by a corporation, it shall be signed by a duly authorized officer, with the corporate name attested by the corporate seal, and the business address of the corporation shall be given.

_____ _____
Bidder Signature and title Date
Seal: (If bid is by a Corporation)

By: _____

END OF SECTION

DIVISION A – BIDDING

SECTIONS 00140 AFFIDAVIT OF NON-COLLUSION

(To Accompany Bid Proposal)

STATE OF: _____)
) SS.
COUNTY OF:_____)

_____, of lawful age, being first duly sworn, on oath says that (s) he is the agency authorized by the bidder to submit the attached bid. Affiant further states that the bidder has not been a party to any collusion among bidders in restraint of freedom of competition by quantity, quality, or price in the prospective contract or any other terms of said prospective contract; or in any discussions between bidders and any state official concerning exchange of money or other things of value for special consideration in the letting of a contract.

_____
Agent Authorized by Bidder

_____
Complete Legal Name of Bidder

Subscribed and sworn to before me this _____ day of _____, 201_.

_____
Notary Public (SEAL)

My Commission Expires: _____
Date

END OF SECTION

DIVISION A – BIDDING

SECTION 00150 BUSINESS RELATIONSHIPS AFFIDAVIT

(To accompany Bid Proposal)

STATE OF: _____)
) SS.
COUNTY OF:_____)

_____, of lawful age, being first duly sworn, on oath says that (s) he is the agent authorized by the bidder to submit the attached bid. Affiant further states that the nature of any partnership, joint venture, or other business relationship presently in effect or which existed within one (1) year prior to the date of this statement with the architect, engineer, or other party to the project is as follows:

_____

_____

_____

Affiant further states that any such business relationship presently in effect or which existed within one (1) year prior to the date of this statement between any officer or director of the bidding company and any officer or director of the architectural or engineering firm or other party to the project is as follows:

_____

_____

_____

If none of the business relationships herein mentioned exist, affiant should so state.)

_____
Agent Authorized by Bidder

_____
Complete Legal Name of Bidder

SUBSCRIBED AND SWORN to before me this _____ day of_____, 201__.

_____
Notary Public (Seal)

My Commission Expires: _____
(Date)

END OF SECTION

DIVISION A – BIDDING

SECTION 00160 AFFIDAVITS OF BIDDER

(To Accompany Bid Form)

STATE OF: _____)
) SS.
COUNTY OF:_____)

_____, of lawful age, being first duly sworn, on oath says that (s) he is the agent authorized by the bidder to submit the attached bid.

_____
Agent Authorized by Bidder

_____
Complete Legal Name of Bidder

Subscribed and sworn to before me this _____ day of _____, 201_.

_____
Notary Public (Seal)

My Commission Expires: _____
(Date)

END OF SECTION

DIVISION B – CONTRACT FORMS

SECTION 00210 CONTRACT AGREEMENT FORM

1.01 CONTRACT AGREEMENT FORM

American Institute of Architects Document A101, Standard Form of Agreement Between Owner and Contractor where the Basis of Payment is a Stipulated Sum, 2007 Edition shall be the basis of Agreement for this Project. Reference copies are on file and may be examined by any interested party at the Office of the Architect during normal business hours.

END OF SECTION

DIVISION B – CONTRACT FORMS

SECTION 00220 CONTRACT AFFIDAVIT OF NON PAYMENT FOR PROCUREMENT OF CONTRACT

STATE OF: _____)
) SS.
COUNTY OF:_____)

_____, of lawful age, being first duly sworn, on oath says that (s) he is the agent authorized by Contractor to submit the attached contract to the State of Oklahoma. Affiant further states that Contractor has not paid, given or donated or agreed to pay, give or donate to any officer or employee of the State of Oklahoma any money or other thing of value, either directly or indirectly, in the procuring of the Contract.

_____

Subscribed and sworn to before me this _____ day of _____, 201_.

_____
Notary Public (Seal)

My Commission Expires: _____
(Date)

END OF SECTION

DIVISION B – CONTRACT FORMS

SECTION 00230 INVOICE AFFIDAVIT

State of _____ P.O. No. _____
ss.
County of _____ Invoice No. _____

Project: _____ Amount _____

The undersigned Contractor, of lawful age, being duly sworn, an oath affirms that this invoice is true and correct and that (s) he is authorized to submit the invoice pursuant to the approved Contract. Affiant further states that the Work as shown by the invoice has been completed in accordance with the Contract Documents. Affiant further states that (s) he has made no payment, given or donated or agreed to pay, give or donate, either directly or indirectly, to any elected or appointed government or school district official or employee or representative, money or any other thing of value to obtain payment of the invoice or procure award of this Contract pursuant to which the invoice is submitted.

_____
Company Name

_____
By

_____
Title

Subscribed and sworn to before this _____ day of _____, 201__.

_____

Notary Public
My Commission Expires: _____

This form must be completed and submitted before any invoice can be processed for payment.

END OF SECTION

DIVISION B – CONTRACT FORMS

SECTIONS 00240 BOND REQUIREMENTS

1.01 BONDS REQUIRED

A. Performance Bond shall be written in the amount required in the Supplements to the A.I.A. General Conditions. The form of this bond shall be A.I.A. Document A311, Performance Bond, February 1970 Edition. Submit three (3) fully executed copies.

B. Labor and Material Payment (Statutory) Bond shall be written in the amount required in the Supplements to the A.I.A. General Conditions. The form of this bond shall be A.I.A. Document A311, Labor and Material Payment Bond, February 1970 Edition. Submit three (3) fully executed copies.

C. Defect Bond shall be written in the amount required in the Supplements to the A.I.A. General Conditions. The form of this bond is attached to this section. Submit three (3) fully executed copies.

1.02 POWER OF ATTORNEY

A. All bonds shall have an original copy of the Power of Attorney attached thereto upon submittal.

1.03 ADDRESSES REQUIRED

A. All Bonds shall clearly indicate the home office address and telephone number of the Surety as well as the address and telephone number of their Agent and their Attorney with Power of Attorney.

1.04 FINANCIAL STRENGTH OF SURETY COMPANY

A. Surety Company shall be subject to the Owners approval for financing rating and resources. The minimum requirements for the Surety Company shall be:
   1. A.M. Best of A- or better; or
   2. Listed in the Federal Registry, Department Circular 570, And Current Edition.

B. Submit affidavit of compliance with Bonds.

END OF SECTION

DIVISION B – CONTRACT FORMS

SECTION 00244 INSURANCE REQUIREMENTS

1.01 GENERAL

The Contractor shall purchase and maintain insurance as required in the Standard Form of Agreement Between Owner and Contractor where the Basis of Payment is a Stipulated Sum, 1997 Edition, AIA Document A101 and the General Condition of the Contract for Construction, 1997 Edition, AIA Document A201 as modified in Section 00300, AIA General Conditions and Supplements to the AIA General Conditions, Article 11.

A. All of the above documents shall be thoroughly studied prior to purchases of an insurance policy to cover the Project.

B. While not limited to the following requirements, the requirements listed below are brought to the Contractors Specific attention.
   1. Both the Owner and the Architect shall be named as additional insured on the Commercial General Liability Policy.
   2. Waivers of Subrogation are required for both Property Insurance and for Liability Insurance.

1.02 ADDITIONAL LIABILITY INSURANCE REQUIREMENTS

A. In addition to the liability insurance requirements noted in Paragraph 1.01 above, the following requirements also apply:

B. The Contractor shall purchase and maintain a Commercial General Liability Policy which shall include the following coverage areas:
   1. Operations of the Contractor-direct liability coverage for the Contractors activities at a permanent location and the Project Site;
   2. Operations of Subcontractors-Liability coverage for those entities for which the Contractor has a duty to supervise and stand legally responsible for their conduct;
   3. Completed Operations-Liability for property damage and bodily injury and death that occurs after Substantial Completion;
   4. Personal Injury- Including but not limited to, libel, slander, defamation of character, wrongful evection, right of private occupancy, false arrest and detention and other similar personal injuries;
   5. Employees as Additional Insured- Include employees and their acts into the coverage;

6. Explosion, Collapse, Underground-Liability coverage for the property of others to include, but not limited to, unknown utilities; and
7. Contractual Liability coverage for the assumption of others by Contract.

C. The Commercial General Liability Policy shall name the Owner and the Architects, their agents and employees, and the Architect's Consultants as additional insured.

D. The Contractor shall purchase and maintain Workers Compensation and Employees Liability Insurance.

E. The Contractor shall purchase and maintain commercial Automobile Liability Insurance. This policy shall cover Owned, Non-owned and Hired vehicles.

F. The Contractor shall purchase and maintain Umbrella Liability Coverage to provide higher limits of liability above those required for General Liability, Employers Liability and Automobile Liability.

G. The Umbrella Liability Policy shall name the Owner and Architect, their agents and employees, and the Architect's Consultants as additional insured.

H. Liability limits shall be as specified herein or the maximum exposure as stated in the Government Tort Claims Acts as most recently amended, whichever is higher.

I. The minimum amount of coverage and the limits of liability shall be as specified below:
    1. Claims under workers' or workmens' compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed:
        a. As required by law.
    2. Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees:
        a. $1,000,000.00
    3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees:
        a. $500,000.00
    4. Claims for damages insured by usual personal injury liability coverage which are sustained (1) by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor, or (2) by another person:
        a. $1,000,000.00
    5. Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom:
        a. $500,000.00

6. Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle:
    a. $ 1,000,000.00
7. Claims involving contractual liability insurance applicable to the Contractor's obligations under Paragraph 3.18 of the General Conditions for the Contractor for Construction as modified:
    a. $ 500,000.00

1.03 ADDITIONAL PROPERTY INSURANCE REQUIREMENTS

In addition to the property insurance requirements noted in Paragraph 1.01 above, the following requirements also apply:

A. The Contractor shall purchase and maintain property Insurance (BUILDERS RISK).

1.04 LOSS OF USE INSURANCE

The Owner, at the Owner's option, may purchase and maintain such insurance that will protect the Owner against the loss of use of his property.

END OF SECTION

DIVISION B - CONTRACT FORMS

SECTION 00250 SALES TAX AGENCY AGREEMENT

This is an Agency Agreement made and entered into as of the _____ day of _____, 201_, between _____ of_____ COUNTY, OKLAHOMA, a political subdivision of the State of Oklahoma (hereinafter referred to as "Owner"), and _____ (hereinafter referred to as "Contractor")

RECITALS:

1. Owner has solicited bids for the construction of _____ the "Project") in _____, _____ County, Oklahoma; and such facilities as are necessary and appropriate for the operation thereof; which Project, on or before completion shall be owned by the Owner.

2. Contractor has been awarded the contract for the construction of the Project.

3. Owner desires to purchase all materials, supplies and equipment for the Project in its own name and to take immediate title to all materials, supplies and equipment, and to have Contractor, as general contractor for the Project, perform portions of such purchasing duties.

NOW THEREFORE, in consideration of the premises and in order to constitute and appoint Contractor as agent of Owner for the purchase of equipment and materials for the Project, IT IS AGREED AS FOLLOWS:

1. Owner, as Principal, hereby constitutes and appoints Contractor as Owner's agent, for it and in its name, to acquire materials and equipment for use in constructing the Project.

2. Title to all materials and equipment purchased by Contractor as agent for Owner will pass directly from the seller thereof to Owner.

3. Contractor acknowledges that it is an agent for Owner and agrees to act as agent for Owner in connection with the acquisition of materials and equipment for the Project in the manner above described.

4. The relationship of principal and agent created by this Agreement shall continue until terminated by either party by notice in writing to the other. The parties hereto agree that all sellers or vendors of materials and equipment for the Project shall be entitled to rely upon the existence of the Agreement until they have received written notice of its revocation.
5. Contractor agrees that it will not purchase any material or equipment pursuant to this Agreement except that authorized and intended for inclusion of the Project.

6. In executing purchase orders for equipment and materials for the Project, Contractor shall include in each purchase order a statement, to be approved as to form by Owner, that Contractor is acting as Owner's agent, individually and without power of redesignation, for the purchase of the equipment and materials covered by the purchase order.

7. All equipment and materials purchased by Contractor under this Agreement shall be delivered to owner at the Project job-site.

8. Only equipment and materials to be incorporated in the Project shall be purchased by Contractor as Owner's agent under this Agreement and no equipment and materials will be purchased except the items required by the plans and specifications for the Project. Contractor will not purchase, as agent hereunder, any equipment or materials to be used only incidentally in connection with the Project. Nothing contained herein shall alter the obligation and responsibility of Contractor under the contract between Owner and Contractor for the construction of the Project.

9. All reimbursement by Owner to Contractor for materials and equipment purchased by Contractor as Owner's agent hereunder shall be deemed to be a part payment on the Project contract price.

10. Contractor shall not be entitled to any compensation for its services as Owner's agent hereunder.

IN WITNESS WHEREOF, The parties have executed this Agency Agreement as of the date first above written.

OAK GROVE FIRE DISTRICT
OF WAGONER COUNTY, OKLAHOMA

ATTEST:

_____ BY_____

Clerk President

(SEAL)

ATTEST: _____

_____

Construction Company

BY: _____

President

END OF SECTION

DIVISION C – CONDITION OF CONTRACT

SECTION 00300 A.I.A. GENERAL CONDITIONS

THESE DOCUMENTS, DRAWINGS AND SPECIFICATIONS AND ALL INFORMATION CONTAINED THEREIN, ARE INSTRUMENTS OF SERVICE AND SHALL REMAIN THE PROPERTY OF THE ARCHITECT. THEY ARE GIVEN FOR USE ONLY IN CONJUNCTION WITH THIS PROJECT AND MAY NOT BE COPIED, REPRODUCED OR USED IN ANY CONTEXT WITHOUT THE WRITTEN CONSENT OF THE ARCHITECT, DARRELL R. BYRD.

THE TERM "CONTRACT DOCUMENTS" AS USED HEREIN SHALL MEAN THE CONSTRUCTION CONTRACT, GENERAL CONDITIONS, GENERALREQUIREMENTS, SUPPLEMENTARY GENERAL CONDITIONS, IF ANY, THE DRAWINGS AND SPECIFICATIONS, INCLUDING ALL MODIFICATIONS THEREOF, INCORPORATED IN THESE DOCUMENTS BEFORE THEIR EXECUTION. THE USE OF ANY ONE OF THESE ITEMS CONSTITUTES THE USE OF ALL, AS EACH IS A PART OF THE DISTRIBUTION OF FULL SETS OF THESE DOCUMENTS TO ALL TRADES AND SUB-CONTRACTORS UNDER THIS PROJECT.

GENERAL CONDITIONS:

General Conditions of this contract shall be A.I.A. document A201 "General Conditions of the Contract for Construction, latest edition", and shall be considered a part of these specifications, in full, as if they were printed here in length.

END OF SECTION

DIVISION 1

SECTION 01010 GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 WORK COVERED BY THE CONTRACT DOCUMENTS

A. Construct new Fire Station building and associated site work.

1.02 THE WORK IS LOCATED AT:

A. Oak Grove Road and East 51st St. S. Wagoner County, Oklahoma 74014

.

1.03 CONDITION OF THE SITE

A. The drawings are intended to indicate with reasonable accuracy the conditions of the site where work is to be completed. It shall be the responsibility of the Contractor to carefully and thoroughly examine the site and fully acquaint himself with all existing conditions.

B. No claim for extra work due to discrepancy between the drawings and the actual conditions at the site will be considered unless the architect is notified in writing five (5) days prior to the bid opening.

1.04 FUTURE WORK

A. Should the Work be designed for future expansion, ensure that the Work does not encroach into the areas shown on the drawings.

1.05 DIMENSIONS

A. Contractor and each subcontractor shall verify dimensions at site for built-in work, and for work adjoining that of other trades and for dimensions shown to existing structures or installations. Notify Architect of any discrepancies.

1.06 POSSESSION, USE AND RESPONSIBILITY FOR SITE:

A. Contractor shall accept the site as he finds it at the timework is to commence. Contractor shall be deemed to have visited the site before placing his bid and have thoroughly acquainted himself with the conditions at said site.

B. After occupying the site, Contractor shall be responsible for the management, care and maintenance of the site. Contractor shall be solely responsible for damage to all existing properties, and shall adjust all claims or suits accruing there from without loss or expense to the Architect or to the Owner.

C. The limits to the construction site shall be as defined by the Owner. Contractor shall confine his activities to the construction site, except as required to traverse adjacent property, to install utility services, relocate services, construct manholes, and to do other work as required by the contract. No work or storage of materials shall be performed off the construction site of the property without the prior notification to and consent of the Owner and Architect.

D. The Contractor shall: Where necessary to excavate, block off, or do other work on or adjacent to existing streets, walks, platforms, entries, exits, and other traffic facilities, Contractor shall provide, maintain and promptly remove as their necessity ceases to exist, suitable and adequate temporary lighting, enclosures, railings, sidewalks, and other items necessary to permit the safe and unimpeded flow of traffic, both vehicular and pedestrian, to and from the building, as approved by the Architect. Keep the building site, and any adjacent areas worked in, free of rubbish at all times. Remove all debris from the premises upon completion of work, as well as all equipment and materials.

1.07 WORK UNDER THIS CONTRACT

A. The work under the Contract between the Owner and Contractor shall include all materials, equipment, labor and construction support facilities necessary to complete the project to the extent indicated on the drawings, described in the specifications, or reasonably inferred there from. Unless specifically noted otherwise, all systems shall be left fully operational upon completion of the work.

B. The drawings and specifications referred to in the contract documents have been prepared by: PROPERTY ARTS INC, DARRELL R. BYRD, ARCHITECT, 3220 West Lansing Street, Broken Arrow, Oklahoma 74012, (918) 893-5560, Fax (918) 893-5562 and are identified by this:

SPECIFICATIONS FOR THE OAK GROVE FIRE DISTRICT PROJECT, WAGONER COUNTY, OKLAHOMA.

and are further identified by the table of contents appearing at the front of each Specifications Book.

1.08 OPERATION & MAINTENANCE INSTRUCTIONS

A. Instruct Owner's operating personnel in proper operation, lubrication and maintenance of equipment.

B. At job completion, contractor shall provide two (2) copies of a brochure-containing manufacturer's operating, lubricating and maintenance instructions and parts manual for each item of equipment furnished under his contract. Each copy shall be assembled and bound under a substantial hardboard cover with title and index. Provide a complete set of approved manufacturer's and contractor's shop and equipment drawings for major systems and equipment.

1.09 OWNER'S EQUIPMENT

A. Certain items and equipment shown on drawings will be furnished by the Owner and installed by Owner. Such items and equipment are indicated on Drawings and in Specifications as being Not In Contract (NIC).

B. Contractor and each subcontractor shall cooperate with persons installing owner's equipment. Where such equipment adjoins or attaches to work of such subcontractor or Contractor.

1.10 BRAND NAMES

A. All brand names and/or manufacturers names specified herein and/or on the related construction drawings are intended to establish standards of quality, etc., suppliers or manufacturers of equal type and quality products will be considered in all cases.

1.11 CODES AND ORDINANCES

A. Nothing contained in these Specifications or on the Drawings shall be construed as authority for violation by any party to this project of any applicable codes or ordinances in effect at the site. All parties shall comply with all applicable codes and ordinances. Such codes and ordinances shall take full and complete precedence over anything herein contained to the contrary except that where the Specifications or the Drawings call for work or materials of higher standard than those required by codes or ordinances. In such cases, the Specifications and plans shall govern.

B. Inspection Certificates
   1. The Contractor shall at the Notice to proceed, obtain and pay for all permits and fees required by state or local government bodies having jurisdiction. This includes, but not limited to the inspection fees, sewer tap, temporary meter fees and installation of those meters, and other fees pertaining to the construction of this

project but not including utility deposit fees for permanent service. These fees will be paid by the Owner.

2. The Contractor shall upon completion of the work, secure and deliver to the Owner, certificates from any state or local government bodies having jurisdiction indicating that the work is in strict accordance with the applicable codes.

END OF SECTION

SECTION 01015 SPECIAL INSPECTIONS

PART 1 – GENERAL

1.01 SUMMARY

A. Special inspections by regulatory agencies will be required for this Project. It is the responsibility of the Contractor to insure that all required regulatory inspections are properly scheduled whether or not specifically listed in this Section. Refer to Division C- Conditions of the Contract for requirements.

B. Contractor is responsible for the filing and payment of all fees associated with issuance of building permit from WAGONER COUNTY as well as all inspection fees as required by WAGONER COUNTY (485-8123). County initially estimates the building permit costs to be around $477.00 - Bidders are instructed to obtain actual permit and inspection costs from the authority having jurisdiction and include these amounts in their BASE BID building permit and inspections costs.

PART 2- PRODUCTS – NOT USED
PART 3 – EXECUTION

3.01 WAGONER COUNTY INSPECTIONS

A. The Office of Wagoner County shall inspect the Work. Contractor shall schedule each inspection at the appropriate time and shall notify Architect of the date and time of the scheduled inspection. Inspections will be scheduled through the Code Enforcement Office at (918) 485-8123.

B. Contractor shall record all deficiencies noted during the inspection and shall submit a written report to the Architect.

C. The final Completion inspection shall be completed after the status of Substantial Completion is achieved and prior to Owner occupancy of the facility.

END OF SECTION

SECTION 01040 COORDINATION

PART 1 - GENERAL

1.01 ORGANIZATION OF DOCUMENTS:

A. The organization of specifications into divisions, sections, etc., and the distribution of information on drawings does not control or limit the Contractor in dividing the extent of work to be performed by any trade.

1.02 COORDINATION OF WORK:

A. It is not possible to show on a single drawing or specify in a single section all information pertaining to construction of any one area of the building. Compare all of the drawings and specifications and be responsible for coordinating work of various subcontractors and trades, and avoiding interferences between inter-related portions of the work.

B. Report to the Architect any inconsistency, interference, error or omission discovered in Contract Documents. Do not proceed with work without first obtaining instructions or revised drawings or specifications from the Architect.

C. The Owner shall designate a representative(s) to act on its behalf relative to this project, and may from time to time add to, or delete from, the list of representatives as situations may require. The Owner shall at all times keep the Contractor informed as to who is authorized to act on its behalf and in what ways.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01300 SUBMITTALS

PART 1 - GENERAL

1.01 SHOP DRAWINGS AND SAMPLES

A. Promptly after execution of the Contract, the Contractor shall assemble and deliver to the Architect a complete collection of samples covering all materials where colors, textures or finish is subject to selection by the Owner. Upon receipt of such a complete collection of samples, the Architect will, with reasonable promptness, make the selections and prepare and deliver to the Contractor, a schedule covering all items subject to selection by him.

Color selections for individual EXTERIOR materials will not be made until ALL related exterior submittals are provided and ALL related color selections can be reviewed and approved by the Owner.

Color selections for individual INTERIOR materials will not be made until ALL related interior submittals are provided and all related color selections can be reviewed and approved by the Owner.

1.02 REFERENCE STANDARDS AND INDUSTRY SPECIFICATIONS

A. Any material or operation specified by reference to published specifications or a manufacturer, a society, an association, a code, or other published standard, shall comply with requirements of the listed document, which is current. In case of a conflict between referenced documents, the one having more stringent requirements shall govern.

B. The Contractor, if requested, shall furnish an affidavit from manufacturer certifying that materials or products delivered to the job do meet the requirements specified.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01400 REFERENCED SPECIFICATIONS AND STANDARDS

PART 1 - GENERAL

1.01 Materials or operations specified by reference to published specifications of a manufacturer, trade association, American Society for Testing Materials, Underwriters' Laboratories, Inc., National Fire Protection Association or the United American National Standards Institute shall conform to the latest edition of the referenced specifications or standards.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01410 QUALITY CONTROL

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED:

A. General Quality Control.

B. Workmanship.

C. Manufacturer's Certificates.

D. Manufacturer's Field Services.

E. Testing Laboratory Services.

1.02 RELATED REQUIREMENTS:

A. General Conditions: Inspection and testing required by governing authorities.

B. Section 01300 - Submittals: Manufacturer's Instructions.

C. Section 02050 - Compaction tests required for earthwork.

D. Section 02075 – Base for paving.

E. Section 03300 - Concrete: Tests required for concrete. (see concrete specifications.)

1.03 QUALITY CONTROL, GENERAL

A. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

1.04 WORKMANSHIP

A. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

B. Perform work by persons qualified to produce workmanship of specified quality.

C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibrations, and racking.

1.05 MANUFACTURER'S INSTRUCTIONS

A. Comply with instructions in full detail, including each step in sequence. Should instructions conflict with Contract Documents, request clarification from Architect before proceeding.

1.06 MANUFACTURER'S CERTIFICATES

A. When required by individual Specifications Section, submit manufacturer's certificate, in duplicate, that products meet or exceed specified requirements.

1.07 MANUFACTURER'S FIELD SERVICES

A. When specified in respective Specifications Sections, require supplier of manufacturer to provide qualified personnel 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 appropriate recommendations.

1.08 TESTING LABORATORY SERVICES

A. Contractor will employ and pay for services of an Independent Testing Laboratory to perform inspections, tests, and other services required by individual Specification Sections.

B. Services will be performed in accordance with requirements of governing authorities and with specified standards.

C. Reports will be submitted to Architect in duplicate giving observations and results of tests, indicating compliance or non-compliance with specified standards and with Contract Documents.

D. When initial tests indicate noncompliance with the Contract Documents, subsequent re-testing occasioned by the noncompliance shall be performed by the same testing agency, and the contractor thereof will pay for costs.

E. Contractor shall cooperate with Testing Laboratory personnel; furnish tools, samples of materials, design mix, equipment, storage and assistance as requested.
   1. Notify Architect and testing Laboratory 24 hours prior to expected time for operations requiring testing and services.
   2. Make arrangements with Testing Laboratory and pay for additional samples and tests for Contractor's convenience.

F. Inspections and tests required by codes or ordinances, or by a plan approval authority, and which are made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Contract Documents.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01501 CONSTRUCTION FACILITIES & TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 TEMPORARY UTILITIES

A. Water
   1. The Contractor may use the water available at the site. Upon completion of the contract work, the Contractor shall remove all temporary water access.

   NOTE: DIRT WORK CONTRACTOR MUST OBTAIN HIS OWN WATER.

B. Electricity
   1. The electrical contractor shall provide a temporary source of electrical power from existing electric service. This temporary source of power is to provide, in full compliance with local codes, adequately protected outlets for the use of all contractors on the project.

C. Job Telephone
   1. Telephone service will be provided for use by all trades.

1.02 CONSTRUCTION ELEVATORS, HOISTS, SCAFFOLDING

A. Lifting and Hoisting Facilities
   1. Each trade, for their work shall; provide, operate and maintain their hoisting equipment necessary to hoist and or move their work or materials at the project. Such apparatus and equipment shall meet requirements of all labor laws and other state or local laws applicable.

B. Scaffolding
   1. Interior: Each trade, for their work shall provide and maintain interior scaffolding as may be required for proper execution of their work. Scaffolding shall not be built into the walls. The sub-contractor promptly upon completion of the work requiring said scaffolding shall remove scaffolding.
   2. Exterior: The Contractor shall provide and maintain exterior scaffolding as may be required for proper execution of work.

1.03 SECURITY

A. The Contractor shall be solely responsible for the safety of his work, materials, equipment, tools, etc., on the site.

1.04 SPECIAL CONTROLS

A. Water Control

1. If water is encountered in any form, it shall be the responsibility of the sub-contractor to take all measures and furnish all equipment and labor necessary to control the flow and accumulation of water as required permitting completion of his work, at no additional cost to the Owner.

B. Environmental Controls: The Contractor shall be responsible for the performance of his work in such a manner as to minimize pollution to air, water and land, and shall, within reasonable limits, control noise. Environmental protection shall be performed as the work proceeds, whenever a nuisance or a hazard occurs. Open burning of waste material is not permitted. General Contractor will provide for combustible materials to be disposed of by hauling from the site.

1.05 TRAFFIC REGULATION

A. Whenever the Contractor's operations affect public vehicular or pedestrian traffic, the sub-contractor shall be responsible for the installation and maintenance of any and all traffic control devices as are deemed necessary by the authorities having jurisdiction.

B. The Contractor shall contrive to keep temporary work from blocking access to completed work. If, however, conflict with normal traffic access occurs, he shall provide temporary bypass routing until such temporary work is completed.

C. The Contractor shall provide and maintain adequate warning signs and danger lights for the protection of the public. Danger lights shall be kept lighted each night from sundown to sunrise.

1.06 STORAGE AND PROTECTION

A. The Contractor shall properly store and protect all materials, equipment, and supplies, at his own expense, at the site and in an orderly manner.

B. Items that might be damaged by weather shall be stored under cover.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01720 PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 All work shall be constructed in compliance with standard construction codes and the contractors shall remedy any defects due to faulty materials or workmanship, and shall do the same for any damage due to other work resulting there from, which shall appear within a period of one year from the date of final payment, or an earlier date agreed to in writing by the Owner, and in accordance with the terms of special guarantees provided in the Contract. The Owner shall give notice of observed defects with reasonable promptness.

1.02 In placing orders for equipment, the Contractor shall purchase it only under a written guarantee from the respective manufacturer that the equipment supplied will function satisfactorily as an integral part of the complete project in accordance with the Drawings and Specifications. Furthermore, the Contractor shall require that the manufacturer agree in writing, at the time the order for the equipment is placed, that he will be responsible for the proper functioning of the equipment in cooperation with the Owner and that whenever necessary during the installation period or tuning up period following construction the manufacturer will supply, without additional cost to the Owner, such superintendence and mechanical labor and any adjustments and additional parts and labor needed to make the equipment function satisfactorily, even if same was not shown on approved shop drawings.

1.03 Guarantee

A. Upon completion of the work, the contractor shall deliver to the Owner, in duplicate, a written guarantee based on the provisions of this article property signed by the contractor and notarized.

PART 2 - FINAL INSPECTION

A. Upon receipt of written notice that the work is substantially completed or ready for final inspection and acceptance, the Owner will promptly make such inspection, and when he finds the work acceptable under the Contract fully performed or substantially complete and work is accepted by him under the terms and conditions thereof, and the entire balance found to be due the Contractor, including the retained percentage, less a retention based on the Owner's estimate of the fair value of the claims against the Contractor and the cost of completing the incomplete or defective items of work, is due and payable. The date of substantial completion of a project or specified area of a project is the date when the construction is sufficiently complete in accordance with the contract documents as modified by any change orders agreed by the parties for use for which it was intended.

B. The Contractor shall promptly remove from the premises all material and work condemned by the Owner as failing to meet contract requirements, whether incorporated in the work or not, and the contractor shall promptly replace and re-execute his own work in accordance with the Contract and without expense to the Owner and shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement.

C. At the completion of the project, adjustment keys and wrenches for door closers and panic hardware, keys for electrical switches, panels, etc., shall be accounted for and turned over to the Owner.

D. The Owner reserves the exclusive right to modify or void any and all formalities stated herein, as conditions may require throughout the progress of this project, in an effort to speed completion of this project.

END OF SECTION

SECTION 01800 ASBESTOS PROHIBITION

PART 1 – GENERAL

1.01 COMPLIANCE WITH APPLICABLE LAW

A. The Contractor shall fully comply with the requirements of Public Law 99-519 the Asbestos Hazard Emergency Response Act of 1986 and the United States Environmental Protection Agency Regulations promulgated October 30, 1987, Federal Register Volume 52, No. 210.

B. The Contractor shall enforce compliance with this law and these regulations to all Subcontractors, Sub-subcontractors and Material Suppliers on this project. Each subcontract, sub-subcontract and purchase order applicable to this project shall contain Subparagraph A directly above.

1.02 INTENT

A. It is the specific intent of this Section of the Specification to prohibit the use or installation of any product, material, component of any product or material assembled from two or more separate products or materials, or any other item into the Work which contains more than one (1) percent asbestos by weight, and, thus, would be classified by law as an Asbestos Containing Building Material.

1.03 STATEMENT

A. The Contractor shall execute, and shall cause each and every Subcontractor, Sub-subcontractor and Material Supplier on this project to execute the Federal General Contractors Certification of Compliance with Asbestos Restrictions as applicable.

B. The Contractor shall deliver the required certifications as defined above to the Owner before final payment will be made.

C. Copies of the applicable certifications are attached to this Section.

FEDERAL ASBESTOS "STATEMENT" ALTERNATIVE TO INSPECTION

DATE:

TO:

RE:

Sirs,

As the Architect of Record for the above referenced project and having prepared the Contract Documents, Construction Drawings and Specifications, PROPERTY ARTS INC. issued a Certificate of Substantial Completion on _____.

In the performance of our professional services for the preparation of Contract Documents, Construction Drawings and Specifications for the above referenced project, no materials or products were knowingly specified, or called for, in any Construction Document that contained more than one percent (1%) asbestos by weight, within the meaning of Public Law 99-519 together with the United States Environmental Protection Agency Regulations, Section 763.83 promulgated October 30, 1987, Federal Register, Volume 52, No. 210 defining Asbestos Containing Building Material (ACBM).

We are enclosing a Federal General Contractors Certificate of Compliance with Asbestos Restrictions from _____ which completes the requirements for the Exclusion as allowed in Section 763.99 (a) (7) of the United States Environmental Protection Agency Regulations, promulgated October 30, 1987, Federal Register, Volume 52, No. 210.

PROPERTY ARTS INC.

By: _____

Title: _____

Date: _____

Attest and Seal: _____

Subscribed and Sworn to Before Me This _____ day of _____, 201__.

_____ My commission expires _____.
Notary Public

FEDERAL SUBCONTRACTORS OR MATERIAL SUPPLIERS CERTIFICATION OF COMPLIANCE WITH ASBESTOS RESTRICTIONS

DATE:

TO: _____(NAME OF GENERAL CONTRACTOR)

RE:

Sirs,

As a Subcontractor or Material Supplier for the above referenced project, we do certify and attest that no building materials or products were knowingly incorporated or installed in this project that contained more than one percent (1%) asbestos by weight, within the meaning of Public Law 99-519 together with the United States Environmental Protection Agency Regulations, Section 763.83 promulgated October 30, 1987, Federal Register, Volume 52, No. 210 defining Asbestos Containing Building Material (ACBM).

We also certify and attest that this Certification of Compliance with Asbestos Restrictions was included in each and every Sub-subcontractor and purchase order connected with the performance of Work for this Project, with a copy signed by the Sub-subcontractor or Material Supplier remaining in our Project File for inspection.

Respectfully,

_____(NAME OF SUBCONTRACTOR)

_____(ADDRESS OF SUBCONTRACTOR)

BY: _____
TITLE

DATE: _____

Attest and Seal: _____
Subscribed and Sworn to Before Me This _____ day of _____, 201__.

_____ My commission expires _____.
Notary Public

FEDERAL GENERAL CONTRACTORS CERTIFICATION OF COMPLIANCE WITH ASBESTOS RESTRICTIONS

DATE:

TO:

RE:

Sirs,

As a General Contractor for the above referenced project, we do certify and attest that no building materials or products were knowingly incorporated or installed in this project that contained more than one percent (1%) asbestos by weight, within the meaning of Public Law 99-519 together with the United States Environmental Protection Agency Regulations, Section 763.83 promulgated October 30, 1987, Federal Register, Volume 52, No. 210 defining Asbestos Containing Building Material (ACBM).

We also certify and attest that this Certification of Compliance with Asbestos Restrictions was included in each and every subcontractor and purchase order connected with the performance of Work for this Project, with a copy signed by the subcontractor or Material Supplier remaining in our Project File for inspection.

Respectfully,

_____(NAME OF CONTRACTOR)

_____(ADDRESS OF CONTRACTOR)

BY: _____
TITLE

DATE: _____

Attest and Seal: _____
Subscribed and Sworn to Before Me This _____ day of _____, 201__.

_____ My commission expires _____.
Notary Public

SECTION 01810 LEAD CONTAMINATION CONTROL ACT

PART 1 – GENERAL

1.01 COMPLIANCE WITH APPLICABLE LAW AND REGULATION

A. Fully comply with the requirements of the Lead Contamination Control Act, and other applicable regulations and laws controlling the use of lead in buildings.

B. The Contractor shall enforce compliance with applicable laws and regulations to all Subcontractors, Sub-contractors and Material Suppliers on this Project. Each subcontract, sub-subcontract and purchase order applicable to this Project shall contain Subparagraph A directly above.

1.02 INTENT

A. It is the specific intent of this Section of the Specification to require the use of lead-free solder for all water distribution systems; to include the internal plumbing of all factory assembled products such as water heaters, drinking fountains, electric water coolers and faucets.

END OF SECTION

SECTION 01900 CLEAN-UP & DISPOSAL

PART 1 - GENERAL

1.01 CLEAN UP

A. Each sub-contractor shall at all time keep the work and premises free from accumulation of waste, material, or rubbish caused by his employees or work. At the completion of the work, each sub-contractor shall remove all rubbish from his operations about the site (place in dumpster provided) and all his tools, surplus materials, etc.

B. Final Clean Up: Completion - The entire work and the entire premises shall be in first-class clean condition upon completion before being accepted by the Owner.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

DIVISION 2 SITE WORK

SECTION 02010 SUB-SURFACE INVESTIGATION

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes: Sub-surface information supplied by Owner and the Architect and was prepared by an independent Geotechnical Engineer. The report was prepared for design purposes only and it is not a warranty of subsurface conditions.

1.02 The report is in back of this section.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

GEOTECHNICAL ENGINEERING REPORT
PROPOSED OAK GROVE FIRE STATION NO. 2
OAK GROVE ROAD AND EAST 51ST STREET
SOUTH WAGONER COUNTY,
OKLAHOMA
PROJECT NO. G2016008

February 17, 2016

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February 17, 2016
Project No.: G2015048

Mr. Darrell R. Byrd, AIA - NCARB
Property Arts, Inc.
3220 West Lansing Street
Broken Arrow, OK 74012

Subject: **Geotechnical Engineering Report**
Proposed Oak Grove Fire Station No. 2
Oak Grove Road and East 51st Street South
Wagoner County, Oklahoma

Dear Mr. Byrd:

GFAC Engineering Inc. has completed the authorized geotechnical engineering evaluation for the above-referenced project. The purpose of the geotechnical study was to explore and evaluate the subsurface conditions at various locations on the site and develop geotechnical design and construction recommendations for the project. The attached GFAC Engineering Inc. report contains a description of the findings of our field exploration and laboratory testing program, our engineering interpretation of the results with respect to the project characteristics, and our geotechnical site development and foundation design recommendations as well as construction guidelines for the planned project.

Recommendations provided herein are contingent on the provisions outlined in the ADDITIONAL SERVICES and LIMITATIONS sections of this report. The project Owner should become familiar with these provisions in order to assess further involvement by GFAC Engineering Inc. and other potential impacts to the proposed project.

We appreciate the opportunity to be of service and are prepared to provide the recommended additional services. Please call us if you have any questions concerning this report.

Respectfully submitted,
GFAC ENGINEERING INC.
Certificate of Authorization #6389; Exp. 6/30/2016

REGISTERED PROFESSIONAL ENGINEER
DALE L. KELLEY II
17 Feb 2016
21521
OKLAHOMA

Dale L. Kelley II, P.E.
Oklahoma: 21521

Brian K. Marick, P.E.
Principal Engineer

8157 E. 46th Street, Tulsa, Oklahoma 74145 **p:** 918.622.7021

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Laboratory Testing Program

GEOTECHNICAL ENGINEERING REPORT
PROPOSED OAK GROVE FIRE STATION NO. 2
OAK GROVE ROAD AND EAST 51ST STREET SOUTH
WAGONER COUNTY, OKLAHOMA
GFAC ENGINEERING INC. PROJECT NO. G2016008
EXECUTIVE SUMMARY

Site:

- The project site is located north of the intersection of Oak Grove Road and East 51st Street South in Wagoner County, Oklahoma. The ground surface at the project site is exposed soil. The project site has recently been cleared of trees. It appears that the site has been cut on the west side and filled on the east side. Fill materials had been pushed onto the existing tree lined creek bank to the east. No evidence of compaction of these materials on the tree lined creek bank was noted. Sandstone bedrock is exposed in the creek bank in the eastern portion of the site. In general, the proposed project site is relatively level.
- Proofrolling of the exposed subgrade is required to detect soft, unstable, or undesirable material and proper compaction of fill and correction of soft unstable areas is required to create support for structural elements.
- Based on the conditions encountered in the borings and the results of the laboratory testing, the on-site lean clay soils, minus any organic materials, with a Plasticity Index (PI) of 22 or less are suitable for use as “non-expansive” select fill within the building pad. The on-site lean clay, lean to fat clay, and fat clay soils encountered at the site with a PI greater than 22 are NOT suitable for use as “non-expansive” select fill within the building pad.
- The on-site soils, minus any organic materials, are suitable for use as structural fill outside of the building footprint area.
- The subsurface conditions encountered across the entire site are favorable for the development of perched groundwater conditions. In a “perched’ groundwater condition, precipitation will infiltrate the upper lower plasticity more permeable soils and sit (perch) on the underlying less permeable higher plasticity clay soils or the bedrock.
- A grading plan was not available at the time this proposal was prepared. It has been assumed that minimal earthwork, i.e. maximum cuts and fills on the order of 1 foot, will be required at the site to achieve finish grades.
- All existing fill within the building footprint area and pavement areas shall be undercut full depth and replaced with structural fill.

Building:

- The building pad should be undercut to the level required to remove all fill from within the building footprint or 12 inches below the finish subgrade level, whichever extends to a lower elevation.
- The borings encountered organics and topsoil beneath the existing fill material. Following undercutting of existing fill material, the organics and topsoil should be undercut.

- Lower consistency soils should be anticipated below the existing fill materials. Removal and replacement of lower consistency/relative density soils is required to provide adequate and uniform support for the proposed building and a subgrade suitable for fill placement.
- The site is suitable for support of the building on a shallow foundation system bearing in “non-expansive” select fill, suitable native soils, or sandstone bedrock.
- The shallow foundation system for the proposed building bearing in “non-expansive” select fill, suitable native soils, or sandstone bedrock can be proportioned based upon a maximum allowable bearing pressure of 2,000 psf.
- All fill placed within the building pad should consist of “non-expansive” select fill material.
- Undercutting and placement of “non-expansive” select fill should extend a minimum of 5 feet beyond the perimeter of the building.

Pavements:

- Information concerning the fire trucks and anticipated frequency that the trucks will enter and exit the site was not available at the time this report was prepared. If this information becomes available, it should be provided to GFAC Engineering to determine if modification of the recommendations included in this report would be warranted.
- Typical pavement sections are provided for passenger vehicle parking.
- A required pavement capacity of approximately 400,000 18-kip Equivalent Single Axle Loads (ESAL’s) was assumed for heavy duty pavement areas utilized by fire trucks.
- Existing fill materials present within the proposed pavement area should be undercut full depth.
- Lower consistency soils should be anticipated below the existing fill materials. Removal and replacement of these lower consistency soils is required to provide a subgrade suitable for fill placement and adequate support for the proposed pavements.
- The pavement subgrade is anticipate to consist of native soils, newly placed structural fill, or sandstone bedrock.
- The pavement subgrade shall be scarified, moisture conditioned and recompacted to a minimum depth of 8 inches.
- A minimum of 6 inches of aggregate base material, such as ODOT Aggregate Base Type “A”, should be placed below the pavement.

The information stated above is a brief summary of the recommendations presented within this report. The report should be reviewed in its entirety for proper implementation of the recommendations.

GEOTECHNICAL ENGINEERING REPORT
PROPOSED OAK GROVE FIRE STATION NO. 2
OAK GROVE ROAD AND EAST 51ST STREET SOUTH
WAGONER COUNTY, OKLAHOMA

1. INTRODUCTION

1.1 GENERAL

GFAC Engineering Inc. has completed the authorized geotechnical engineering evaluation for the Proposed Oak Grove Fire Station No. 2 located north of the intersection of Oak Grove Road and East 51st Street South on the east side of Oak Grove Road in Wagoner County, Oklahoma. This report includes our recommendations related to the geotechnical aspects of the project design and construction. Conclusions and recommendations presented in the report are based on the subsurface information encountered at the location of our exploration and the provisions and requirements outlined in the ADDITIONAL SERVICES and LIMITATIONS sections of this report.

1.2 PROPOSED CONSTRUCTION

We understand the Oak Grove Fire Department will be constructing Fire Station No. 2 which will be located on the east side of Oak Grove Road (South 273rd East Avenue) approximately ¼ of a mile north of East 51st Street South in Wagoner County, Oklahoma. A portion of the project site has recently been cleared of trees. It appears that the site has been cut on the west side and filled on the east side. We anticipate that the building will be a single story structure with a footprint on the order of 4,800 square feet. A total of 4 bays along with office space, restrooms, and storage areas are planned for the interior of the structure. The proposed building is anticipated to be constructed with a wood or light gauge metal frame, a brick or CMU block exterior, and a slab-on-grade floor system.

No loading information was available at the time this report was prepared. It has been assumed that maximum column loads will be on the order of 50 kips, maximum wall

loads will be less the 3 kips per linear foot, and maximum floor loads will be less than 150 pounds per square foot (psf).

A grading plan was not available at the time this report was prepared. It has been assumed that minimal earthwork, i.e. maximum cuts and fills on the order of 1 foot, will be required at the site to achieve finish grades.

Concrete aprons are anticipated on the east and west sides of the building in front of the bay doors. Light duty and heavy duty pavements will also be constructed at the site. Traffic data was not provided. Typical pavement sections were provided for passenger vehicle parking.

We anticipate the heavy duty portions of the pavements will be subjected to fire trucks. Information concerning the type of fire trucks, axle loads for the fire trucks, and anticipated frequency that the trucks will enter and exit the site was not available at the time this report was prepared. It has been assumed that a total of 75 trips will occur on a monthly basis. If this information becomes available, it should be provided to GFAC Engineering to determine if modification of the recommendations included in this report would be warranted. A required pavement capacity of approximately 400,000 18-kip Equivalent Single Axle Loads (ESAL's) was assumed for pavement areas utilized by fire truck.

Recommendations related to the design of retention/detention basins, retaining walls, and below grade structures are beyond the scope of services for this study.

The scope of the engineering evaluation for this study, as well as the conclusions and recommendations in this report, were based on our understanding of the project as described above. If pertinent details of the project have changed or otherwise differ from our descriptions, we must be notified and engaged to review the changes and modify our recommendations, if needed.

2. SITE CONDITIONS

2.1 SITE DESCRIPTION

We understand the Oak Grove Fire Station No. 2 facility will be constructed on the east side of Oak Grove Road approximately ¼ mile north of the intersection of Oak Grove Road and East 51st Street South in Wagoner County, Oklahoma. The proposed project location is indicated on Plate 1 included in APPENDIX A. The site is bordered by Oak Grove Road on the west, a tree lined creek on the north and east, and by undeveloped tree covered land on the south.

The ground surface at the project site is exposed soil. A portion of the project site has recently been cleared of trees. It appears that the site has been cut on the west side and filled on the east side. Fill materials had been pushed onto the existing tree lined creek bank to the east. No evidence of compaction of these materials on the tree lined creek bank was noted. Sandstone bedrock is exposed in the creek bank in the eastern portion of the site. In general, the proposed project site is relatively level. An elevation differential of approximately less than1-1/2 feet was noted between the boring locations across the site.

Existing utilities in the vicinity of the site include, but most likely are not limited to, water lines, and overhead electric lines. Additional utilities may be present in the vicinity of the site.

2.2 SUBSURFACE CONDITIONS

The following presents a general summary of the major strata encountered at the project site during our subsurface exploration. Specific subsurface conditions encountered at the boring locations are presented on the respective logs in APPENDIX A. The stratification lines shown on the logs and section represent the approximate boundaries between material types; in situ, the transitions may vary or be gradual.

Surficial Materials: The ground surface at the site was comprised of exposed soil.

Existing/Possible Fill: Existing/Possible Fill consisting of lean clay with varying sand content was encountered at the ground surface at the locations of Borings B-1, B-2, and B-5. Layers of leaves were encountered within the fill materials at an approximate depth of 2.5 feet in Boring B-1 and an approximate depth of 0.9 feet in Boring B-2. The fill materials continued to approximate depths ranging from 1.1 to 4.5 feet in these borings. The fill materials continued to an approximate depth of 4.5 feet in Boring B-5 where sandstone bedrock was encountered.

Native Soils: Native soils were encountered below the fill materials in Borings B-1 and B-2 and at the ground surface in Borings B-3 and B-4 and continued to approximate depths ranging from 2.8 to 4.6 feet where sandstone bedrock was encountered. The native soils consisted of lean clay, lean to fat clay, and fat clay soils all with varying sand and gravel content, and sandstone cobbles with fat clay seams.

Bedrock: Sandstone bedrock was encountered below the fill materials and the native soils and continued to the bottom of the borings at approximate depths ranging from 3.8 to 13.6 feet. The upper portion of the bedrock unit appeared to be weathered. The hardness of the bedrock increased with increasing depth.

2.3 GENERAL SITE GEOLOGY

According to the "Engineering Classification of Geologic Materials – Division One" from the Oklahoma Highway Department, 1970, the project site appears to be located within an area described as the Senora Unit (Psn).

Senora Unit (IPsn): This unit consists of sandstone, shale, limestone, and siltstone. The sandstone is moderately hard to extremely hard, reddish-brown to gray, and thin to massive bedded. The shale is normally gray and is present in thick intervals. The Senora unit is divided into a lower sandy zone and an upper shaley zone.

The Senora unit outcrops in a broad pattern across eastern Okmulgee County and western Wagoner, Muskogee, McIntosh, and Pittsburg Counties. The lower 100 to 200 feet of the Senora unit outcrops in Pittsburg County and it I almost entirely sandstone.

In southwestern McIntosh County, the lower 500 feet outcrops and consists of predominantly sandstone which is interbedded with sandy shale; the upper 50 to 100 feet is mostly shale. Northwestern McIntosh and western Muskogee Counties share the outcrop are with Okmulgee County. In this are the general thickness is about 800 feet, thinning northward to about 140 feet in northern Wagoner County. The upper 180 to 220 feet is mostly shale, and the lower portion is sandstone and sandy to silty shale.

The lower sandstone beds of the Senora unit form an escarpment generally facing eastward, overlooking the underlying geologic units. Westward from the face of the escarpment the sandstones cap the hills and ridges, and the shale exposures form the valley and broad flat areas.

2.4 GROUNDWATER OBSERVATIONS

Groundwater observations were made both during and after completion of drilling operations. The borings remained dry both during and immediately following the drilling operations. Extended water level readings were not obtained.

The materials encountered in the borings have a wide range of hydraulic conductivity and observations over an extended period of time may show the presence of groundwater. Use of piezometers would be required to better define current groundwater conditions and groundwater level fluctuations with time. Fluctuations of groundwater levels can occur due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the borings were performed. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

The subsurface conditions encountered across the entire site are favorable for the development of perched groundwater conditions. In a “perched’ groundwater condition, precipitation will infiltrate the upper lower plasticity/non plastic more permeable soils and sit (perch) on the underlying less permeable higher plasticity clay soils or bedrock. Generally, perched water is of limited volume and can be controlled with typical dewatering methods. During wet seasons, the perched groundwater can cause the upper layers of soils to become soft and unstable.

3. ANALYSIS AND DISCUSSION

3.1 GENERAL

Based on the results of our evaluation, it is our professional opinion that the proposed project site could be developed for the proposed building using conventional grading and foundation construction techniques.

3.2 SITE DEVELOPMENT

3.2.1 Site Clearing

The site had been cleared prior to the field exploration.

3.2.2 Existing Fill

Existing/Possible Fill consisting of lean clay with varying sand content was encountered at the ground surface at the locations of Borings B-1, B-2, and B-5. Layers of leaves were encountered within the fill materials at an approximate depth of 2.5 feet in Boring B-1 and an approximate depth of 0.9 feet in Boring B-2. The fill materials continued to approximate depths ranging from 1.1 to 4.5 feet in these borings. The fill materials continued to an approximate depth of 4.5 feet in Boring B-5 where sandstone bedrock was encountered. Based on the conditions encountered in Borings B-1 and B-2, it does not appear that the site was thoroughly stripped prior to fill placement at the site. In addition to the layers of leaves present within/below the fill, soft areas within the fill were encountered while driving the drill rig across the site, as well as during the drilling operations.

Based on the conditions encountered in the borings, the existing fill material is not suitable to support the pavements, building foundations, or the proposed building floor slab. The existing fill material, minus any organic material or other deleterious materials, with a PI of 22 or less would be suitable for use as “non-

expansive" select fill within the building pad. Any higher plasticity lean clay, lean to fat, and fat clay soils with a PI greater that 22 that may be present within the existing fill are not suitable for use as "non-expansive" select fill within the building pad but could be utilized outside of the building pad. Unsuitable existing fill material encountered during mass grading should be undercut full depth and be replaced with structural fill.

Existing fill present within the proposed building footprint and within the proposed pavement areas should be undercut full depth. Table 3.2.2 indicates the fill thickness encountered at the boring locations.

Table 2.2 – Fill Thickness

Boring No.	Bedrock Depth, feet
B-1	3
B-2	1.1
B-3	Not Encountered
B-4	Not Encountered
B-5	4.5

Depth of fill across the site is anticipated to vary from that encountered within our borings. Existing fill materials removed from the proposed building footprint should be replaced with "non-expansive" select fill. Existing fill materials removed from the proposed pavement areas should be replaced with controlled structural fill.

Test pits could be excavated at the site to help delineate areas and depth of existing fill.

3.2.3 Existing Utility Trenches and Proposed Utilities

Existing utilities may be located within the right-of-way of Oak Grove Road on the west side of the site. There does not appear to be any other utilities present within the interior of the site. The backfill of any existing utility lines in areas that coincide with the

new construction, i.e. access drives and parking lots, etc, should be evaluated. Unsuitable conditions encountered within existing utility line backfill should be corrected.

All underground utility lines for the proposed project should be located outside the zone of influence of proposed foundations; that is a zone extending from the bottom edge of the footing at a slope of 1 Horizontal to 1 Vertical, 1(H):1(V). If utility lines are within the zone of influence of the foundations, settlements in excess of those presented in this report may occur.

3.2.4 Scarification, Moisture Conditioning and Compaction

Following any required undercutting (see Section 3.5), the exposed subgrade should be scarified, moisture conditioned, and recompacted in preparation for fill placement. Extremely wet or unstable areas that hamper compaction of the subgrade may require undercutting and replacement with structural fill or discing and aeration may be required to lower moisture contents to levels that will allow proper compaction of the exposed grade.

Scarification, moisture conditioning, and recompaction of the unweathered bedrock would not be required.

3.2.5 Proofrolling

Following moisture conditioning and prior to placement of structural fill, the exposed grade should be proofrolled. Proofrolling of any unweathered bedrock that may be exposed would not be required. Proofrolling of the subgrade aids in identifying soft (lower consistency/loose) or disturbed areas. Unsuitable areas identified by the proofrolling operation should be: 1) undercut and replaced with structural fill, 2) scarified, aerated, and recompacted, 3) stabilized in place with shot/crushed rock with a maximum diameter of 6 inches, or 4) spanned through the use of bi-axial geogrid, depending upon the nature/location of the unstable/disturbed area. The actual method of stabilization would depend upon the area that is to be stabilized (i.e.; building pad,

pavements, etc.). Proofrolling can be accomplished through use of a fully-loaded, tandem-axle dump truck or similar equipment providing an equivalent subgrade loading.

3.2.6 Perched Groundwater

The site is favorable for development of “perched” groundwater in the near surface soils above the higher plasticity clays and the bedrock. Depending upon the amount of precipitation that falls prior to and during the construction of the proposed facility, a perched groundwater condition may develop. Depending upon the amount of perched groundwater present, the near surface soils could become soft and unstable with repetitive construction traffic. Typically, “perched” groundwater can be controlled with typical dewatering methods.

3.3 EXCAVATIONS

3.3.1 General

All excavations must comply with applicable local, state and federal safety regulations. ***The responsibility for excavation safety and stability of temporary construction slopes lies solely with the contractor.*** We are providing this information below solely as a service to our client. Under no circumstances should this information provided be interpreted to mean that GFAC Engineering Inc. is assuming responsibility for construction site safety or the contractors activities, such responsibility is not being implied and should not be inferred.

3.3.2 Foundation and Utility Excavations

It is anticipated that excavations for the proposed structure and shallow utilities will generally be in existing/possible fill, newly placed structural fill and native soils above the groundwater level. Excavations within these materials should be possible with conventional excavation equipment. Deeper excavations will likely extend into the sandstone bedrock. The soil materials and the highly weathered to weathered sandstone with a Standard Penetration Resistance (N) value of less than 25 blows per

foot can generally be excavated with conventional heavy equipment such as backhoes, scrapers, loaders, etc. Excavation of harder, less weathered sandstone bedrock will most likely be difficult and will likely require the use of single-tooth rippers mounted on large tractors such as a Caterpillar D-8 or larger, rock buckets mounted on backhoes/trackhoes, or other rock excavating techniques to complete the excavations. **Excavation of the sandstone bedrock may require the use of pneumatic breakers attached to a trackhoe**. Excavation of these materials in confined excavations may be difficult.

3.3.3 Excavation Slopes and Construction Considerations

Excavations should be cut to a stable slope or be temporarily braced, depending upon the excavation depths and the subsurface conditions encountered. ***Temporary construction slopes should be designed in strict compliance with the most recent governing regulations.*** Stockpiles should be placed well away from the edge of the excavation and their heights should be controlled so they do not surcharge the sides of the excavation. Surface drainage should be carefully controlled to prevent flow of water into the excavations. Construction slopes should be closely observed for signs of mass movement: tension cracks near the crest, bulging at the toe, etc. If potential stability problems are observed, a geotechnical engineer should be immediately contacted.

3.4 STRUCTURAL FILL

Based on the conditions encountered in the borings and the results of the laboratory testing, the on-site lean clay soils, minus any organic materials, with a Plasticity Index (PI) of 22 or less are suitable for use as “non-expansive” select fill within the building pad. The on-site lean clay, lean to fat clay, and fat clay soils encountered at the site with a PI greater than 22 are NOT suitable for use as “non-expansive” select fill within the building pad. The on-site soils, minus any organic materials, are suitable for use as structural fill outside of the building footprint area. Additional testing and observation at the time of construction is recommended to further evaluate these materials prior to use

as structural fill. All imported material shall meet the requirements as outlined in Section 4.3.

3.5 BUILDING PAD PREPARATION

A grading plan was not available at the time this proposal was prepared. It has been assumed that minimal earthwork, i.e. maximum cuts and fills on the order of 1 foot, will be required at the site to achieve finish grades.

The building pad should be undercut to the level required to remove all fill from within the building footprint or 12 inches below the finish subgrade level, whichever extends to a lower elevation. When encountered, the fill thickness within the borings ranged from 1.1 to 4.5 feet. The active zone at the project site is on the order of 4-1/2 to 5 feet based on the depth of rock at the site. The calculated PVR within the building is anticipated to be less than 1 inch based upon existing grades, anticipated final grades, and provided the recommendations in this report are implemented.

It should be noted that lower consistency/relative density soils should be anticipated immediately below the existing fill materials. Removal and replacement of lower consistency/relative density soils encountered within the building footprint is required to provide adequate and uniform support for the proposed structure and pavements, and also subgrade suitable for fill placement.

A shallow grade supported foundation system may be considered at this site provided the recommendations provided in this report are implemented.

3.6 FOUNDATIONS

Provided the recommendations presented in this report are implemented, the subsurface conditions at the site are suitable for support of the proposed structure on a shallow foundation system founded in “non-expansive” select fill, suitable native soils, or sandstone bedrock. The allowable bearing pressure presented in Section 4.4 has been

reduced to limit the amount of differential settlement due to the possibility of variable bearing material and variable depth to bedrock.

3.7 SETTLEMENTS

It is anticipated that shallow foundations will be founded in “non-expansive” select fill, suitable native soils, or sandstone bedrock. Settlement of the building foundations has been estimated to be 1 inch or less. Differential settlements are anticipated to be approximately 1/2 to 3/4 of total settlement. These estimates are based on the recommendations presented in this report being implemented. It is anticipated that as much as ¾ inch of differential movement may occur between foundations bearing on bedrock and those bearing on soils. If differential settlements of this magnitude are not acceptable, deepening of the foundations to bear on the bedrock may be required.

3.8 CONCRETE SLABS SUPPORTED ON-GRADE

Recommendations outlined in Sections 4.2 and 4.3 of this report are intended to develop subgrades that are suitable for support of the building floor slabs. These recommendations include that all material imported to the project site meet the requirements outlined in Section 4.3. It is recommended that the building pad be undercut to the level required to remove all fill from within the building footprint or 12 inches below the finish subgrade level, whichever extends to a lower elevation. If the building pad is constructed as recommended, potential vertical movement of the slab on grade is anticipated to be less than 1 inch.

Subsurface moisture and moisture vapor naturally migrate upward through the soil and, where the soil is covered by a building, this subsurface moisture will collect. To reduce the impact of this subsurface moisture and the potential impact of future induced moisture (such as landscape irrigation or precipitation) a vapor retarder is sometimes utilized below the compacted crushed limestone layer. This membrane typically consists of visquene or polyvinyl plastic sheeting. It should be noted that although vapor retarder systems are frequently utilized, this system may not be completely

effective in preventing floor slab moisture problems. These systems will not necessarily assure that floor slab moisture transmission rates will meet floor covering manufacturer standards and that indoor humidity levels will be appropriate to inhibit mold growth. The design and construction of such systems are totally dependent on the proposed use and design of the proposed building and all elements of building design and function should be considered in the slab-on-grade floor design. Building design and construction may have a greater role in perceived moisture problems since sealed buildings/rooms or inadequate ventilation may produce excessive moisture in a building and affect indoor air quality.

Various factors such as surface grades, adjacent planters, the quality of slab concrete and the permeability of the on-site soils affect slab moisture and can influence future floor and moisture conditions. In many cases, floor moisture problems are the result of either improper curing of floor slabs or improper application of floor adhesives. We recommend contacting a flooring consultant experienced in the area of concrete slab-on-grade floors or the floor covering manufacturer for specific recommendations regarding your proposed flooring applications.

Special precautions must be taken during the placement and curing of all concrete slabs. Excessive slump (high water-cement ratio) of the concrete and/or improper curing procedures used during either hot or cold weather conditions could lead to excessive shrinkage, cracking or curling of the slabs. High water-cement ratio and/or improper curing also greatly increase the water vapor permeability of the concrete. We recommend that all concrete placement and curing operations be performed in accordance with the American Concrete Institute (ACI) Manual.

3.9 CLIMATIC CONDITIONS AND CONSTRUCTION CONSIDERATION

Weather conditions will influence the site preparation required. In spring and late fall, following periods of rainfall, the moisture content of the near-surface soils may be significantly above the optimum moisture content. Excessive moisture could seriously impede grading by causing an unstable subgrade condition. Typical remedial measures

include aerating the wet subgrade, removal of the wet materials and replacing them with dry materials, reinforcing the subgrade with geotextiles/geogrid or applying lime, cement kiln dust (CKD), or Class “C” fly ash as a drying agent.

If construction of the project is to be performed during winter months, appropriate steps should be taken to prevent the soils from freezing. In no case should the fill, foundations, or other flat work be placed on or against frozen or partially frozen materials. Frozen materials shall be removed and replaced with a suitable material. Frozen materials shall not be included in any compacted fills.

3.10 PAVEMENTS AND PAVEMENT SUBGRADE PREPARATION

It is our understanding that concrete aprons are anticipated on the east and west sides of the building in front of the bay doors. Light duty and heavy duty pavements will also be constructed at the site. Traffic data was not provided. Typical light duty pavement sections for passenger vehicle parking areas have been provided.

We anticipate the heavy duty portions of the pavements will be subjected to fire trucks. Information concerning the type of fire trucks, axle loads for the fire trucks, and anticipated frequency that the trucks will enter and exit the site was not available at the time this report was prepared. If this information becomes available, it should be provided to GFAC Engineering to determine if modification of the recommendations included in this report would be warranted. A required pavement capacity of approximately 400,000 18-kip Equivalent Single Axle Loads (ESAL’s) was assumed for pavement areas utilized by fire trucks. These ESAL’s were based on 75 passes per month over a period of 20 years of a vehicle with an approximate front axle load of 16,000 pounds and a rear axle load of 38,000 pounds. If traffic, or axle loads, is in excess of these values a reduced pavement life would be expected,

The pavement subgrade should be prepared in accordance with Sections 4.2 and 4.3 of this report which are intended to develop subgrades that are suitable for pavements.

These recommendations include that all material imported to the project site meet the requirements outlined in Section 4.3.

We anticipate that the pavement subgrade will consist of a native soils, newly placed structural fill, and possibly sandstone bedrock. In areas that are to receive fill and/or where soils are exposed at the pavement subgrade level, the exposed soils should be scarified, moisture conditioned, and recompacted to a minimum depth of 8 inches.

Where relatively unweathered bedrock is exposed at the finish subgrade elevation, the bedrock shall be undercut to allow placement of a minimum of 6 inches of dense graded aggregate base (ODOT Type A) below the pavement. Undercutting of the relatively unweathered bedrock is recommended to provide uniform support below the pavement in cut and fill areas. Support of the new pavements directly on the underlying bedrock is not recommended.

It should be noted that lower consistency/relative density soils should be anticipated immediately below the existing fill materials. Removal and replacement of these lower consistency soils is required to provide adequate and uniform support for the proposed pavements and a subgrade suitable for fill placement.

The pavement subgrade should be sloped to provide rapid drainage. This includes the underlying subgrade soils since the granular base material readily transmits water. The granular section should be graded to pipe underdrains, adjacent storm sewer inlets, or drainage ditches to provide drainage from the granular section. Water allowed to pond on or adjacent to the pavement could saturate the subgrade and cause premature pavement deterioration.

Disturbance, desiccation, and/or wetting of the subgrade between grading and paving can result in deterioration of the previously completed subgrade. A non-uniform subgrade can result in poor pavement performance and local failures relatively soon after pavements are constructed.

We recommend that the pavement subgrades be proofrolled and the moisture content and density of the top 12 inches of subgrade be checked within two days prior to commencement of actual paving operations. If any significant event, such as precipitation, occurs after proofrolling, the subgrade should be reviewed by qualified geotechnical engineering personnel immediately prior to placing the pavement. The subgrade should be in its finished form at the time of the final review.

3.11 LANDSCAPING AND SITE GRADING CONSIDERATIONS

Provisions should be made to reduce the potential for large moisture changes within building subgrade soils located adjacent to landscape areas, to reduce the potential for subgrade movement. Positive drainage away from the building should be incorporated into the design plans. Ponding of water adjacent to the building could contribute to significant moisture increases in the subgrade soils and subsequent heaving.

Consideration should also be given to limiting landscaping and irrigation adjacent to the building. Trees and large bushes can develop intricate root systems that can draw moisture from the subgrade soils, causing them to shrink during dry periods of the year. Desiccation of soils below foundations can result in settlement of shallow foundations.

4. RECOMMENDATIONS

4.1 GENERAL

Based on the results of our evaluation, it is our professional opinion that the proposed project site could be developed for the proposed building using conventional grading and foundation construction techniques. Recommendations regarding geotechnical aspects of the project design and construction are presented below.

The recommendations submitted herein are based, in part, upon data obtained from our subsurface exploration. The nature and extent of subsurface variations that may exist at the proposed project site will not become evident until construction. If variations appear evident, then the recommendations presented in this report should be evaluated. In the event that any changes in the nature, design, location or depth of the proposed structure are planned, the conclusions and recommendations contained in this report will not be considered valid unless the changes are reviewed and our recommendations modified in writing.

4.2 SITE PREPARATION

We recommend the following for site preparation:

1. The proposed building should be undercut to the level required to remove all fill from within the building footprint or 12 inches below the finish subgrade level, whichever extends to a lower elevation.

2. The proposed pavement areas should be undercut to the level required to remove all fill.

3. When encountered, the fill thickness within the borings ranged from 1.1 to 4.5 feet.

4. If not removed during the recommended undercutting operation, all soft/unstable soils encountered within the building footprint should be undercut full depth and replaced with structural fill.

5. All fill placed within the proposed building footprint area should consist of “non-expansive” select fill.

6. Undercutting and placement of “non-expansive” select fill should extend a minimum of 5 feet beyond the building footprint area.

7. Following stripping and required undercutting operations, the exposed subgrade should be scarified, moisture conditioned, and recompacted to a minimum depth of 8 inches.

8. The exposed subgrade should be proofrolled with a fully loaded, tandem-axle dump truck. Proofrolling of the unweathered bedrock would not be required. Unsuitable areas identified by the proofrolling operation should be: 1) undercut and replaced with structural fill, 2) scarified, aerated, and recompacted, 3) stabilized in place with shot/crushed rock with a maximum diameter of 6 inches, or 4) spanned through the use of bi-axial geogrid, depending upon the nature/location of the soft areas. The method in which unsuitable areas are corrected would depend upon the location of the unsuitable areas and the conditions encountered at the site at the time of construction.

9. Where bedrock is exposed at the finish subgrade elevation in the pavement areas, the bedrock should be undercut to allow placement of a minimum of 6 inches of dense graded aggregate base (ODOT Type A) below the pavements.

10. Where bedrock is exposed at the pavement subgrade elevation, the bedrock shall be undercut a minimum of 12 inches below pavement subgrade elevation and replaced with structural fill. New pavements should not be supported directly on bedrock.

4.3 STRUCTURAL FILL

We recommend the following for structural fill:

1. **BUILDING PAD** - All fill placed within the building footprint should consist of a "non-expansive" structural fill material with the following properties:

    a. Maximum Liquid Limit of 45 and a maximum Plasticity Index (PI) of 22.

    b. "Non-expansive" select fill material shall consist of approved materials, free of organic matter (organic content less than 4 percent) and debris. Approved materials are defined as those soils classified by ASTM D 2487 as CL, GC, SC, and SP.

2. **ON-SITE SOILS** – The existing fill material, minus any organic material or other deleterious materials, with a PI of 22 or less would be suitable for use as "non-expansive" select fill within the building pad. Any higher plasticity lean clay, lean to fat, and fat clay soils with a PI greater that 22 that may be present within the existing fill are not suitable for use as "non-expansive" select fill within the building pad. The existing fill material present at the site, minus any organic material or other deleterious materials, is suitable for use as structural fill outside of the building footprint area. Additional testing and observation at the time of construction is recommended to further evaluate these materials prior to use as structural fill.

3. **OTHER IMPORTED MATERIAL** – We recommend the following criteria for imported materials to be used outside of the building area:

    a. The material should consist of approved materials, free of organic matter (organic content less than 4 percent) and debris. Approved materials are defined as those soils classified by ASTM D 2487 as CL, GC, SC, and SP.

b. A maximum Liquid Limit of 50 and a maximum Plasticity Index (PI) of less than 30.

4. All fill material should have a maximum particle size of 3 inches.

5. All fill should be placed in lifts having a maximum loose lift thickness of 9 inches.

6. All fill shall be compacted to a minimum of 95 percent of the material's maximum dry density as determined by ASTM D 698, standard Proctor compaction.

7. The moisture content of the clay fill (Plasticity Index > 10) at the time of compaction should be within a range of 0 to 4 percent above optimum moisture content as defined by the standard Proctor compaction procedure.

8. For clay fills having lower plasticities (Plasticity Index < 10) and sand, it may be necessary to use a moisture range of 2 percent below to 2 percent above optimum moisture content.

4.4 FOUNDATIONS

Following the recommended site preparation, the building foundations would be supported on non-expansive" select fill, suitable native soils, or sandstone bedrock. We recommend the following design criteria:

1. Building footings may be proportioned for a maximum allowable bearing pressure presented in the following table. The allowable bearing pressure is based on a minimum factor of safety of approximately three (3) with respect to shear failure of the foundation bearing materials.

Table 4.4 – Allowable Bearing Pressure

Bearing Material	Allowable Bearing Pressure (psf)	Estimated Settlement (inches)
"Non-Expansive" Select Fill, Suitable Native Soils, Sandstone Bedrock	2,000	Less than 1

2. Continuous wall footings should have a minimum width of 16 inches and isolated spread footings should have a minimum width of 24 inches.

3. The frost depth at the project site is approximately 22 inches.

4. The foundations should extend a minimum of 24 inches below exterior grades due to freeze/thaw and wetting/drying cycles.

4.5 CONCRETE SLABS SUPPORTED ON-GRADE

Following the recommendations for site preparation, the site would be suitable for grade supported floor slabs. We recommend the following provisions for design and construction of the floor slab:

1. All material placed within the building footprint should meet the requirements of "non-expansive" select fill.

2. All utility trench backfill and foundation backfill should be placed in accordance with the requirements of structural fill.

3. A granular leveling course, having a minimum thickness of 4 inches, should be used below the building floor slab. The granular section provides a capillary moisture break and acts as a leveling course. The granular leveling course

should consist of clean, crushed limestone gravel with a nominal size of ½ to ¾ inch.

4. Immediately prior to construction of the building floor slab, it is recommended that the exposed subgrade be evaluated to determine whether moisture contents are within the recommended range and to identify areas disturbed by construction operations. Unsuitable or disturbed areas should be reworked prior to placement of the granular leveling course and construction of the floor slab.

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4.6 PAVEMENTS

The pavement sections included in Table 4.6 are provided for consideration for use at the project site.

Table 4.6 – Typical Pavement Sections

Pavement Area	Minimum Asphaltic Concrete (AC) Design	Minimum Portland Cement Concrete (PCC) Design
Standard Duty (Parking Areas Passenger Vehicles Only)	AC with Granular Base 2.0 AC Surface Course[1] 2.0 AC Surface Course[1] 6.0 Aggregate Base[3] Geotextile Separator Fabric[4] 9.0 Recompacted Subgrade	Portland Cement Concrete 5.0 PCC 6.0 Aggregate Base[3] Geotextile Separator Fabric[4] 9.0 Recompacted Subgrade
Heavy Duty (Access Lanes Passenger Vehicles Only)	AC with Granular Base 2.0 AC Surface Course[1] 3.5 AC Base Course[2] 6.0 Aggregate Base[3] Geotextile Separator Fabric[4] 9.0 Recompacted Subgrade	Portland Cement Concrete 6.0 PCC 6.0 Aggregate Base[3] Geotextile Separator Fabric[4] 9.0 Recompacted Subgrade
Heavy Duty (Fire Truck Traffic)		Portland Cement Concrete 6.5 PCC 6.0 Aggregate Base3 Geotextile Separator Fabric4 9.0 Recompacted Subgrade

1 ODOT "Standard Specifications for Highway Construction" Section 708, Type S4, PG-64-22.
2 ODOT "Standard Specifications for Highway Construction" Section 708, Type S3, PG-64-22.
3 ODOT "Standard Specifications for Highway Construction" Section 703.01, Type A.
4 AASHTO M288 Class 2 and Appendices A1 and A3.
5 ODOT "Standard Specifications for Highway Construction" Section 701.

1. The proposed pavement areas should be undercut to the level required to remove all fill.

2. When encountered, the fill thickness within the borings ranged from 1.1 to 4.5 feet.

3. The moisture content and density of pavement subgrade should be checked within two days prior to paving operations.

4. The pavement subgrade should be proofrolled prior to paving operations.

5. Lower consistency/relative density soils exposed at the pavement subgrade elevation (not consisting of the existing fill materials) should be corrected as indicated in Section 4.2. If lower consistency/relative density soils extend to depths greater than 18 inches, we should be contacted to determine if modifications to the recommendations would be warranted.

4.7 EXCAVATIONS

All excavations and excavation retention systems are the sole responsibility of the Contractor and should be in accordance with Oklahoma State law, and design by a licensed professional engineer. Attention is drawn to OSHA Standards 29 CFR - 1926 Subpart P for guidance in the design of such systems.

5. ADDITIONAL SERVICES

5.1 PLANS AND SPECIFICATIONS REVIEW

We recommend that GFAC Engineering Inc. conduct a general review of the final plans and specifications to evaluate that our earthwork and foundation recommendations have been properly interpreted and implemented during design. In the event GFAC Engineering Inc. is not retained to perform this recommended review, we will assume no responsibility for misinterpretation of our recommendations.

5.2 CONSTRUCTION OBSERVATION AND TESTING

We recommend that all earthwork during construction be monitored by a representative of GFAC Engineering Inc. These observations should include site preparation, placement of all engineered fill and trench backfill, construction of slab subgrades, and all foundation excavations. The purpose of these services would be to provide GFAC Engineering Inc. the opportunity to observe the soil conditions encountered during construction, evaluate the applicability of the recommendations presented in this report to the soil conditions encountered, and recommend appropriate changes in design or construction procedures if conditions differ from those described herein.

The following section outlines geotechnical engineering and construction testing services necessary to implement the recommendations presented in this report. The following services should be provided by a qualified testing firm:

1. An experienced engineering technician should observe the subgrade throughout the proposed construction areas immediately following stripping and undercutting to identify areas requiring additional undercutting and to evaluate the suitability of the exposed surface for fill placement.

2. An experienced engineering technician should monitor and test all fill placed within the building and pavement areas to determine

whether the type of material, moisture content and degree of compaction are within recommended limits.

3. An experienced engineering technician should observe the moisture conditioning and proofrolling of the subgrade prior to placement of structural fill to evaluate the suitability of the exposed surface for fill placement.

4. An experienced technician or engineer should observe and test all foundation excavations. Where unsuitable bearing conditions are observed, remedial procedures can be established in the field to avoid construction delays.

5. The condition of the subgrade should be evaluated immediately prior to construction of the building floor slab to determine whether the moisture content of subgrade soils and condition of soils are as recommended.

6. The condition of the pavement subgrade should be evaluated immediately prior to construction of the pavements to determine whether the moisture content of subgrade soils and condition of soils are as recommended. Proofrolling would aid in evaluation of the pavement subgrade soils.

6. LIMITATIONS

Recommendations contained in this report are based on our field observations and subsurface explorations, limited laboratory tests, and our present knowledge of the proposed construction. It is possible that subsurface conditions could vary between or beyond the points explored. If subsurface conditions are encountered during construction that differ from those described herein, we should be notified immediately in order that a review may be made and any supplemental recommendations provided. If the scope of the proposed construction, including the proposed loads or structural locations, changes from that described in this report, our recommendations should also be reviewed.

We have prepared this report in substantial accordance with the generally accepted geotechnical engineering practice as it exists in the site area at the time of our study. No warranty is expressed or implied. The recommendations provided in this report are based on the assumption that an adequate program of tests and observations will be conducted by GFAC Engineering Inc. during the construction phase in order to evaluate compliance with our recommendations. The scope of our services did not include any environmental assessment or exploration for the presence of hazardous or toxic materials in the soil, surface water, groundwater or air, on, below or around this site.

This report may be used only by owner and only for the purposes stated, within a reasonable time from its issuance, but in no event later than three years from the date of report. Land use, site conditions (both on-site and off-site), regulations, or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify GFAC Engineering Inc. of such intended use. Based on the intended use of the report, GFAC Engineering Inc. may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release GFAC Engineering Inc. from any liability resulting from the use of this report by any unauthorized party and client agrees to defend, indemnify and hold harmless GFAC Engineering Inc. from any claim or liability associated with such unauthorized or non-compliance.

APPENDIX A

FIELD EXPLORATION PROGRAM
PLATE 1 – SITE LOCATION MAP
PLATE 2 – BORING LOCATION DIAGRAM
SUBSURFACE DIAGRAM
BORING LOGS

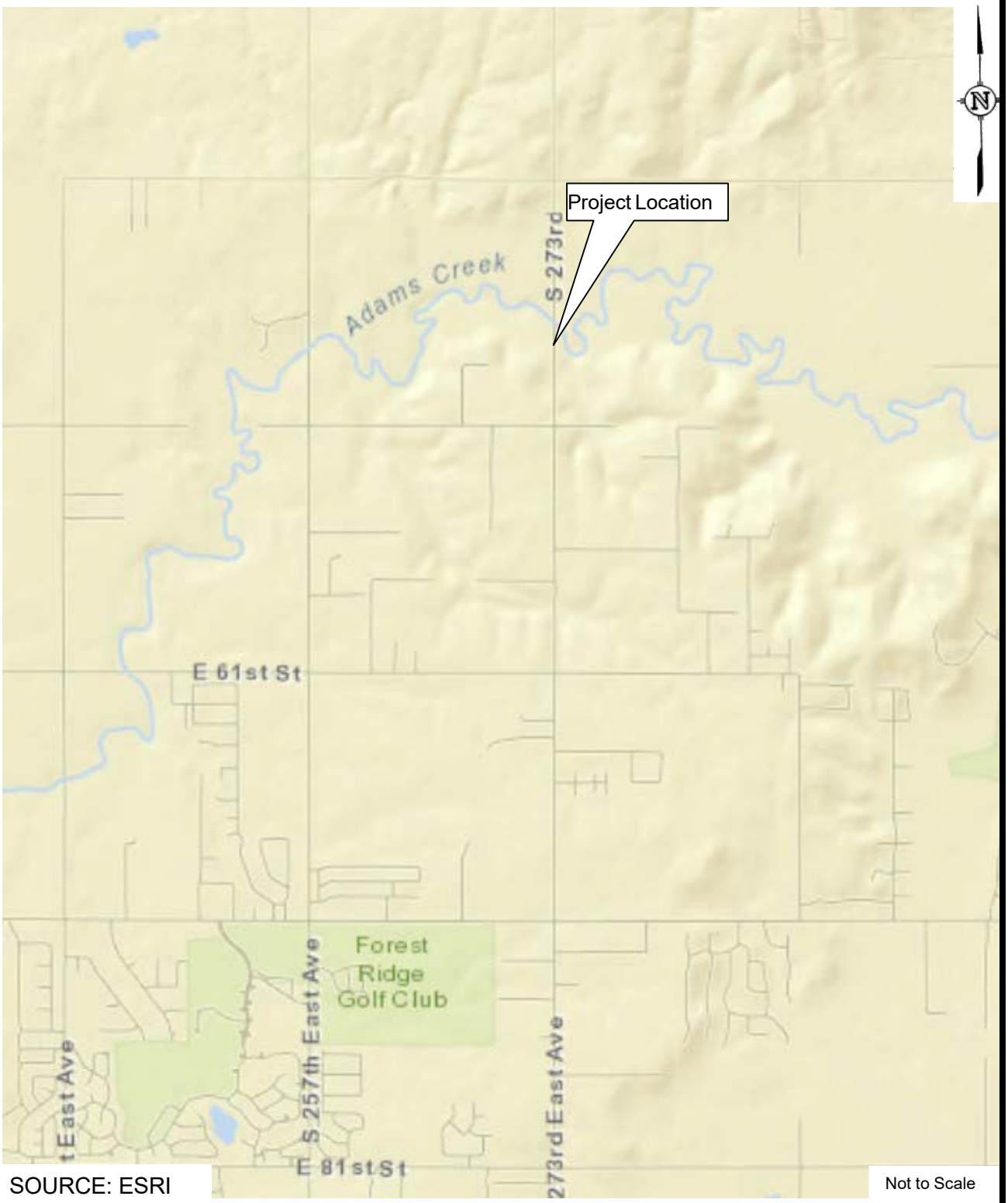
FIELD EXPLORATION PROGRAM

The fieldwork for this study was performed on January 29, 2016. The exploration consisted of a total of five (5) borings. Borings B-1 and B-2 were performed in/within the vicinity of the proposed building footprint and Borings B-3, B-4, and B-5 were performed in the vicinity of the proposed pavement areas. The borings were extended to approximate depths ranging from 3.8 to 13.6 feet below the existing ground surface levels. Representatives of GFAC established the boring locations in the field. Distances were measured with a measuring wheel. Right angles were estimated. Elevations at the boring locations were determined through use of an engineer's level and were referenced to the top nut of a fire hydrant located near the southwest corner of the project site. An elevation of 100.0 feet was assumed for the temporary benchmark. Locations and elevations of the borings should be considered accurate only to the degree implied by the methods used to obtain them.

The drilling operations were performed by GFAC Engineering Inc. The borings were drilled using a truck-mounted (CME 55), rotary drill using solid stem augers to advance the borings. Representative samples were obtained using the split-barrel sampling procedures in general accordance with ASTM D 1586. The split-barrel sampling procedure utilizes a standard 2-inch O.D. split-barrel sampler that is driven into the bottom of the boring with a 140-pound auto-hammer falling a distance of 30 inches. The number of blows required to advance the sampler the last 12 inches of a normal 18 inch penetration is recorded as the Standard Penetration Resistance Value (N). These "N" values are indicated on the boring logs at their depth of occurrence and provide an indication of the consistency and hardness of the material.

Boring logs included in this appendix, present such data as soil and bedrock descriptions, depths, sampling intervals and observed groundwater conditions. Conditions encountered in each of the borings were monitored and recorded by the field engineer. Field logs included visual classification of the materials encountered during drilling, as well as drilling characteristics. Our final boring logs represent the engineer's

interpretation of the field logs combined with laboratory observation and testing of the samples. Stratification boundaries indicated on the boring logs were based on observations during our fieldwork, an extrapolation of information obtained by examining samples from the borings and comparisons of soils with similar engineering characteristics. Locations of these boundaries are approximate, and the transitions between soil and bedrock types may be gradual rather than clearly defined.

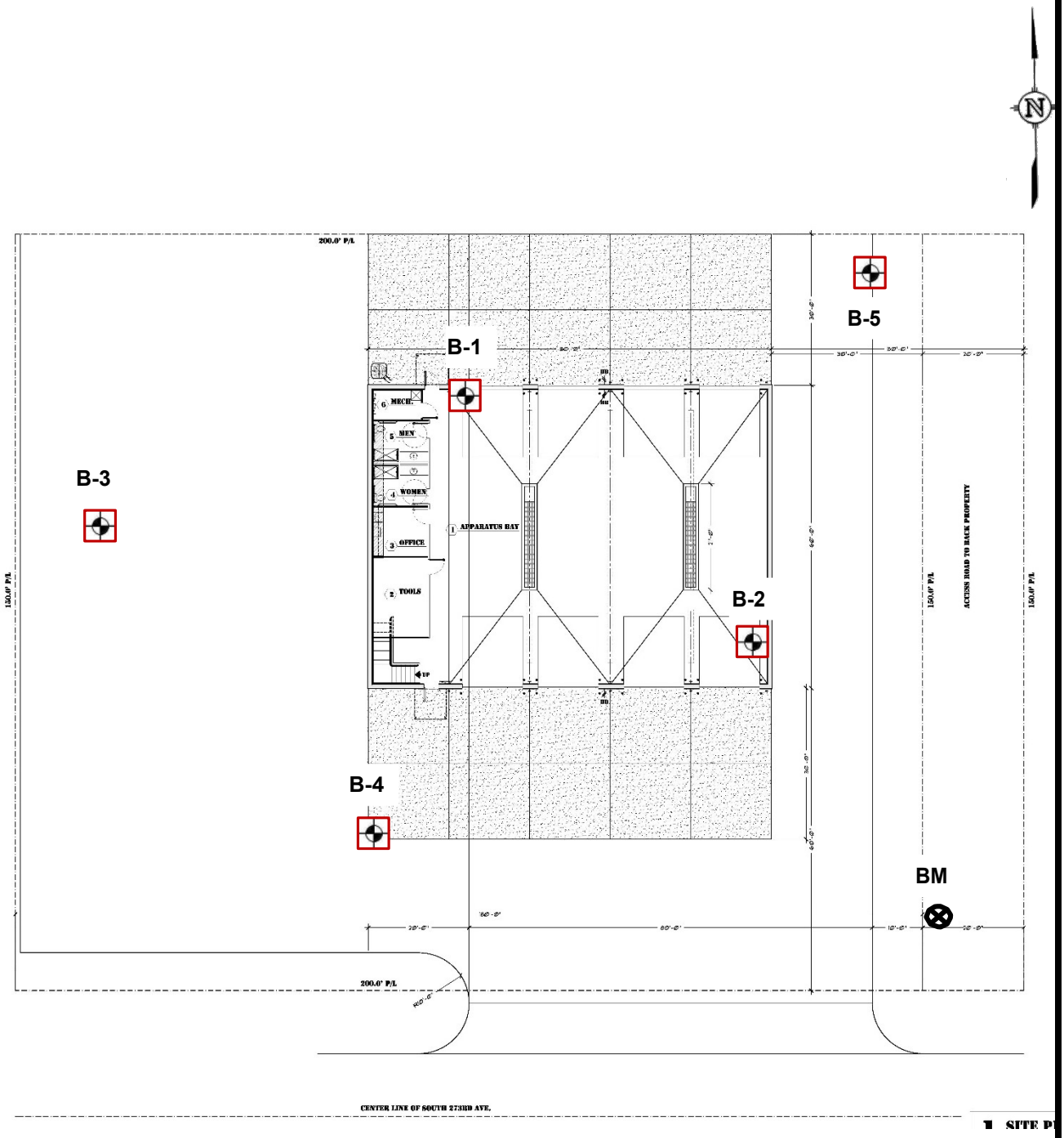


SOURCE: ESRI

Not to Scale

Site Location Map
Oak Grove Fire Station No. 2
Oak Grove Rd. and E. 51st St. South
Wagoner County, Oklahoma
Project G2016008 February 8, 2016

Plate 1



Site Plan provided by Property Arts, modified by GFAC.

Not to Scale

Boring Location Diagram
Oak Grove Fire Station No. 2
Oak Grove Rd. and E. 51st St. South
Wagoner County, Oklahoma Project
G2016008 February 8, 2016

Plate 2

GFAC ENGINEERING INC.
8157 E. 46th Street
Tulsa, Oklahoma 74145
Telephone: 918-622-7021

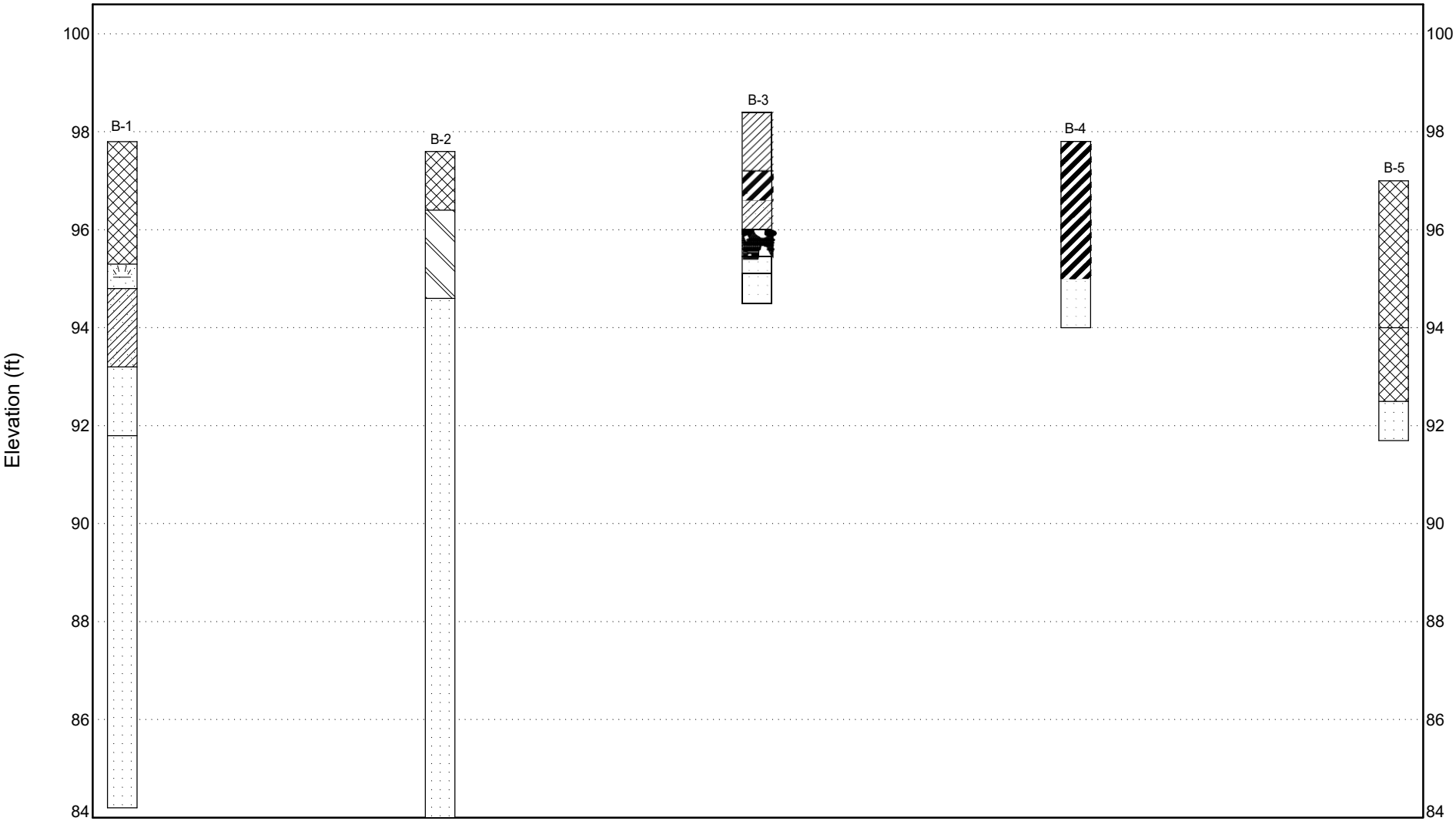
SUBSURFACE DIAGRAM

CLIENT Property Arts, Inc.

PROJECT NAME Oak Grove Fire Station No. 2

PROJECT NUMBER 2016008

PROJECT LOCATION Wagoner County, Oklahoma



STRATIGRAPHY & GW - A SIZE - GINT STD US LAB.GDT - 2/5/16 17:32 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\G2016008 OAK GROVE FD.GPJ

BORING NUMBER B-1

GFAC ENGINEERING INC.
8157 E. 46th Street
Tulsa, Oklahoma 74145
Telephone: 918-622-7021

CLIENT Property Arts, Inc.
PROJECT NAME Oak Grove Fire Station No. 2
PROJECT NUMBER 2016008
PROJECT LOCATION Wagoner County, Oklahoma
DATE STARTED 1/29/16 **COMPLETED** 1/29/16
GROUND ELEVATION 97.8 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR GFAC Engineering
GROUND WATER LEVELS:
DRILLING METHOD Continuous Flight Auger 6"
AT TIME OF DRILLING --- Dry
LOGGED BY DLK **CHECKED BY** BKM
AT END OF DRILLING --- Dry
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	Texas Cone Penetrometer	BLOW COUNTS (N VALUE)	Uncon. Strength (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		FILL - Sandy Lean Clay, dry to moist, amber, tan, and brown	SS 1	11		2-2-1 (3)			22	39	17	22	
		TOPSOIL - Leaves, Silty Clay, brown and dark brown											
		SANDY LEAN CLAY, moist, medium stiff, tan and brown	SS 2	78		1-3-2 (5)			18				
		- tan and brown weathered sandstone gravel below 3.5 feet											
5		WEATHERED SANDSTONE, poorly cemented, dark orange and brown											
		- olive and tan below 5.5 feet	SS 3	114		18-28-50/ 2"			9				
		SANDSTONE, cemented to well cemented, olive, tan, gray, and amber											
			SS 4	100		50/ 4"							
10													
		- olive and gray below 12.5 feet											
		Bottom of borehole at 13.6 feet.	SS 5	0		50/ 0.5"							

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GFAC ENGINEERING INC.
8157 E. 46th Street
Tulsa, Oklahoma 74145
Telephone: 918-622-7021

BORING NUMBER B-2

CLIENT Property Arts, Inc.
PROJECT NAME Oak Grove Fire Station No. 2
PROJECT NUMBER 2016008
PROJECT LOCATION Wagoner County, Oklahoma
DATE STARTED 1/29/16 **COMPLETED** 1/29/16
GROUND ELEVATION 97.6 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR GFAC Engineering
GROUND WATER LEVELS:
DRILLING METHOD Continuous Flight Auger 6"
AT TIME OF DRILLING --- Dry
LOGGED BY DLK **CHECKED BY** BKM
AT END OF DRILLING --- Dry
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	Texas Cone Penetrometer	BLOW COUNTS (N VALUE)	Uncon. Strength (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		FILL - Sandy Lean Clay, dry, tan, brown, and orange											
		- leaves at 0.9 to 1.1 feet	SS 1	78		2-3-5 (8)			24				
		LEAN TO FAT CLAY, moist, stiff, orange, tan, and brown											
			SS 2	95		10-50/ 3.5"			23	29	22	7	
		SANDSTONE, poorly cemented to cemented, tan, brown and gray											
		- tan below 3.2 feet											
5		- reddish brown and brown below 4.8 feet	SS 3	25		50/ 1"							
		- well cemented with cemented layers below 5.8 feet											
			SS 4	20		50/ 1.25"							
10		- poorly cemented with cemented seams below 10.1 feet											
		- brown and tan below 11 feet											
		- gray and olive below 12.5 feet											
		Bottom of borehole at 13.6 feet.	SS 5	0		50/ 1.5"							

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GFAC ENGINEERING INC.
8157 E. 46th Street
Tulsa, Oklahoma 74145
Telephone: 918-622-7021

BORING NUMBER B-3

CLIENT Property Arts, Inc.
PROJECT NAME Oak Grove Fire Station No. 2
PROJECT NUMBER 2016008
PROJECT LOCATION Wagoner County, Oklahoma
DATE STARTED 1/29/16 **COMPLETED** 1/29/16
GROUND ELEVATION 98.4 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR GFAC Engineering
GROUND WATER LEVELS:
DRILLING METHOD Continuous Flight Auger 6"
AT TIME OF DRILLING --- Dry
LOGGED BY DLK **CHECKED BY** BKM
AT END OF DRILLING --- Dry
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	Texas Cone Penetrometer	BLOW COUNTS (N VALUE)	Uncon. Strength (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		LEAN CLAY, moist, medium stiff, brown, tan, and amber											
		FAT CLAY, moist, stiff, tannish red	SS 1	44		3-2-6 (8)			17				
		SANDY LEAN CLAY with Sandstone Gravel, moist, stiff, orange, brown, and tan											
		SANDSTONE COBBLES with trace Fat Clay Seams, tan and brown											
		WEATHERED SANDSTONE, poorly cemented, brown, tan, and orange	SS 2	100		50/ 5"							
		SANDSTONE, cemented, brown and tan											

Bottom of borehole at 3.9 feet.

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GFAC ENGINEERING INC.
8157 E. 46th Street
Tulsa, Oklahoma 74145
Telephone: 918-622-7021

CLIENT Property Arts, Inc.
PROJECT NAME Oak Grove Fire Station No. 2
PROJECT NUMBER 2016008
PROJECT LOCATION Wagoner County, Oklahoma
DATE STARTED 1/29/16 **COMPLETED** 1/29/16
GROUND ELEVATION 97.8 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR GFAC Engineering
GROUND WATER LEVELS:
DRILLING METHOD Continuous Flight Auger 6"
AT TIME OF DRILLING --- Dry
LOGGED BY DLK **CHECKED BY** BKM
AT END OF DRILLING --- Dry
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	Texas Cone Penetrometer	BLOW COUNTS (N VALUE)	Uncon. Strength (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SANDY FAT CLAY, dry, very stiff, tan, brown, and amber with ferrous nodules	SS 1	33		9-10-10 (20)			18	58	20	38	
		SANDSTONE, poorly cemented, brown and tan	SS 2	86		50/ 3.5"							

Bottom of borehole at 3.8 feet.

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BORING NUMBER B-5

GFAC ENGINEERING INC.
8157 E. 46th Street
Tulsa, Oklahoma 74145
Telephone: 918-622-7021

CLIENT Property Arts, Inc.
PROJECT NAME Oak Grove Fire Station No. 2
PROJECT NUMBER 2016008
PROJECT LOCATION Wagoner County, Oklahoma
DATE STARTED 1/29/16 **COMPLETED** 1/29/16
GROUND ELEVATION 97 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR GFAC Engineering
GROUND WATER LEVELS:
DRILLING METHOD Continuous Flight Auger 6"
AT TIME OF DRILLING --- Dry
LOGGED BY DLK **CHECKED BY** BKM
AT END OF DRILLING --- Dry
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	Texas Cone Penetrometer	BLOW COUNTS (N VALUE)	Uncon. Strength (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		FILL - Lean Clay, moist, tan, brown, and amber											
			SS 1	89		0-1-2 (3)			21	43	17	26	
		POSSIBLE FILL - Lean Clay with Sandstone Gravel, moist, medium stiff, brown, tan, gray, and amber	SS 2	100		0-3-13 (16)			18				
5		SANDSTONE, poorly cemented to cemented, olive and gray	SS 3	75		50/ 4"							

Bottom of borehole at 5.3 feet.

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APPENDIX B

LABORATORY TESTING PROGRAM

LABORATORY TESTING PROGRAM

GENERAL

Laboratory tests were performed on select, representative samples to evaluate pertinent engineering properties of these materials. We directed our laboratory testing program primarily toward classifying the subsurface materials, and measuring index values of the on-site materials. Laboratory tests were performed in general accordance with applicable standards, and the results are presented on the respective boring logs. The laboratory testing program consisted of the following:

- **Moisture content tests** ASTM D 2216, Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

- **Atterberg limits tests** ASTM D 4318, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

- **Visual classification** ASTM D 2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)

CLASSIFICATION

All samples were examined in field by a geotechnical engineer using visual and manual procedures. The samples were classified in general accordance with the Unified Soil Classification System, and are shown on the boring logs.

Bedrock units encountered in the borings were described based on visual classification of disturbed auger cuttings and recovered samples, as well as drilling characteristics. Core samples may reveal other rock types.

SECTION 02020 CLEARING, GRUBBING AND STRIPPING

PART 1 - GENERAL

1.01 SUMMARY

A. Provide all labor, materials, equipment and incidentals necessary to perform all clearing, grubbing, stripping, removing and disposing of all vegetation and debris within the area(s) of the building and its appurtenances. This work shall also include the preservation from injury or defacement of all vegetation and objects designated to remain.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 Clearing

A. Remove all vegetation and debris from all building and paved areas of the site and all other areas that are to receive fill material.

B. Dispose of the cleared material off-site at a location secured by Contractor, in accordance with the appropriate local codes, ordinances and laws.

C. Protect vegetation, indicated on the Drawings to remain, such that it is not damaged during construction operations.

3.02 Stripping

A. Following site clearing, the topsoil shall be stripped from the building area, the paving areas and fill areas. The topsoil shall be stripped to a depth of not less than six (6) inches.

B. The stripped topsoil shall be stockpiled within the limits of the Project Site, for later use in finish grading.

3.03 Grubbing

A. All stumps, roots, and solid objects (i.e. rocks) within the building slab area, fill areas and/or paved areas shall be grubbed out in an approved manner such that the eighteen (18) inches below the building and paved areas are clear of any such materials.

B. Dispose of the grubbed out material off-site at a location secured by the Contractor, in accordance with the appropriate local codes, ordinances and laws.

END OF SECTION

SECTION 02050 EXCAVATION, BACKFILLING, AND COMPACTION

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes: Site work, rough grading and finish grading. Contractor will provide as part of this contract the building excavation, finish grading, and utility trenching.

B. Provide labor and materials to complete the operation as outlined on drawings.

1.02 PROTECTION

A. Keep trenches and excavated areas free from water by pumping or draining. Grade to drain surface water away from excavations.

B. Notify Architect of running water or springs found in excavations and provide temporary drainage.

1.03 JOB CONDITIONS

A. Seasonal Limits: No fill material shall be placed, spread or rolled while frozen, thawing or during unfavorable weather conditions.

1.04 TESTING

A. Testing shall be the responsibility of the Contractor. A commercial testing laboratory, approved by the Architect, shall perform tests. Field in-place density shall be determined in accordance with the most recent site standards of ASTM, ASTM Tentative Specifications, or AASHTO 238, which are current on the Bid Date. Within 24 hours of conclusion of physical test, copies of test results shall be furnished to the Architect.

B. It is the responsibility of the Contractor to notify the Architect and testing laboratory when lifts will be ready for testing. Work on subsequent layers of fill material shall not be started until testing on each layer is completed and notice is given to proceed. Any unapproved fill material will be removed. When test results are not as specified, the material shall be removed, replaced and recompacted to meet specification requirement at no additional expense to the Owner. Test on recompacted areas shall be performed to determine conformance with specification requirements.

C. A professional engineer who holds a current registration in the state in which the building project is to be constructed shall certify inspections and test results. These certifications shall state that the tests and observations were performed by or under the direct supervision of the engineer and that the results are representative of the materials or conditions being certified by the tests.

D. Follow the section outlining the "ADDITIONAL SERVICES" page 25 of the Subsurface Exploration and Geotechnical Report by GFAC Engineering dated February 17, 2016 and include the cost of these services as part the base bid.

E. Frequency of Testing:
    1. In-place Moisture Density Tests: One per 2,000 square feet per six-inch maximum lift of compacted material or fraction thereof, but not less than three tests per lift.
    2. Compaction Test Over Native Sub grade and Fill Material: Make at least one density test of sub grade for every 2,000 square feet of building slab, but no case less than three tests per lift.
    3. Compaction Test Over Backfill Layers: Make at least one density test in each compacted backfill lift for every 2,500 square feet of surface area overlayed by building slab but in no case less than three tests per lift.

1.05 BLASTING

A. Blasting will not be permitted on this Project

PART 2 - PRODUCTS

2.01 FILL AND BACKFILL MATERIALS

A. Structural Fill: Materials shall be as outlined in paragraph 4.3 on page 19 of the Subsurface Exploration and Geotechnical Report by GFAC Engineering dated February 17, 2016.

B. Imported Fill: Imported fill shall meet requirements of paragraph above and must be tested and approved prior to use on this project.

PART 3 - EXECUTION

3.01 UTILITIES

A. Report encounter of active utilities, not indicated by documents, to Architect. Disposition shall be as directed, with adjustment to contract amount. Extra payment will not be authorized for work that could have been foreseen by a careful examination of site.

B. Protect active utilities pending instruction for disposition.

3.02 ACCESS TO SITE

A. The dirt work contractor shall have access to the site located north of the intersection of Oak Grove Road and East 51st street south on the east side of Oak Grove road, approximately ¼ mile north of East 51st street south in Wagoner County.

3.03 SITE PREPARATION

A. The site shall be prepared as outlined beginning on page 6 paragraph 3.2 of the Subsurface Exploration and Geotechnical Report by GFAC Engineering dated February 17, 2016.

3.04 FOUNDATION EXCAVATION

A. Excavate for footing and foundations to depth indicated or as necessary to obtain firm, suitable bearing.

3.05 TRENCH EXCAVATION AND BACKFILL

A. Trench excavation and backfill to be performed by Mechanical and Electrical Contractor as required, both inside and outside the building, for all piping, utility services, foundations and equipment under respective contract. Trenches and other excavations shall be run to accurate grades and all disturbed earth to be removed. Sand backfill to a depth of 6" above piping shall be used outside building. Remaining backfill to be firmly tamped and puddled in place, in 6" layers, with earth free of rubble and rock, same as specified for backfill in General Work Specifications.

B. Contractor shall install an "Earth Plug" to be compacted structural fill material having a plasticity index range of 6 to 15 specifically to prevent ground water seepage under building through trenches.

3.06 FINISH GRADING

A. Reuse brown silt previously stockpiled and/or bring in topsoil to complete finish grading outside building and paving areas, a minimum of 4" of topsoil over controlled fill. Additional topsoil may have to be imported to complete this operation.

B. Fill topsoil to grade of new concrete paving, sidewalks, and along building 4" below finish floor ready for Bermuda sod to limits disturb by the new construction work by the Contractor and to limits of sod shown on drawings.

3.07 CLEAN UP

A. Keep excavated areas free from debris and stored materials that could damage surface or interfere with progress of work.

B. Remove excess materials, which will not be reused to the area designated to prevent large accumulations.

C. Store materials for reuse neatly in designated location.

END OF SECTION

SECTION 02075 BASE FOR PAVING

PART I - GENERAL

1.01 SUMMARY

A. Furnish all labor, materials and equipment necessary and required to construct the base for paving.

1.02 Referenced Specification

A. The Oklahoma Department of Transportation, Standard Specification for Highway Construction, complete with all Supplements, edition in effect on the Bid Date, is incorporated into the Contract Documents by reference and all Work shall be completed in full compliance with the referenced specification.

1.03 Testing

A. Testing shall be the responsibility of the Contractor. A commercial testing laboratory, approved by the Architect, shall perform test. Field in-place density shall be determined in accordance with ASSHO T-238, latest edition as of Bid Date. Within 24 hours of conclusion of physical test, copies of test results shall be furnished to the Architect.

B. It is the responsibility of the Contractor to notify the Architect and testing laboratory when lifts will be ready for testing. Work on subsequent layers of fill material will not be started until testing on each layer is completed and authorization is given to proceed. Any unapproved fill material will be removed. When test results are not as specified, the material shall be removed, replaced and recompacted to meet specification requirement at no additional expense to the Owner. Test on recompacted areas shall be performed to determine conformance with specification requirements.

C. A professional engineer who holds a current registration in the state in which the building project is to be constructed shall certify inspections and test results. These certifications shall state that the tests and observations were performed by or under the direct supervision of the engineer and that the results are representative of the materials or conditions being certified by the tests.

D. Frequency of Testing:
   1. In-Place Moisture Density Tests: One per 1,000 square yards per six-inch maximum lift of compacted material or fraction thereof, but not less than three tests per lift.

2. Compaction Test Over fill Layers: Make at least one density test in each compacted backfill lift for every 1,000 square yards of paved area in each lift, but in no case less than three tests per lift.

1.04 Submittals

A. Submit certified test reports on the proposed fill material from an approved testing laboratory showing, at a minimum, soil classification, liquid limit and plasticity index.

PART 2 - PRODUCTS

2.01 Select Borrow

A. Select Borrow is not available on-site and must be procured from an off-site location secured by the Contractor.

B. Select Borrow shall fully comply with the requirements of Section 02050.

PART 3 - EXECUTION

3.01 Fill

A. Lay select borrow in lifts not to exceed 6 inches in depth. Material shall be compacted to 95 percent of the materials Standard Proctor Density. Width and thickness of select borrow shall be as shown on the Drawings.

3.02 Tolerances

A. The Contractor shall use equipment and methods to enable the following tolerances to be achieved in the base:

B. Smoothness: ½" in 10 feet, tested with a 10 foot straightedge.

C. Thickness: Variance in thickness from specified shall not exceed one inch and average variance shall not be in excess of ½ inch.

D. All variations from the specified tolerances shall be corrected before beginning paving operations.

3.03 Protection of Base

A. During construction, base shall be kept shaped to proper profile and drained. Should water damage occurs, such damage shall be repaired before the application of paving. The finished base shall not be disturbed by traffic or other operations of the Contractor and the base shall not be used as a construction roadway. Do not store or stockpile materials on the finished base. Pavement shall not be laid until the base has been checked for tolerance and pavement shall not be placed on muddy or frozen base.

END OF SECTION

SECTION 02281 TERMITE CONTROL

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes: The pre-treatment of the under slab fill before placement of concrete.

B. Furnish labor and materials to complete the termite protection of the structure.

1.02 REFERENCES

A. EPA - Federal Insecticide, Fungicide and Rodenticide Act.

1.03 QUALITY ASSURANCE

A. Applicator: Company specializing in soil treatment for termite control with 3 years experience.

B. Material Packaging: Manufacturer's label and seals identifying content.

1.04 REGULATORY REQUIREMENTS

A. Conform to State of Oklahoma requirements for application, licensing and authority to use toxicant chemicals.

1.05 WARRANTY

A. Provide five-year warranty for material and installation to cover against invasion or propagation of subterranean termites, repairs to building or building contents so caused.

B. Inspect work annually and report in writing to Owner. Owner reserves right to renew warranty.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Toxicant Chemical: Conforming to the chemicals approved by the EPA for use to control termites. Contact State Department of Agriculture for approved termite control chemicals.

B. Dilute toxicant chemical to manufacturer's instructions.

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify the soil surfaces are unfrozen, sufficiently dry to absorb toxicant and ready for treatment.

B. Beginning of application means acceptance of soil conditions.

3.02 APPLICATION

A. Apply toxicant within 12 hours before installation of vapor barrier under slab-on-grade.

B. Apply at manufacturer's recommended rates.

3.03 CLEAN UP

A. At completion, remove all excess materials and debris resultant from operations of work for this section and place in dumpster provided.

END OF SECTION

SECTION 02510 CONCRETE WALKS AND MISC. CONCRETE SLABS

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes: The placement of concrete for sidewalks and concrete slabs outside the building.

B. Furnish complete labor, materials and equipment for concrete walks, and exterior concrete pads or slabs.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Refer to Division 3, "Concrete" for specifications for cement, aggregates, reinforcing steel, proportioning, testing, depositing, protecting and curing, patching and concrete specialties, except as specified herein.

B. Concrete for all exterior sidewalks and paved areas shall be proportioned to produce strength of 3,500 PSI at 28 days and 5%, plus or minus 1% entrained air. Thickness of concrete slabs, sidewalks as shown except in no case less than 4" maximum, aggregate size 3/4". Maximum slump 4".

PART 3 - EXECUTION

3.01 PREPARATION

A. Walks: Form edges with straight wood forms. Set grade-using instrument. Line accurately without variations.

B. Set form for miscellaneous concrete pads next to buildings with minimum slope of 1/8" per foot.

3.02 INSTALLATION

A. Expansion joint: Install 1/2" pre-molded expansion joint material specified full depth of walks, at intersection of walks, building, and vertical surfaces.

B. Control Joints: Tool joints or saw cut joints in walks as shown on drawings (4'-0" o.c.) with jointing tool to depth of 1" or 1/4 the total depth of the concrete.

C. Top Surfaces: Crowned or sloped at rate of 1/8" per foot minimum to drain water. Walks holding puddles of water shall be removed and reinstalled.

D. Surfaces: Rough screed concrete to form crown if required. Use steel trowel and edge tool to give slight radius. Give broom finish to make uniform non-slip wearing surface. Avoid excessive roughness.

3.03 CLEAN UP

A. At completion of the work, remove forms from site and clean up any remaining debris from this operation.

B. Place debris in dumpster provided.

END OF SECTION

DIVISION 3 CONCRETE

SECTION 03200 CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes: Fabrication and placement of reinforcement for cast-in-place concrete, reinforcing steel bars, post-tension cables if used, welded wire fabric, ties and supports.

1.02 REFERENCE STANDARDS

A. The following codes and manual form a part of this specification.
   1. Building Code Requirements For Reinforced Concrete (ACI 318-83).
   2. Details and Detailing of Concrete Reinforcement (ACI 315-80).

PART 2 - PRODUCTS

2.01 MATERIALS

A. Reinforcing steel: Domestic manufacture, rolled from new billet stock. Stirrups and ties ASTM A-615, Grade 40, all other ASTM specification A-615, Grade 60, unless noted.

B. Welded wire fabric: Steel reinforcing 6x6 10/10 W.W.M., ASTM-185, for sidewalks.

C. Post-tension Cables: See drawings if used.

D. Reinforcement accessory materials:
   1. Tie Wire, Minimum 16 gauge annealed type.
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during installation and placement of concrete, including load bearing pad on bottom to prevent vapor barrier puncture.

PART 3 - EXECUTION

3.01 FABRICATION AND PLACING

A. Reinforcing Bar and Fabric:
   1. Reinforcing steel shall be cut, bent cold to dimensions and lengths required to comply with details and intent of design arrangement.

2. Necessary splices, not shown on Drawings, shall be lapped 36 diameters. Splices in adjacent bars shall be staggered. Adjacent sheets of wire fabric shall be lapped at least 6" and securely wired. Hooks in accordance with ACI 318-77.
3. Clearances: Reinforcing in slabs on grade, 2" from top of slab unless otherwise noted.
4. Reinforcing shall be free from rust, scale or other coatings that will destroy or reduce bond and shall be accurately placed and adequately secured in position.

END OF SECTION

SECTION 03300 CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: The extent of cast-in-place concrete for concrete slabs, floor slabs, and footings as shown on Drawings.

1.02 REFERENCES

A. ACI 301 - Specifications for Structural Concrete for Buildings.

B. CRSI - Manual of Practice.

1.03 TESTING

A. Testing and analysis of concrete will be performed under provisions of this section. Notify testing laboratory 24 hours prior to proposed concrete pour.

B. Testing firm will take cylinders and perform slump and air entrainment test in accordance with ACI 301.

C. Three concrete test cylinders will be taken for every 100 or less cu. yds. of each class of concrete placed each day.

D. One slump test will be taken for each set of test cylinders taken.

E. For air-entrained concrete one air content test will be made when slump test is taken.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Cold Weather: Perform work in accordance with ACI 306.
   1. Comply with the following for minimum temperature of concrete delivered to job site:
      a. Air temperature 30 to 45 degrees F: Concrete temperature 55-90 degrees F.

B. Combine water heated to above 100 degrees F with aggregate before cement is added. Do not add cement to water or aggregates having temperatures greater than 100 degrees F.

C. When outdoor temperature is less than 40 degrees F, maintain temperature of concrete at not less than 50 degrees F for required curing time.
   1. Make arrangements before placement to maintain required temperature without damage from excessive heat.

D. Hot Weather: Perform work in accordance with ACI 305.
   1. Do not deliver concrete to job site above 90 degrees F. Cool ingredients before mixing to prevent concrete temperature in excess of 95 degrees F.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Form Work: Engineer forms, shores, bracing, and other temporary supports to support loads imposed during construction.
   1. Plywood: Sound, undamaged sheet with straight edges.
   2. Lumber: Construction grade.
   3. Steel: Minimum 16 gauge sheet, well matched, tight-fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.
   4. Form Ties: Removable or snap-off metal, fixed or adjustable length as applicable, with cone ends.

B. Concrete: 3,000 p.s.i. strength.
   1. Cement: ASTM C150, normal - type 1.
   2. Accelerating Admixtures: ASTM C494: Type C. Use in cold weather only when approved by the Owner. The use of admixtures will not relax cold weather placement requirements.
   3. Set-Retarding Admixtures: ASTM C494, Type B. Use during hot weather only when approved by the Owner.
   4. Air Entraining Admixtures: ASTM C260. Add to concrete mix for concrete work subject to freeze-thaw cycling.
   5. Water Repellant Admixtures: **Master Builders MasterPel 235 or approved equal** – For use at **ALL** interior slabs on grade locations.
   6. Fly Ash: May **NOT** be used.

C. Perimeter Insulation: 1" perimeter insulation location as shown on drawings.

D. Curing Compound: Liquid Membrane Curing and Sealing Compound, ASTM C-309, Type I, Class A and B. The compound shall be a clear, acrylate type "Comspec. #1-21% Solids". When finish schedule calls for "sealed concrete" as the final finish on floors, clean floors and seal with one additional coat of "Comspec #1-21% Solids" prior to final completion.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that anchors, seats, plates, reinforcement, and other items to be cast into concrete are accurately placed, held securely, and will not cause hardship in placing concrete.

3.02 PREPARATION

A. Install 1" perimeter insulation on stemwall and on sand fill. Install specified vapor retarder under interior slabs on fill. Lap joints minimum 6" and seal. Do not disturb or damage vapor retarder while placing concrete. Repair damaged vapor retarder.

3.03 PLACING REINFORCEMENT

A. Perform concrete reinforcement work in accordance with CRSI Manual of Standard Practice, and Documents 63 and 65.
   1. Accurately place and secure saddle ties at every other intersection with 16 gauge black annealed wire: held rigidly in place with metal chairs or spacers during placing of concrete.
   2. Hold bars in beams and slabs to exact location during concrete placement. Use spacers, chairs, or other necessary supports with the following tolerances:

a. Bars in slabs and beams:
   1) Members 8" deep or less: +/-1/4 inch
   2) Members 8" to 2'-0" deep: +/-1/2 inch
   3) Members more than 2'-0" deep: +/-1 inch

b. Lengthwise of Member: +/-2 inches

c. Concrete cover to formed surfaces: +/-1/4 inch

d. Minimum spacing between bars: 1/4 inch

3.04 PLACING CONCRETE

A. Notify the Owner a minimum of 24 hours prior to commencement of concreting operations.

B. Place concrete in accordance with ACI 301; including hot and cold weather placement procedures.

C. Ensure reinforcement, inserts, embedded parts and formed joints are not disturbed during concrete placement.

D. Do not deposit concrete that has partially set or hardened; concrete that has accumulated on forms or reinforcement. Do not place concrete on previously deposited concrete that has hardened sufficiently to cause formation of seams or planes of weakness within respective member or section except as specified.

E. Deposit concrete as nearly in final position as practical to avoid rehandling. Do not permit concrete to drop freely a distance greater than 3 feet. Where longer drops are necessary, use chute, tremie, or other conveyance to assist concrete into place without separation.

F. Do not deposit concrete into excavation where water is standing. If place of deposit cannot be successfully pumped dry, pour through tremie with outlet end near bottom of place of deposit.

G. Vibration: As soon as concrete is deposited, thoroughly agitate by means of mechanical vibrators and suitable hand tools to work mixture into all parts and corners of forms and around reinforcing and embedded items. Use mechanical vibrators with minimum frequency of 7000 revolutions/minute. Do not over vibrate or use vibrators to transport concrete within forms. Insert and withdraw vibrators at many points, 10 to 30 inches apart. At each insertion, vibrate generally 5-15 seconds, sufficient to consolidate concrete but not long enough to cause segregation. Keep spare vibrator on job site during concrete placement operations.

H. Excessive honeycomb or embedded debris in concrete is not acceptable.

3.05 FORM REMOVAL

A. Do not remove forms until concrete has attained sufficient strength. Clamps or tie rods may be loosened 24 hours after concrete is placed. Ties, except for sufficient number to hold forms in place, may be removed at that time.

NOTE: When temperature below 40 degrees F prevails, leave forms in place additional period equal to time structure has been exposed to such lower temperature.

3.06 FINISHING

A. Give smooth rubbed finish to formed, interior, vertical, exposed concrete surfaces using thoroseal with acryl 60 as manufactured by Thoro consumer products. Install as recommended by manufacturer to a smooth sand texture finish (no circular swirl).

B. Give machine trowel finish to floor slabs.

C. Provide ACI Class B tolerance; 1/4-inch variation in 10 feet, measured with straight edge.

3.07 CURING

A. Apply one application of Comspec. #1-21% curing compound at manufacturer's recommended rate.

B. When finish schedule calls for "sealed concrete" as the final finish on floors, clean floors and seal with one additional coat of "Comspec #1-21% Solids".

C. Use of curing compound does not relieve Contractor of responsibility for protecting concrete when work is being done over or above finished concrete.

3.08 PROTECTION

A. Protect finished work.

B. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

3.09 CLEANING

A. Remove forms, equipment, protective covering, and rubbish resulting from concreting operations. Leave finished concrete surfaces in clean condition. After sweeping with ordinary broom and removing mortar, concrete droppings, loose dirt and mud; wash concrete floor with soapy water, mopping, and rinsing to keep excessive or injurious amount of water off floors.

END OF SECTION

DIVISION 5 METALS

SECTION 05100 STRUCTURAL AND MISCELLANEOUS STEEL

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all materials, labor, equipment and incidentals necessary for the installation of all structural and miscellaneous steel.

1.02 SHOP DRAWINGS

A. Submit complete shop and erection drawings showing dimensions, connections, sizes, methods of painting, thickness of metal, full, and complete instructions regarding concealed joints and fasteners. Necessary erection details, reinforcing, rough framing and structural supports shall also be shown.

B. The General Contractor is responsible to coordinate and approve all materials and installations by various trades/subcontractors.

1.03 CODES AND SPECIFICATIONS

A. All items of work under this Section shall be furnished, constructed and installed in strict conformance with latest editions of the following publications in effect on the Bid Date.

B. "Specifications for Design, Fabrication and Erection of Structural Steel for Buildings", Including "Commentary" adopted by the American Institute of Steel Construction, Inc. (AISC)

C. "Code of Standard Practice for Steel Buildings and Bridges", adopted by AISC.

D. "Code for Welding in Building Construction", as adopted by the American Welding Society. (AWS)

1.04 STRUCTURAL NOTES

A. Notes on the Structural Drawings may seriously impact the Work required by this Section. Where conflicts occur between this Section and the Structural Notes, the Structural Notes shall govern.

PART 2 - PRODUCTS

2.01 STRUCTURAL STEEL

A. All structural steel shall receive a standard shop coat of rust inhibitive paint in compliance with FS TT-P-86, Type II or SSPC-Paint 14.

B. Furnish all structural steel, as indicated on the Drawings, including all bolts, plates, anchors, fitting, attachments and devices necessary for a complete job.

C. Unless noted otherwise on the Drawings, comply with the following Standards:
   1. ASTM A-36: Steel shapes, plates, bars
   2. ASTM A-501: Square and rectangular tubular steel items
   3. ASTM A-500: Cold-formed steel items
   4. ASTM A 53, Type E or S, Grade B: Steel Pipe

2.02 MISCELLANEOUS STEEL

A. Furnish all angles, plates, and other items of miscellaneous steel, as shown on the Drawings or required for a complete job, including all anchors and fittings required.

2.03 OTHER MATERIALS

A. Arc welding electrodes: Heavily coated types conforming to the provisions for classification numbers "E70" of the joint AWS and ASTM, tentative specifications for Iron and Steel Arc-Welding.

B. High strength bolts: In compliance with ASTM A325 with hardened washers.

C. Standard bolts: In compliance with ASTM A307.

D. Nuts: Hexagon.

E. Grout: equal to Embco by Master Builders or Five Star Grout U.S. Grout Corp.

PART 3 - EXECUTION

3.01 FABRICATION

A. Materials shall be fabricated and assembled in the shop to the greatest extent possible. Shearing, flame cutting, and chipping shall be done carefully and accurately. Connections not indicated shall be made to conform to the AISC Specification for the "Design, Fabrication, and Erection of Structural Steel for Buildings". Shop connections shall be

welded or bolted to the extent practicable. Supplementary parts necessary to complete each item, though work is not definitely shown or specified, shall be included. All anchors, sockets or fastenings required for securing work to the other construction shall be furnished to the appropriate trades. Holes shall be cut, drilled or punched at right angles to the surfaces of the metal and shall not be made or enlarged by burning.

B. Verify all measurements and make all field measurements necessary before fabrication.

C. Miscellaneous bolts and anchors, supports, braces, and connections necessary for completion of the miscellaneous metal work shall be provided. The necessary rebates; lugs and brackets shall be provided so that the work can be assembled in a neat and substantial manner. Fastenings shall be concealed were practicable. Thickness of metal and details of assembly and supports shall give ample strength and stiffness. Where dissimilar metals are in contact, the surfaces shall be protected with a coat of bituminous paint to prevent galvanic or corrosive action.

3.02 SHOP PAINTING

A. After inspection and approval and before leaving the shop, all steel work shall be thoroughly cleaned, by effective means, of all loose scale, rust, spatter, slab or flux deposit, oil, dirt, and other foreign matter.

B. All steel work shall be given one shop coat of primer paint.

C. Apply paint thoroughly and evenly and well worked into the joints and other open spaces. Surfaces shall be dry when paint is applied.

D. All machine-finished surfaces shall be protected against corrosion by an approved coating.

3.03 ERECTION

A. The frame of the steel construction shall be erected plumb and true. Temporary bracing shall be introduced as necessary to take care of all loads to which the structure may be subjected while being erected, including erection equipment. Such bracing shall be left in place as long as may be required for safety.

B. All work shall be surely anchored and bolted as the erection work progresses in order to take care of all dead, live, wind and erection stresses.

C. Wherever piles of materials or other concentrated heavy loads are carried during erection, proper provision shall be made to carry safely such load.

D. All field connections may be welded or bolted unless otherwise shown on the Drawings.

E. Columns shall be plumbed and maintained in a true vertical position.

F. Twist drill shall be used to enlarge holes as necessary to make connection. Reaming that weakens the members or makes it impossible to fill the holes properly or to adjust accurately after drilling will not be allowed.

G. Light drifting as necessary to draw holes together will be permitted but drifting to match unfair holes will not be allowed.

H. No cutting of sections, flanges, webs, or angles shall be done without the approval of the Architect. Where so indicated on the drawings, required cutting holes, etc., shall be provided for the installation of the work of others. No additional holes or cutting of steel work shall be done except by permission of the Architect.

3.04 WELDING

A. Shall be done in accordance with the Code of Fusion, Welding, and Gas Cutting in Building Construction, Code 1, Part A, Structural Steel, latest edition as formulated by the American Welding Society and all welders to be certified by independent testing laboratory.

3.05 FIELD PAINTING

A. Field weld, bolts and serious abrasions to the shop coat shall be spot painted with the same material used for the shop coat. Mud, scale, rust and other objectionable foreign materials shall be removed before touch-up and general field painting. Touch-up and cleaning shall be done by this Contractor. All surfaces shall be clean, dry and the temperature above 50 degrees Fahrenheit when touch-up coat is applied.

3.06 GROUTING

A. Provide ¼" leveling plates an/or double-nutting nuts as indicated on the Drawings for leveling columns. Non-shrink Grout shall be installed only in accordance with manufacturer's instructions. All bearing plates and/or column base plates shall be set to proper grade and level by the Contractor and made ready for grouting.

END OF SECTION

DIVISION 6 WOOD AND PLASTICS

SECTION 06010 ROUGH CARPENTRY

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all materials, labor, equipment, accessories and tools necessary for the completion of all rough carpentry work, as shown or reasonably implied, including wood blocking and bracing required to accommodate other trades.

1.02 STANDARDS AND GRADE MARKING

A. Applicable Standards: comply with the latest edition of the following published standards and grading rules in effect on Bid Date.
   1. Lumber: American Softwood Lumber Standard PS 20 (U.S. Department of Commerce), S4S, 19 percent moisture at time of dressing.
   2. Plywood: Softwood Plywood Construction and Industrial Standard PSI (U.S. Department of Commerce)
   3. Also comply with where applicable:
      a. American Plywood Association Standards
      b. WWPA, WCLB, SP1B or NLGA grading rules
      c. AWPI LP-22 pressure treated Standards
      d. "Manual of House Framing", National Forest Products Association

B. Grade Marking: deliver lumber bearing the grade mark of the Association under whose rules it was graded.

C. Quality: Lumber must be sound, thoroughly seasoned, well manufactured and free from warp that cannot be corrected by bridging or nailing. Lumber shall meet or exceed grade requirements specified.

PART 2 - PRODUCTS

2.01 MATERIALS

All listed materials may not be required on this Project.

A. Light Framing (4" X 4" max): "Standard" grade, any species.

B. Structural framing (2" X 6" to 4" X 14"); "Standard or Better" grade, any species graded under WWPA, WCLB, SPIB or NLGA grading rules.

C. Sheathing Plywood: Standard EXT-DFPA, C-D, Exterior Glues.

D. Plywood for shimming nailers at exterior: Preservative treated, equal to Koppers Wolmanized CCA, 25 lbs minimum per cu. Ft. wood.

E. Pressure treated wood: AWPI, LP-22, water borne preservative (use for all exterior applications to include cants, curbs, nailers, and blocking). Kiln dry to 15% moisture content after treatment.

F. Plywood backing for electrical equipment: APA C-D plugged, exterior glue, ¾" thickness.

G. Anchorage and fastening material: Comply with applicable Federal Specifications for nails, staples, wood screws, bolts, nuts, washers, lag screws, lag bolts, masonry anchors, bar and strap anchors and other anchorage and fastening material as may be required.

H. Backing for toilet accessories and grab bars: "Standard Grade" any species, 2 X 12

PART 3 - EXECUTION

3.01 STORAGE AND PROTECTION

A. Stack framing lumber and plywood to insure proper ventilation and drainage. Cover Lumber and plywood to protection it from the elements.

3.02 INSTALLATION

A. Comply with "Manual of House Framing" for nailing, fire stopping, and anchorage, framing and bracing requirements.

B. Rough Carpentry: Install all blocking, grounds, plywood, shims and other items of rough carpentry as shown on the Drawings and as required for a finished job. All rough carpentry shall be fully and solidly anchored to supporting members with power or hand nailing, 'ramset guns', bolts, lag screws or other appropriate fasteners. Install blocking behind all toilet accessories and all other items to be mounted in or on drywall walls and partitions.

C. Treated Rough Carpentry: All gravel guard solid wood blocking, other solid wood blocking used in conjunction with the roofing, and nailers and plates in contact with concrete shall be wolmanized. Nailers and plates shall be firmly anchored to resist a force of 175 P.L.F. in any direction.

D. Plywood Roof Nailers (allowed where shown on the Drawings): Surface height of nailers shall be matched to the height of the rigid insulation, unless detailed otherwise on the Drawings. Nailers shall be firmly anchored to resist a force of 175 P.L.F. in any direction.

E. Screw-attach plywood sheathing 6" o.c. at edges of panels, and 12" o.c. at intermediate supports. Leave space between panels, and use screw size and type as recommended by APA.

3.03 COORDINATION

A. Finish carpentry, millwork, toilet accessories and other items furnished under other Sections of these Specifications shall be closely coordinated with this Section.

END OF SECTION

SECTION 06410 MILLWORK

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all materials, labor, equipment and incidentals necessary for the manufacture and installation of all millwork.

1.02 QUALITY ASSURANCE

A. The "Quality of Standards" of the Architectural Woodwork Institute shall apply as a minimum acceptable standard and by reference are hereby made a part of this Specification. Any reference to Premium, Custom, or Economy in this Specification shall be as defined in the latest edition of the AWI "Quality Standards," unless otherwise specified herein.

B. Any item not given a specific quality grade shall be "Custom" grade as defined in the latest edition AWI Quality of Standards.

C. Competence: The woodwork manufacturer must have a reputation for doing satisfactory work, on time and shall have successfully completed comparable work.

1.03SUBMITTALS

A. Submit complete Shop Drawings showing all items of millwork. Organize the Shop Drawings to properly separate the work, as it will be produced and used with items showing related positions and sections drawn at not less than one and one half inches (1 ½") equal one-foot (1'-0") scale. This Subcontractor shall be responsible for details and dimensions not controlled by job conditions. The General Contractor will be responsible for and furnish to this Subcontractor dimensions which he alone or other trades control such as wall-to-wall, ceiling heights, etc.

B. Submit color samples for plastic laminate. Show all proposed joints on Shop Drawings.

1.04DELIVERY, STORAGE AND HANDLING

A. Prior to accepting delivery, inspect all millwork to ensure that no sub grade, defective, or damaged pieces are delivered. No such pieces shall be installed on the Project.

B. Millwork shall be delivered only after General Contractor assures that proper storage will be provided at the job site.

C. Store millwork in a protected area until the General Contractor indicates he is ready to receive it.

1.05CONSTRUCTION

A. Certain items in this Section cannot be fabricated and assembled in the mill or shop, but this Section shall construct all items required, including those items requiring job site fabrication.

B. The Architect may permit deviations from the Drawings in method of construction and substitution of materials after approval, if these differences retain or increase the quality and workability of the millwork and the general appearance of the design is retained.

1.06WORKMANSHIP

A. To permit fabricator of millwork to utilize his manufacturing techniques to the best advantage, all details of millwork construction are not shown on the Drawings, but it is the intent of this Specification to require items of millwork be complete and finished with the highest degree of workmanship. In general, millwork shall be completely fabricated at shop as far as possible and delivered ready to set in place in largest units consistent with convenient erection and transit.

B. Work material in best manner, using dado, rabbet, lap, shoulder lap and other joints as indicated, glued to provide greatest strength and using a minimum of nails and screws. If used, nails and screws must be concealed. Use glue clamps. Make all mitered corners using cutter head or shaper that will provide an interlocking joint.

C. Round all exposed edges or corners of millwork.

D. Provide edging on all exposed plywood and particleboard edges. Edging shall run continuous and be solid matching material except fir plywood shall be edge banded with S4S material. Miter edging at corners; glue solidly.

E. Install laminated plastics top and surfacing edges on cabinets to plywood or particleboard with waterproof mastic as recommended and specified by manufacturer of plastic laminate used.

F. Cut openings in cabinet or vanity tops to receive sinks and built-in units. Work closely with mechanical section to insure exact size opening for sink rim. Sink sizes may vary.

G. On all trim ¾" X 2" and under, kerf the backside, on trim ¾" X 2 ¼" and over, back out in lieu of kerfing.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General:
   1. Grades specified conform to the most recent grading rules of the Southern Pine Association, the West Coast Lumberman's Association, Douglas Fir Association, Hardwood Plywood Association or Lumber Manufacturing Association, under whose rules lumber is produced.
   2. Lumber shall be kiln-dried t 10% to 12 % moisture content, which shall be maintained during fabrication of millwork.

B. Plywood: All sight exposed faces are plain sliced red oak unless noted otherwise on the Drawings.
   1. INT-DFPA-A-A two exposed faces: ¾" thick.
   2. INT-DFPA-A-D one face exposed, ¾" thick.

C. Solid Stock:
   1. S4S Grade Red Oak where sight exposed, unless noted otherwise on the Drawings.
   2. "B" and better Southern Yellow Pine or Parone Pine where not sight exposed, unless noted otherwise.

D. MDF: Industrial Grade (NO PARTICLE BOARD WILL BE ALLOWED)
   1. Cabinet Backs-1/4"
   2. Bulkheads-5/8"
   3. Tops-3/4"
   4. bottoms-3/4"

E. Veneer core panels may be used where appropriate and approved.

2.02 MILLWORK CABINETS-TRANSPARENT FINISH

A. AWI quality grade: Custom grade.

B. Construction: Details shall conform to "flush overlay" design, as indicted on the Drawings. Door and drawer faces cover the body members or face frames of the cabinets. Match the existing millwork.

C. Exposed parts: Red oak, Plain Sliced, unless otherwise noted on the Drawings.

2.03 HIGH PRESSURE LAMINATE TOP

A. Plastic laminate, satin or textured finish, minimum 0.05 inch thickness. Color as selected from manufacturer's stock standard patterns and solid colors.

B. Adhesive: Waterproof as recommended by manufacturer.

C. Manufacturers:
   1. Formica Corporation, Cincinnati, Ohio
   2. Wilsonart, Temple, Texas
   3. Nevamar
   4. Pointe

D. Color to be selected by Architect, more than one color may be chosen.

2.04 POLYESTER LAMINATE OVERLAY (THERMOSET)

A. Polyester laminate shall be 9 to 11 mils in thickness, 62% resin content, colorfast and shall meet or exceed ASTM D-L-300.

PART 3 - EXECUTION

3.01 SHOP ASSEMBLY

A. All millwork items are to be shop assembled whenever practical and delivered to job ready to set in place and finish. Items too large for handling and delivery are to be assembled in as few sub-units as possible. When shop assembly is not practical, all individual pieces of an item are to be bundled together and marked before delivery.

3.02 DELIVERY OF MILLWORK

A. No millwork will be delivered to the job until the building is completely closed in and weatherproof and all trades, which require water for their work, such as plaster, have been out of the building for a minimum of ten (10) days. Heat will be required in building during this ten (10) day period during cold weather.

3.03 SHELF SPANS

A. For spans up to 36", use ¾" thick material.

B. For spans between 36" and 48", use 1" thick material.

C. For spans greater than 48", provide additional mid-span support.

3.04 INSTALLATION

A. Install all millwork in accordance with the best workmanlike practice of the trade. All millwork items shall be installed true and level. All doors and drawer fronts shall be square, level and shall align with each other. All shelves shall be level. Holes for piping or other utilities shall be accurately located and neatly cut Putty all nail and screw holes. Caulk all millwork to adjacent surfaces.

B. Solidly anchor angle frame for vanities to walls using bolts or other approved anchors.

C. Install laminated plastic in compliance with manufacturer directions. Exposed seams of joints in finished surfaces shall be located where shown on Shop Drawings.

END OF SECTION

DIVISION 7 THERMAL AND MOISTURE PROTECTION

SECTION 07111 UNDERSLAB DAMPPROOFING

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment and incidentals required for the installation of a continuous vapor barrier below all floor slabs on grade.

1.02 SUBMITTALS

A. Submit manufacturers literature, fully describing the product, manufacturers installation instructions and requirements.

PART 2 - PRODUCTS

2.01 VAPOR BARRIER

A. The material shall be "Moistop" as manufactured by Fortifiber Corp., Los Angeles, California, or approved equal. Equal products shall demonstrate compliance with the following standards:

B. Compliance with Federal Specifications UU-B-790a, Type I, Grade A, Style 4;

C. Vapor Permeance (perms), 0.10 by ASTME-96, Procedure A;

D. Water Resistance (haws), 76 by ASTM D799;

E. Puncture Resistance (Beach Units), 63 by ASTM D781;

F. Tensile Strength (psi), MD-5000, CMD-2800; and

G. Dry Turnile Strength (lbs/1" width), MD-75, and CMD-43, by ASTM D828.

2.02 MATERIALS

A. Pressure sensitive tape for joint and puncture sealing Fortifiber Grade 495, as manufactured by Fortifiber corp., or approved equal.

B. Flashing cement shall be "Asphalt Roofing Cement" conforming to ASTM Specification D2822, as manufactured by Manville, Hoopers, GAF, or approved equal, as approved by vapor barrier manufacturer.

PART 3 - EXECUTION

3.01 INSTALLATION VAPOR BARRIER

A. The Vapor Barrier shall be installed under all floor slabs prior to the placing of the steel reinforcing and concrete, on the leveled and taped sand cushion. The material shall be rolled down in the widest practical width, parallel with the direction of the concrete floor, lapping all joints a minimum of six inches (6") and sealing them with pressure sensitive tape or solidly troweled application of flashing cement. All penetration or punctures shall also be sealed with pressure sensitive tape or solidly troweled application of flashing cement as per manufacturer's instructions.

END OF SECTION

SECTION 07200 BUILDING INSULATION

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all materials, labor, equipment and incidentals necessary to install general building insulation in the exterior walls, above lay-in ceilings (where scheduled) and sound batts in the interior partitions, as shown on the Drawings and/or specified herein. Other Sections of these Specifications may require additional insulation for specific products or materials.

B. **It is the intent of this specification to provide and install insulation in all areas of the building envelope to separate exterior conditions from the conditioned interior spaces. Insulating the exterior building envelope is to be continuous, without gaps or voids, whether shown on documents or not.**

1.02 SUBMITTALS

A. Submit manufacturer's literature, fully describing the product and necessary installation data.

1.03 DELIVERY AND STORAGE

A. Deliver materials to job site in original unopened packages, clearly marked with product brand name and manufacturer's labels.

B. Store materials under cover and protected from moisture, weather and construction activities.

1.04 QUALITY/TESTING STANDARDS

A. ASTM E-84, "Standard Test Method for Surface burning Characteristics of Building Materials."

B. ASTM E136, "Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degree Centigrade."

C. ASTM E-96, "Standard Test Methods for Water Vapor Transmission of Materials."

D. ASTM E-90, "Standard Method for Laboratory Measurement of Sound Transmission Loss of Building Partitions."

E. ASTM E-518, "Standard Test Method for Steady-State Thermal Transmission Properties by Means of Heat Floor Meter."

F. ASTM C-177,"Standard Test Method for Steady-State Thermal Transmission Properties by means of Guarded Hot Plate."

PART 2 - PRODUCTS

2.01 CEILING INSULATION – **NOT USED**

A. Glass-fiber blanket: Ceiling insulation shall have a thermal resistance factor of R-30, unless otherwise noted on the Drawings, and be unfaced.

B. Product shall have flame spread of not greater than 25 and a smoke development of not greater than 50 when tested in accordance with ASTM E-84. This product shall also be classified as non-combustible by passing the requirements of ASTM E-136.

C. Unfaced Fiberglass Insulation as manufactured by Owens/Corning Fiberglass Corp.: Unfaced Building Insulation, as manufactured by Certain Teed, Fiberglass Commercial Wall Insulation as manufactured Manville Corp., or approved equal.

2.02 EXTERIOR WALL INSULATION – **NOT USED**

A. Glass-fiber batt wall insulation shall have a thermal resistance of R-19 unfaced, unless otherwise noted on the Drawings, and faced with a kraft facing.

B. The Kraft facing shall have a maximum of 1.0 perms when tested in accordance with ASTM E-96.

C. Kraft Faced Fiberglass Insulation as manufactured by Owens/Corning Fiberglass Corp., Kraft Faced Building Insulation as manufactured by CertainTeed; Fiber Glass Commercial Wall Insulation, as manufactured by Manville Corp., or approved equal.

2.03 PRE-ENGINEERED BUILDING INSULATION

A. Wall insulation system shall be 3.5" R-11 NAIMA 202-96 faced GYMGUARD "Lamtec" vapor retarder. Color shall be "White".

B. Roof insulation system to be 9 1/2" thick and have a R-30 rating. Material shall consist of 2 layers; top layer 3.5" R-11 NAIMA 202-96 unfaced fiberglass blanket insulation. Bottom shall be 6" r-19 NAIMA 202-96 fiberglass blanket insulation manufactured to fit tight between purlins spaces and faced GYMGUARD by "Lamtec" vapor retarder with long tabs to lap over the top of the purlins. The finished product shall carry a UL rating of FHC 25/50. Color shall be "White".

PART 3 - EXECUTION

3.01 GENERAL

A. Install insulation full thickness all areas to be insulated. Leave no gaps.

B. Cut and fit tightly around obstructions and fill all voids to include double and nested studs and headers.

C. Install insulation in conformance with manufacturer's printed instructions.

D. Fit insulation behind electrical receptacles, piping, etc., to form a completely insulated area.

E. Insulations with facings shall have facing installed to the warm-in-winter side.

3.02 CEILING INSULATION

A. Install tightly butted over ceiling panels. Install over water and sprinkler piping to insure piping to insure piping is in the conditioned space

3.03 EXTERIOR WALL AND SOUND BATT INSULATION

A. Friction-fit in place between metal/wood studs as support until interior finish is applied. Wall stud spaces greater than eight feet (8') in height shall have supplementary support to hold the material in place, as per manufacturer's recommendations.

END OF SECTION

SECTION 07205 PERIMETER INSULATION

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all materials, labor, and incidentals required to install all perimeter foundation Insulation.

1.02 SUBMITTALS

A. Submit manufacturer's literature.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Perimeter Insulation: Shall be an extruded cellular foam polystyrene on inch (1') thickness insulation board, 4 ft. wide, prescored. Cut into 2'-0" wide sections or prescored for breaking into 2'-0" wide sections.

2.02 PRODUCTS/MANUFACTURERS

A. Styrofoam SM Insulation Board, as manufactured by Dow Chemical Co.

B. Amofoam Extruded Polystyrene Insulation, Amco Foam Products Co.

C. Foamular 150, as manufactured by UC Industries, Inc.

PART 3 - EXECUTION

3.01 INSTALLATION

A. All installation to be according to latest instructions of Manufacturer.

B. Install with joints tightly butted together without voids. Anchor in place to avoid shifting during concreting operations. Set insulation in adhesive as recommended by the manufacturer of insulation on vertical services.

END OF SECTION

SECTION 07270 FIRE/SMOKE PENETRATION PROTECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all materials, labor, equipment and incidentals necessary for the installation of sealing material required at penetrations through fire/smoke rated walls or floors.

1.02 SUBMITTALS

A. Submit manufacturer's literature fully describing the product and instructions for installation.

PART 2 - PRODUCTS

2.01 MATERIALS

A. USG Acoustical Products Co. Thermafiber Smoke-Stop System consisting of:
   1. Thermafiber Safing Insulation 4" thick with foil facing.
   2. Thermafiber Smoke Seal Compound.

B. Dow Corning Fire Stop System consisting of:
   1. Fire Stop Sealant 2000 at locations recommended by manufacturer.
   2. Fire Stop Foam 2001 at locations recommended by manufacturer.

C. General Electric Pensil Fire Stop System consisting of:
   1. Pensil 100 Firestop Sealant at locations recommended by manufacturer.
   2. Pensil 200 Firestop Foam at locations recommended by manufacturer

D. Isolatek International CAFCO TPS Firestop System.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Seal fire/smoke rated walls and floors where penetrations of utilities, ducts, pipes, conduit, or other materials, etc., occur.

B. Install in full compliance with the manufacturer's written instructions to achieve the required fire rating and/or smoke seal.

C. Install safing insulation of proper size at all "poke-through" floor and wall penetrations where required, leaving no voids. Compress to seal completely around telephone and electrical conduits and cables, ducts, piping or other utilities. Seal opening completely.

END OF SECTION

SECTION 07920 SEALANTS

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment and incidentals necessary for the application/installation of sealants to protect joints against the intrusion of foreign matter, passage of water or air.

1.02 QUALITY ASSURANCE

A. Qualifications of Installers: only workmen thoroughly trained in sealant technique shall perform Installation of sealants.

B. Rejection of Installed Sealant: Indication of a lack of skill on the part of installers shall be sufficient grounds for the Architect to reject the installed sealant and to require its immediate removal and complete replacement at no additional cost to the Owner.

1.03 SUBMITTALS

A. Submit manufacturer's literature and color samples.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver materials in original, tightly sealed containers or unopened packages with manufacturer's name, labels, product identification and lot numbers where appropriate.

B. Store materials out of weather in original containers or unopened packages as recommended by manufacturer.

PART 2 - PRODUCTS

2.01 PRODUCTS

A. Sealant: (All uses may not be in Project)
   1. For exterior vertical control and expansion joints;
      Multi-component Urethane Sealant equal to ASTM 920, Class 25 and Federal Specification TT-S-00230C, Type II, Class A, non-sag type.

2. For exterior horizontal control and expansion joints:
   Multi-component Urethane Sealant, non-modified, equal to ASTM 920-79, Type M, Grade SL, Class 25 and Federal Specification TT-S-00227e, Type I, Class B. Acceptable Manufacturers: Pecora NR-200; Vulkem 245; Tremco THC-900
3. For perimeter glazing (for use with multi-component silicone):
   Single-component Silicone Sealant meeting ASTM-920-79, Grade NS, Class 25 and Federal Specification TT-S-00230e, Type II, Class A and Federal Specification TT-S-001543C. Acceptable Manufacturer: Dow Corning 795; Tremco Spectrum 2
4. For perimeter glazing (for use with multi-component urethane):
   Single or multi-component Urethane Sealant meeting Federal Specification TT-S-0023, Type II or TT-S-00227e, Type I.
5. For interior usage:
   One component polyurethane sealant.
6. For plumbing fixtures (for use between fixture and floor or wall):
   Silicone rubber based, one-port non-sag elastomeric sealant, mildew resistant complying with FDA 21CFR177.2600, and type as recommended by manufacturer of sealant.

B. Primer: Primer shall be as recommended by manufacturer of sealant.

C. Back up Material: Foamed, closed-cell polyethylene or open-cell polyurethane rod stock or material as specially recommended by the manufacturer of sealant.

D. Bond Breaker Tape: Polyethylene or other plastic tape as recommended by sealant manufacturer.

2.02 SEALANT COLORS

A. Colors shall be selected by Architect from manufacturers range of standard colors. More than one color may be chosen.

PART 3 - EXECUTION

3.01 INSPECTION

A. Examine joints to be sealed for construction defects, which would adversely affect execution of work.

B. Ensure that masonry and concrete have cured 28 days minimum.

C. Do not start work until conditions are satisfactory.

3.02 PREPARATION

A. Cleaning: Clean joint surfaces, using joint cleaner or other methods as recommended by sealant manufacturer, to be free of dust, dirt, oil, grease, rust, lacquers, laitance, release agents, moisture or other matter which might adversely affect adhesion of sealant.

B. Masking: Mask areas adjacent to joints.

C. Priming: Apply primer, following manufacturer's instructions.

3.03 APPLICATION

A. Install backing material in joints using blunt instrument to avoid puncturing. Do not twist rod while installing. Install backing so that joint depth is 50% of joint width, but a minimum of ¼ inch deep.

B. Bond breaker tape shall be applied to sealant contact surfaces where bond to substrate or joint filler must be avoided for proper performance of sealant.

C. Apply sealant in joints using pressure gun with nozzle cut to fit joint width. Make sure sealant is deposited in uniform, continuous beads without gaps or air pockets.

D. Tool joints to required configuration within 10 minutes of sealant application. If masking materials are used, remove immediately after tooling. (Note: Soap and water will not be permitted in joint tooling process.)

3.04 CLEANING

A. Remove excess materials adjacent to joints by mechanical means or with xylol (xylene) or mineral spirits as work progresses to eliminate evidence of spillage or damage to adjacent surfaces. Note: When using flammable solvents, avoid heat, sparks and open flames. Always provide adequate ventilation and follow all precautions listed on solvent container label.

B. Leave finished work in neat, clean condition with no spillovers onto adjacent surface.

END OF SECTION

DIVISION 8 DOORS AND WINDOWS

SECTION 08110 FLUSH HOLLOW METAL DOORS

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment and incidentals necessary for the installation of all hollow metal doors.

B. Hollow metal requirements for this project are for standard manufacturer of the best quality. Competent agents or representatives in the State of Oklahoma shall represent the company.

1.02 SHOP DRAWINGS

A. Submit shop drawings showing doors and hollow metal work, schedules and details.

1.03 AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANCE

A. It is the specific intent of this Specification to require full and complete compliance with the requirements of the ADA. Flush Hollow Metal Doors shall be designed for full compliance to include Finish Hardware mounting heights.

B. The following requirements are applicable to this Project:
   1. The lowest 12" of the door shall be free to obstructions. Full glazed doors shall have a 12" bottom rail.
   2. Maximum mounting height for operable hardware shall be 48" to include deadbolts.
   3. Doors shall be designed for a ½" maximum threshold height.

1.04 TEST

A. Underwriters Laboratories labeled doors: All labeled doors shall be of type, which has been investigated and tested in accordance with UL-10 (B), ASTM E-152, NFPA 252, ANSI A2-2 and when required, UL-305.

1.05 STORAGE AND HANDLING

A. Doors shall be received at the job site and handled in a manner so as not to be damaged, stored in a protected area on wood runners or skids and shall be covered with vented tarpaulins or vented plastic.

1.06 APPROVED MANUFACTURERS

1. Steelcraft
2. The Ceco Corporation
3. Republic Builders Products
4. Curries Manufacturing, Inc.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Flush interior doors, shall be constructed of sixteen (16) gauge and fourteen (14) gauge cold rolled, stretcher leveled sheet steel in compliance with ASTM A 366 and ASTM A 568. Exterior doors shall be constructed of fourteen (14) gauge-galvanized sheets in compliance with ASTM A 525 and ASTM A 526. Reinforcing shall be manufacturer's best standard, and shall be spot-welded to both faces of the door so that they will form a rigid, flat surface. Doors shall be insulated with rock wool, fiberglass, or urethane, full length and width of doors for a **minimum R-value of 10.**

B. Exterior Doors: SDI-100 Grade III, Model 3, insulated. Full glazed doors shall be wide stile.

C. Interior Doors: SDI-100 Grade II, Model 3.

D. Where fire doors are called for on Drawings as labeled, their construction shall conform to all requirements of the National Board of Fire Underwriters.

E. Doors shall be mortised, reinforced, drilled and tapped for all mortise hardware, in accordance with Hardware Schedule, and templates furnished by the hardware supplier; except that drilling and tapping for surface door closers, door closer brackets, surface panic devices and/or other surface applied hardware shall be done in the field. Comply with ANSI A115 "Specification for door and frame preparation for hardware".

F. Reinforcements for locks shall be three-sixteenths inches (3/16") for fronts, with fourteen (14) gauge for roses and escutcheons. Hinge reinforcements shall be at least ten (10) gauge x 1-1/2" x 9". All mortising and reinforcements shall be accurate and done in a neat, workmanlike manner.

G. Locate finish hardware in accordance with Door and Hardware Institute's "Recommended locations for Builders Hardware" and ADA requirements.

H. Finish: After fabrication, thoroughly clean, chemically treat (to assure maximum paint adhesion) and dip or spray all surfaces of the door exposed to view with a coat of rust inhibiting primer, either air dried or baked on. All materials shall be protected for shipping so that they may arrive at job site without undue damage from shipping. Replace any damaged or dented doors.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Installation of doors: All metal doors specified herein shall be installed under the requirements of this Section. Hang doors accurately, with clearances shown and adjust for tolerances as specified in SD1-100.

END OF SECTION

SECTION 08115 STEEL FRAMES

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment and incidentals necessary for all hollow metal work such as door frames, sidelights, borrowed lights, exterior frames and transom frames.

B. Hollow metal requirements for this project are for standard manufacture of the best quality. Competent agents or representatives, who are experienced in the handling of such products, shall represent the company.

1.02 SHOP DRAWINGS

A. Submit shop drawings showing hollow metal work, schedules and details.

1.03 AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANCE

A. It is the specific intent of this Specification to require full and complete compliance with the requirements of the ADA, to include the 48" maximum mounting height for operable Finish Hardware.

1.04 TEST

A. Underwriters Laboratories labeled frames: All labeled frames shall be of type, which has been investigated and tested in accordance with UL-10 (B), ASTM E-152, NFPA 252, ANSI A2-2and when required, UL-305. Labeled frames shall have the same rating as the scheduled door.

1.05 STORAGE AND HANDLING

A. Frames shall be received by the Contractor at the job site and handled in a manner so as not to be damaged. They shall be stored in a protected area on wood runners or skids and shall be covered with vented tarpaulins or vented plastic.

1.06 APPROVED MANUFACTURERS

A. Steelcraft

B. The Ceco Corporation

C. Republic Builders Products

D. Curries Manufacturing, Inc.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Hollow metal frames shall be of sixteen (16) gauge for interior frames and fourteen (14) gauge for exterior frames, commercial quality cold rolled steel in compliance with ASTM A 366 and ASTM A 568. Exterior frames shall be galvanized in compliance with ASTM A 525 and ASTM A 526. Frames shall be neatly mitered and the corners welded and ground smooth for an invisible joint. Provide temporary spreader bars on welded frames. Anchors shall be furnished for at least each twenty-four inch (24") centers of jamb height to coordinate with wall and/or stud condition.

B. Frames shall be mortised, reinforced, drilled and tapped for all mortise hardware, in accordance with Hardware Schedule, and templates furnished by the hardware supplier; except that drilling and tapping for surface door closer brackets, and/or other surface applied hardware shall be done in the field. Frames shall be punched for rubber door silencers as specified under Builder's Hardware Comply with ANSI A115 "Specification for Door and Frame Preparation for Hardware"

C. All mortising and reinforcements shall be accurate and done in a neat, workmanlike manner. Provide steel strike and hinge reinforcement covers for frames.

D. Locate finish hardware in accordance with Door and Hardware Institute's "Recommended Locations for Builders Hardware: and ADA requirements.

E. Provide 26 ga. Steel plaster guards or mortar boxes welded to frame at back of hardware cutouts on all grouted frames.

F. Finish: After fabrication, thoroughly clean, chemically treat (to assure maximum paint adhesion) and dip or spray all surfaces of the frame exposed to view with a coat of rust inhibiting primer, either air dried or baked on. All materials shall be protected for shipping so that they may arrive at job site without undue damage from shipping. Replace any damaged or dented frames.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Installation of frames: Frames shall be set so that the finished installation is at correct elevation, plumb, level, in line and at correct location in the wall, thoroughly and solidly anchored.

END OF SECTION

SECTION 08200 WOOD DOORS

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all materials, labor, services and incidentals necessary for the installation of all wood doors.

1.02 DELIVERY, STORAGE AND HANDLING

A. Prior to accepting delivery, inspect all doors to ensure that no sub grade, defective or damaged pieces are delivered.

B. Doors shall be delivered only after General Contractor indicates that proper storage will be provided at the Project Site.

C. Store doors in a protected area until the General Contractor indicates he is ready to receive them.

1.03 TEST

A. Underwriters Laboratories labeled doors- all labeled doors shall be of type, which has been investigated and tested in accordance with UL-10, ASTM E-152, NFPA 252, ANSI A2-2 and when required UL-305 as shown on the Drawings and specified herein.

1.04 AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANCE

A. It is the specific intent of this Specification to require full and complete compliance with the requirements of the ADA. Wood Doors shall be designed for full compliance to include Finish Hardware mounting heights.

B. The following requirements are applicable to this Project:
   1. The lowest 12" of the door shall be free of obstructions. Full glazed doors shall have a 12" bottom rail.
   2. Maximum mounting height for operable hardware shall be 48" to include deadbolts.
   3. Doors shall be designed for a ½" maximum threshold height.

1.05 SUBMITTALS

A. Submit shop drawings indicating, to scale, all types, sizes and necessary installation details of the doors to be supplied.

B. Submit manufacturer's literature fully describing all types of doors to be supplied.

C. Submit "Life-of-the Installation" warranty.

PART 2 – PRODUCTS

2.01 MATERIALS

A. General grades specified conform to the most recent grading rules of the Southern Pine Association, the West Coast Lumberman's Association, Douglas Fir Association, Lumber Manufacturing Association, or Hardwood Plywood Association under whose rules the lumber is produced.

B. Lumber shall be kiln-dried to 10% to 12% moisture content, which shall be maintained during the fabrication and transport of doors.

C. Solid Core Wood Doors and Transom Panel Doors shall be equal to Weyerhauser Doors as listed below, in sizes and thickness indicated in the Door Schedule:

DPC-1 Standard non-labeled doors
DFP-20 20-minute door
DFM-45 "C" label door
DFM-90 "B" label door

1. Doors shall be faced with Premium; plain sliced "Red Oak".
2. Doors shall be finished with clear natural finish as specified in Painting, Section 09900.
3. Solid Core Wood Doors and Transom Panels shall carry a Life-of-the-Installation guarantee against warping, twisting, or manufacturing defects. Issue guarantee to Owner in writing.
4. Field cutouts of particleboard core door. Coat all raw edges with a heavy coat of good quality exterior varnish.
5. Provide labeled doors where shown on the Door Schedule.

PART 3 – EXECUTION

3.01 INSTALLATION

A. All doors to receive clear finish shall be sealed immediately upon delivery to the job site.

B. Installation of hardware:

1. The supplier will mark each item of hardware for location. If any item of hardware is delivered to the job not properly marked, return it.
2. Install and make necessary adjustments for proper working order.
3. Provide clean properly sized and accurately placed mortise and surface mounted finish hardware cuts and routs. Use appropriate jigs and templates and power mortising equipment for the installation of all mortise hardware.
4. Damaged hardware shall be replaced.
5. After hardware is installed, protect exposed surfaces by use of heavy paper and masking tape and maintain until job completion.

C. Removal for Painting:

1. Remove all hardware before painter's finish is applied and permanently replace and re-adjust for proper function after painter's finish has dried hard.

D. Grilles and Glass in Doors: (If applicable)
1. Location: Refer Door Schedule.
2. Materials: Grilles – furnished by mechanical section for installation by this Section.
3. Application: Install square and level.
4. Glass in rated doors shall be installed with metal stops.

E. Doors shall be hung to accurately fit their frames and shall operate smoothly, closing completely. Do not impair structural strength of the door in fitting or during hardware installation.

END OF SECTION

SECTION 08360 OVERHEAD DOORS

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes: Overhead door, electrically operable with weather seal at jamb and hardware.

B. Electrical wiring from makeup box to electric operators and control station.

1.02 RELATED WORK

A. Steel channel framing for door openings.

B. Brace framing for door tracks in excess of that specified in this section.

C. Electrical service to make up box located on electric door operators.

D. Empty conduit from control station to door operations.

1.03 SHOP DRAWINGS AND PRODUCT DATA

A. Submit shop drawings and product data, to include pertinent dimensions, general construction, component connections and details, anchorage methods, hardware locations, installation details, operating instructions and maintenance instruction.

1.04 DELIVER MATERIALS

A. Deliver doors and accessories in manufacturer's packaging complete with installation instructions.

PART 2 – PRODUCTS

2.01 DOOR AND OPERATOR

A. Upward acting door 12'x14' to be #432 medium duty series, ribbed exterior, 24 ga. steel, polystyrene insulating core, 26 ga. steel backing (interior), 2" thickness, interior mounted slide lock, standard lift tract (mounted as high as possible), chain hoist with bottom sensing edge as manufactured by Overhead Door Corporation with electric operators as specified.

B. Operator per Section 08720.

C. Weather seal installed at jamb and head to door on all overhead doors.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install overhead sectional doors complete with electric operators and controls in accordance with manufacturer's recommendations. Coordinate installation with electrical service.

B. Fit, align and adjust complete door assemblies level and plumb, and to provide smooth operation.

C. Securely brace overhead door tracks suspended from structure. Secure tracks to structural members only.

D. Secure weather seal to manufacturers recommendations.

3.02 CLEAN UP

A. Remove all debris resulting from this operation, place in dumpster provided.

END OF SECTION

SECTION 08700 FINISH HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes: Door hardware.

A. Furnish labor and materials to complete the installation of all work under this section.

1.02 GENERAL REQUIREMENTS:

A. This material shall be procured from a source of supply approved by the Architect as competent to correctly interpret the plans, details and specifications, and be prepared at all times to promptly and satisfactorily service the hardware on the job. This supplier must be an established contract builders' hardware firm, who meets all the above requirements, and who maintains and operates an office, display room and stock in the State of Oklahoma.
This material must be furnished by or under the direct supervision of an architectural hardware consultant, as certified by the Door & Hardware Institute Inc. regularly employed by this supplier, and all bids must be so certified. Bids on this material will not be acceptable from firms who have not been successfully engaged in selling and servicing contract builders' hardware for a period of at least five (5) years.

1.03 SCOPE OF THE WORK

A. The work to be done under this specification consists of furnishing and delivering to the General Contractor, at the building, all hardware.

B. The installation of this material shall be done by the General Contractor, but this contractor shall deliver all items to the building properly marked and identified. The General Contractor is responsible for protecting the original finish and texture of all items of finish hardware.

C. The finish hardware shall be installed by mechanics skilled in this type of work. The escutcheons must be set plumb and locks, knobs and cylinders must be installed in a neat and workmanlike manner and all template information to the various manufacturers, sizes, functions, designs, and types of hardware specified must be furnished. No substitutions will be considered.

D. If hardware for any particular door is not listed or described, it shall be furnished and shall be as specified for similar locations.

E. The hardware items listed in this specification are from the catalogs of the manufacturers as noted on the schedule. Suppliers of other manufacturers not covered by this specification must secure approval of the architects in writing not less than one week before date of letting.

1.04 SUBMITTALS

C. HARDWARE SCHEDULE: Contractor shall prepare and submit to the Architect five copies of a complete schedule of all finish hardware required. Schedule shall follow requirements of specifications and shall indicate types, manufacturer's name and number location and finish of each item required. Approval of schedule will not relieve contractor of responsibility for furnishing all necessary hardware.

B. SAMPLES: Submit such samples as required by the architect for approval: do not deliver hardware until approval is obtained.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Hardware manufacturers shall be as designated in the Hardware Schedule, or an approved alternate of compatible quality.

B. ROUGH HARDWARE: Not a part of this section of the specification. General Contractor to furnish and set all items that are specified or necessary for a complete job, and all hardware specified in other sections.

C. PACKING AND MARKING: Package each item of hardware and each lockset separately in individual containers, with necessary screws, keys, instructions and installation templates for spotting mortising tools. Mark each container with item number corresponding to number shown on contractor's hardware schedule.

D. FINISH: All hardware shall be us26d (626) brushed chrome or us32d (630) brushed stainless steel. Door closers shall be spray painted to match. Hardware for aluminum doors to match door finish.

PART 3 -EXECUTION

3.01 INSTALLATION

A. Hardware Mounting Heights:
   1. Door and Hardware Institute recommended locations for Builders Hardware for Standard Steel Doors and Frames, except as otherwise indicated.

2. Toilet accessories mounted at America Disabilities Act standard heights.

B. Install each hardware item to comply with manufacturer's instruction and recommendation

3.02 ADJUSTING

A. Hardware Adjustment: Return to project one (1) month after Owner's occupancy and adjust hardware to proper operation and function.

3.03 CLEAN UP

A. Place in dumpster provided all debris resulting from this operation.

3.04 KEYS & KEYING

A. All locksets shall be keyed alike or different as directed and master keyed. Furnish two (2) keys per lockset and six (6) master keys per project.

MANUFACTURERS LIST:

HA	HAGER
PE	PEMKO
GJ	GLYNN JOHNSON
IV	IVES

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H.W. SET #1

SINGLE DOOR #D1, D7, D19
EACH DOOR SHALL HAVE:

3	HINGES BB1279-4.5 X 4.5-NRP-US26D	HA
1	EXIT DEVICE 4700-47CE-ALUMINUM	HA
1	CYLINDER 3902-118-US26D	HA
1	CLOSER 5100-CUSH-N-STOP-ALUMINUM	HA
1	KICKPLATE 10" X DW-2"-US32D	HA
1	THRESHOLD 171A-DW-WS/PA	PE
1	SWEEP 315CN-DW	PE
1	SET WEATHERSTRIP 306AV-H&J	PE

H.W. SET #2

OVERHEAD DOORS #D8, D9, D10, D11, D12, D13, D14, D15

EACH DOOR SHALL HAVE:
COMPLETE WITH ALL HARDWARE BY DOOR SUPPLIER.

H.W. SET #3

SINGLE DOORS #D2, D3, D4, D5, D6, D16, D17, D18
EACH DOOR SHALL HAVE:

3	HINGES BB1279-4.5 X 4.5-US26D	HA
1	LOCKSET 3553-WITHNELL-2 ¾-ASA-US26D	HA
1	CLOSER 5100-CUSH-N-STOP-ALUMINUM	HA
1	WALL STOP WS407CCV-US32D	IV
1	SET STRIPPING S88D-H&J	PE

END OF SECTION

SECTION 08720 OPERATORS

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes: The electric operators for overhead doors, wall mount push button, and remote control.

B. Provide labor, equipment, materials, and the operators to complete this section of the work.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Electric operators shall be Model MD, side mounted, as manufactured by Overhead Door Corporation. Motor horsepower shall be as recommended by the Overhead Door manufacturer, 115 volts, single phase.

B. Motor shall have sufficient capacity to operate the door at an average speed of approximately eight (8) to twelve (12) inches per second. Motor shall drive the shaft with a V-belt. All bearings shall be a permanent lubrication type.

C. Electrical enclosure shall be a NEMA Type 1 and be mounted on the operator frame and have a 24 VAC control circuit wired for momentary contact "open" and constant contact "closed".

D. Operator control circuit shall be heavy duty, 24 volt, Class 2, three-button (open, close, stop) control station shall be wall mounted.

E. Provide radio control system with one controller of use in vehicle for each series #432 door (8 controllers total).

F. Brake shall be spring set and solenoid released and be able to stop and hold curtain in any position.

PART 3 – EXECUTION

3.01 INSTALLATION

A. The installation of the electric operators shall be completed by experienced workman of this trade.

B. Install operator in accordance with the manufacturers recommendations.

3.02 CLEAN UP

B. Place in dumpster provided all debris resulting from this operation.

END OF SECTION

SECTION 08780 MILLWORK HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all materials, labor, equipment and incidentals necessary for the installation of Millwork Hardware.

1.02 SUBMITTALS AND SUBSTITUTIONS

A. Submit millwork hardware schedule accompanied by manufacturer's literature (cut sheets) for each item.

PART 2 - PRODUCTS

2.01 MATERIALS AND FINISH

A. All exposed millwork hardware items shall be chrome, US26D.

B. The machine and woof screws shall be finished to match hardware.

2.02 PRODUCTS/SUPPLIERS

Hardware	Manufacturers & Approved Equals	
Drawer Slides	K & V	Grants
Cabinet Pulls	Stanley	
Cabinet Hinges	Stanley	
Cabinet Catches	Stanley	
Cabinet Door Lock	Sargent K & V	Corbin

A. Drawer Slides:
   1. 3" to 7-1/2" deep: #1428, K & V
   2. 8" or more deep: #1429, K & V
   3. File Drawers: #8400, K & V
   4. Keyboard Drawer Slide: #8150, K & V
   5. Pencil Drawer Slide: #8250, K & V

B. Cabinet Door Hinges (Overlay):
   1. Doors ¾" to 7/8" thick: #1592, Cabinet Hinge (knuckle type) by Stanley.
   2. Doors 1-1/2" to 1-3/8" thick: #1589 Cabinet Hinge (knuckle type) by Stanley.

C. Adjustable Shelf Standard (end supported): 255ZC K & V, or SST (Zinc) M-D.
D. Shelf Support Clips (end supported): 256ZC K & V, or SS20C (Zinc) M-D.

E. Drawer and Door Pulls: Series 4484, Stanley.

F. Drawer and cabinet Door Lock: (Supply Strike Plate)
   1. 1" thick and over door or drawers: Series 1654, Sargent.
   2. ¾" thick door or drawer-#986 K & V, or Series 4142, Sargent.

G. Miscellaneous Hardware:
   1. Magnetic catches for cabinet doors: #41 Stanley, or # 916 K & V.
   2. Felt adhesion silencers-all doors and drawers.
   3. Magnetic catches for doors (1" or thicker): #45 Stanley.
   4. Hanging file rack: Equal to Sparco #SP3-6 for legal files.

2.03 MANUFACTURERS

A. K & V: Knape and Vogt, Lamirada, CA 90638.

B. M-D: Macklanburg-Duncan, Oklahoma City, OK 73125.

C. Sargent: Sargent and Company, New Haven, Conn., 06511.

D. Stanley: Stanley Hardware, New Britain, CT, 06050.

PART 3 - EXECUTION

3.01 INSTALLATION AND MANUFACTURER

A. Installation shall be in compliance with manufacturers instructions.

B. Felt adhesive silencers shall be installed on the corners of all door and drawer fronts.

C. Magnetic catches shall be installed on all cabinet doors, which have pivot hinges.

D. Each file drawer shall have a hanging file rack installed.

END OF SECTION

DIVISION 9 FINISHES

SECTION 09251 DRYWALL CONSTRUCTION

PART 1 – GENERAL

1.01 SUMMARY

A. Furnish and install all materials, labor and equipment for drywall construction.

1.02 GENERAL REQUIREMENTS

A. Building shall be closed-in prior to start of drywall work.

B. In cold weather, the building shall be heated during the application of the gypsum board and joint treatment to maintain a uniform temperature in the range of forty-five (45) degrees F. to seventy (70) degrees F., and ventilation shall be provided to eliminate excessive moisture.

C. All materials shall be delivered to the job in original unopened containers or bundles, and stored in a place protected from damage and exposure to the elements.

D. The installation and application of all materials shall be in accordance with the latest printed directions of the manufacturer.

1.03 SUBMITTALS

A. Submit manufacturers literature describing all materials and components to be incorporated into drywall work.

B. Prepare and submit a sample of drywall texture to be used. Obtain approval before beginning finish work.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

A. All material shall be delivered to Project Site in original unopened containers or bundles, stored protected from damage or the elements.

B. Handle materials to prevent damage. Damaged products shall not be incorporated into the work.

1.05 REFERENCE PUBLICATION

A. Comply with applicable portions of "Gypsum Construction Handbook" as printed by United States Gypsum Company, latest edition in effect on the Bid Date.

PART 2 – PRODUCTS

2.01 MATERIALS

Materials shall be equal to the following United States Gypsum Products:

A. Gypsum Panels: 5/8" thick type "X" gypsum panels with tapered edges, fire rated, and moisture resistant in compliance with ASTM C 630 at locations shown.

B. Fasteners: USG Brand Screw Type S, GWB-54 or W.

C. Corner Bead: No. 103 Dur-A-Bead.

D. Metal Trim: No. 200-A Metal Trim.

E. Joint System: PERF-A-TAPE Joint System in compliance with ASTM C 475.

F. Metal Studs and Runners: 25, 20, 18 Gauge Galvanized or painted in compliance with ASTM C 645 where shown on the Drawings. Refer to drawings for stud size.– NOT USED

G. Resilient Channels: RC-1 Resilient Channels.

H. Furring Channels: DWC-25, Hat shaped in compliance with ASTM C 645

I. Channel stiffener: Cold-rolled 1 ½" x 16 gauge channel with bridging clips.

J. Control Joints: No. 093

K. Acoustical Sealant: Latex, Acrylic or Acrylic-Latex, non-staining type, permanently elastic and paintable.

2.02 MANUFACTURERS

A. Products equal to the above materials, furnished by the following manufacturers, will also be acceptable:
   1. Celotex
   2. National Gypsum Company
   3. Georgia Pacific

PART 3 – EXECUTION

3.01 MATERIAL LOCATIONS

A. Install materials at the specific locations as follows:
   1. Use 20 ga. Studs spaced at 16" o.c in all partitions, which carry ceramic tile
   2. Use 6" studs in partitions noted on Drawings.
   3. Install moisture resistant gypsum panels behind all ceramic tile.
   4. Install 4.0-mil vapor barrier all exterior walls.
   5. Install moisture resistant gypsum panels on all walls containing water supply/waste piping.

3.02 RATED ASSEMBLIES

A. Where Rated Assemblies are required, install in full compliance with ALL the requirements of the rating agency for the system and rating required.

3.03 INSTALLATION

A. Metal Studs: – **NOT USED**
   1. Runners shall be aligned accurately, as shown on Drawing, and securely anchored with suitable fasteners, spaced out not more than twenty-four (24) inches on center. Use toggle bolts or hollow wall anchors at 16 inches cc for anchorage to suspended drywall ceilings.
   2. Studs shall be positioned vertically on the runners, spaced not greater than 16 inches or 24 inches on center, as shown on Drawings. Anchor all studs to runner flanges by positive screw engagement through each stud flange and each runner flange. When necessary, studs shall be securely spliced with a minimum eight (8) inches nested lap in which one (1) screw stud is required.
   3. Studs shall be located not more than two (2) inches from all abutting partitions, partition corners and other construction.
   4. Provide triple studding at all abutting partitions, and double studding at all partition corners. Provide double studs at all door and window jambs. (Nested stud where shown). Stud shall be securely anchored to the jamb and head anchor clips at each door, borrowed light or window frame.
   5. Install two (2) cold-rolled channel stiffeners in all metal stud walls 8'-0" or longer in unsupported length or walls which contain a door which is wider than 3'-0".
   6. Isolate all non-loading partitions from building structure to prevent transfer of loading and deflections into metal studs, both vertically and horizontally.
   7. Terminate non-load bearing partitions at least 12" above finish ceiling line. Terminate partitions at roof deck where noted on Drawings.

B. Furring and Resilient Channels: Furring channels shall be positioned vertically and spaced not greater than twenty-four inches (24") O.C. and shall be secured with self-drilling expansion anchors.

C. Gypsum Panels:
   1. Gypsum Panels: shall be applied with long dimension parallel to framing members at walls and perpendicular to framing members at ceiling and all abutting ends and edges shall occur over supports. Panels of maximum practical length shall be neatly fitted and staggered. Joints on opposite sides of partitions shall occur on different studs. No joints shall occur within twelve inches (12") of doorjambs.
   2. All fasteners shall be spaced a maximum of twelve (12) inches on center in the field of the panel and eight (8) inches on center along the edges of each panel with fasteners staggered along the vertical abutting edges. Heads of fasteners shall provide a light depression below the surface of the panel and shall not be driven closer than three-eight (3/8) inches from the edges and ends of the panel. Fasteners shall be of the length recommended by the manufacturer.
   3. Form "Floating" construction at internal corners except where special isolation or edge trim is indicated.
   4. Install vapor barrier on interior of exterior wall framing members to comply with ASTM C 755. Seal all joints with vapor retarder tape. Insure full coverage. Seal all punctures, tears or penetrations.

D. Accessories:
   1. Install all accessories in accordance with manufacturer's directions, plumb, true and level in a neat and workmanlike manner with corners mitered and true fitting. All accessories shall be installed in full lengths where practical. Where it is not practical for installation in full lengths, a minimum of accurately fitted joints will be permitted.
   2. All vertical or horizontal external corners shall have DUR-A-BED corner reinforcement.
   3. All interior corners shall have PERF-A-TAPE corner reinforcement.
   4. All intersections of drywall with other materials and all perimeters of gypsum board walls shall have No. 200-A Metal taping bead.
   5. Install control joints in full compliance with manufacturers directions and printed instructions. Do not exceed recommended spacing even if specific joint locations are not shown on Drawings. Coordinate locations of joints with Architect.
   6. During the one-year warranty period, installing a drywall control joint and finishing the wall to match the existing shall repair any cracks, which occur in the drywall surfaces.

E. Joint Treatment: All joints, screw heads and other depressions in the surface of the panels shall be treated in accordance with the manufacturer's directions for the PERF-A-TAPE Joint System. Neatly smooth off and make ready for the painter.

F. Wall Texture: All walls and ceilings shall receive the finishes as noted below. Walls to receive wall fabric, vinyl wall fabric or wall paper shall be sealed with one coat of varnish.
   1. Light/Medium stipple in all areas unless noted otherwise.

END OF SECTION

SECTION 09650 RESILIENT FLOORING

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all materials, labor and equipment for the installation of resilient floor covering.

1.02 SUBMITTALS

A. Complete manufacturers data on both vinyl tile and adhesive. Data shall include substrate moisture limits and recommendations.

B. Complete range of manufacturers color samples.

1.03 TESTS

A. Prior to start of installation, conduct moisture content testing on substrate.

B. Testing shall be by the calcium chloride method using test kits equal to those developed by the Rubber Manufacturers Association.

C. Take one (1) test for each 500 square feet of tiled area and at least one (1) test for each tiled area. The tile subcontractor shall be responsible for selection of test location. Priority for test location shall be given to any suspect area.

D. Submit moisture test results to Architect.

E. Do not proceed with tile installation until moisture is within specified limits.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Vinyl Composition Tile shall be 12" x 12" x 1/8" equal to the following:
   1. Armstrong "Excelon"
   2. Azrok "Premiere"
   3. Kentile "Standard Architectural Series"

B. Edge Strips and Reducing Strips: Not less than 1 inch wide, 1/8" gauge, tapered edge, and vinyl.

C. Adhesive shall be as recommended by manufacturer for use over concrete floors with curing compounds as specified elsewhere and wall surfaces as shown on Drawings.

2.02 COLOR AND PATTERN

A. Colors and patterns shall be selected by Architect from manufacturers standard colors. More than one color or pattern may be chosen.

PART 3 - EXECUTION

3.01 PREPARATION OF SURFACES

A. Before installation of floor covering, concrete floor slab shall be thoroughly cleaned and any cracks or joints filled with floor stone or similar material. Depressions, hollows, peaks or other irregularities shall be corrected by installation of latex underlayment or by grinding.

B. Apply concrete slab primer when recommended by flooring manufacturer prior to application of adhesive in compliance with manufacturers directions.

3.02 INSTALLATION

A. Floor Tile: Install floor tile in areas indicated on Drawings. Tile to be installed according to latest written instructions of manufacturer.

B. Install vinyl edge or reducing strips at all doorways where finish floor material is a different height, where carpet abuts another material and where exposed concrete abuts a finish floor material.

3.03 CLEANING AND WAXING

A. After tile installation is complete, clean tile in manner recommended by manufacturer.

B. Apply one (1) coat of wax recommended by manufacturer of tile used and polish with commercial type electric machine.

C. If prewaxed flooring materials are provided, follow manufacturer's specific cleaning and polishing instructions.

3.04 REPLACEMENT TILE

A. Contractor shall provide enough spare tile of each color in unopened cartons to cover fifty (50) square feet for Owner's future use. Spare tile shall be in perfect condition.

END OF SECTION

SECTION 09651 VINYL BASE

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all materials, labor and equipment for the installation of vinyl base.

1.02 SUBMITTALS

A. Complete manufacturers data on both base and adhesive.

B. Complete range of manufacturers color samples.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Vinyl Base: Comply with FS SS-W-40, Type I, 4' high, 1/8" gauge, coved roll type. Premolded corners are acceptable on returns of 8" or less only. Acceptable manufacturers:
   1. Flexco, Division of Textile Rubber Co., Inc.
   2. Johnson Rubber Company
   3. R.C. Musson Rubber Company
   4. Roppe Rubber Company

B. Adhesive shall be as recommended by manufacturer for use on wall surfaces shown on Drawings.

2.02 COLOR

A. Colors shall be selected by Architect from manufacturers standard colors.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Apply vinyl base in as long lengths as practicable to walls, columns and all permanent fixtures where indicated. On masonry or other irregular surfaces, fill voids behind base and along top edge with manufacturer's recommended adhesive filler. Apply vinyl base only after completion of carpet or vinyl flooring installation. Match and wrap base around corners. Joints in base shall be neatly fitted and no closer than 2'-0" to any corner.

B. Install vinyl edge or reducing strips at all doorways where finish floor material is a different height, where carpet abuts another material and where exposed concrete abuts a finish floor material.

END OF SECTION

SECTION 09900 PAINTING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Paint and finishing of the exterior and interior exposed surfaces.

B. Furnish labor and materials to complete work indicated.

1.02 DELIVERY, STORAGE, AND HANDLING

A. Deliver paint materials in sealed original labeled containers, bearing manufacturers name, type of paint, brand name, color designation, and instructions for mixing and/or reducing.

B. Store paint materials at minimum ambient temperature of 45 degrees F. in well ventilated area.

C. Take precautionary measures to prevent fire hazards and spontaneous combustions.

1.03 SUBMITTALS

A. Submit color samples of all paint, stain, and finish to be used for Owners approval.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Apply paint finishes only when moisture content of surfaces is within acceptable ranges for type of finish being applied.

B. Ensure surface temperatures of surrounding air temperature is above 40 degrees F. before applying alkyd finishes; above 45 degrees F. for interior latex. Minimum for varnish and transparent finishes is 65 degrees F.

C. Provide adequate continuous ventilation and sufficient heating facilities to maintain temperature above 45 degrees F. for 24 hours before, during and 48 hours after application of finishes.

PART 2 - PRODUCTS

2.01 MATERIALS

A. The following are approved manufacturers: PPG Industries, Inc., Pratt and Lambert, Inc., The Sherwin-Williams Company.

PART 3 - EXECUTION

3.01 PREPARATION

A. Clean and prepare surfaces for painting to manufacturer's instructions, lightly sand before prime coat.

B. Protect other surfaces from paint and damage.

3.02 APPLICATIONS

A. Apply each coat to proper consistency.

B. Sand lightly between coats to achieve required finish.

C. Do not apply finishes on surfaces that are not sufficiently dry.

D. Paint all vents, pipes, grilles, and miscellaneous items not painted on the exterior of the building. Verify color with architect.

3.03 CLEAN UP

A. As work proceeds and upon completion, promptly remove paint where spilled, splashed, or spattered. During progress of work keep premises free from any unnecessary accumulation of tools, equipment, surplus materials, and debris.

B. Upon completion of work leave premises neat and clean and place debris in dumpster provided.

PAINTING AND FINISH SCHEDULE

Paint and Finish Schedule provides for minimum two-coat application. Third coat may be required to give complete coverage and uniform appearance.

A. Ferrous Metal: H.M. doors and frames, bollards, steel railings.
   1st coat Machinery and equipment primer
   2nd coat Alkyd Exterior/Interior Satin Enamel

B. Gypsum Board: Walls
   1st Coat: Latex Sealer
   2nd Coat: Latex Satin Enamel

C. Wood (Transparent Stain) Doors and cabinets.
   1st Coat: Transparent Stain
   2nd Coat: Sanding Sealer.
   3rd & 4th Coat: Satin Clear finish.

D. Wood (Painted) Interior Trim:
   1st Coat: Latex Primer
   2nd Coat: Latex Satin Enamel

END OF SECTION

DIVISION 10: SPECIALTIES

SECTION 10522 FIRE EXTINGUISHER

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes: Installation of the fire extinguisher.

A. Furnish labor and materials to complete work indicated.

PART 2 - PRODUCTS

2.01 FIRE EXTINGUISHERS

A. Extinguisher: 10 lb. dry chemical Class ABC extinguisher – clip mounted.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Manufacturer to provide all materials, and provide complete instruction for installation.

B. Remove all packing materials, upon completion. Refer to drawings for location.

3.02 CLEAN UP

A. Remove all debris after operation is complete.

END OF SECTION

SECTION 10440 SIGNAGE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes: Installation of interior signage on *ALL* new interior doors – 1 sign per interior door required.

B. Section includes: Installation of exterior lettering and plaque. .– NOT USED

C. Furnish all labor and materials to complete work indicated.

1.02 SHOP DRAWINGS

A. Submit shop drawings or submittals for all items in this section.

B. Submit color samples of manufacturer's standard colors. Architect shall select a standard color.

1.03 STANDARD OF QUALITY

A. It is the intentions of this specification to establish a standard of quality by specifying brand name. Other manufacturers, upon submittal to Architect of sufficient data to establish an equivalent standard of quality, may be used.

1.04 AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANCE

A. It is the specific intent of this Specification to require full and complete compliance with the requirements of the ADA to include mounting heights, braille and other applicable requirements.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

A. PERMANENT ROOM SIGNS shall comply with the following requirements:
   1. Must have characters raised 1/32";
   2. Characters must be upper case and sans serif or "simple serif";
   3. Characters must be accompanied by Grade 2 Braille;
   4. Raised characters must be a minimum of 5/8" and maximum of 2" high (based on upper case X);

5. Equivalent written description (if any) must be placed directly below pictogram (symbol);
6. Pictogram can be any size within a minimum field of 6" in height;
7. Pictogram can be raised 1/32", but are not required to be raised;
8. Character and background must be eggshell, matte or other non-glare finish;
9. Characters must contrast with background (either light on dark or dark on light);
10. Must be mounted on wall adjacent to the latch side of the door (if at all possible);
11. Must be mounted so a person can approach within 3" and avoid door swing and protruding objects; and
12. Mounting height must be 60" from floor to centerline of sign.

2.02 GRADE 2 BRAILLE

A. When Grade 2 Braille is required, the following requirements apply:
    1. Braille dot and cell dimensions are: Dot diameter (at base). 0.090"; Horizontal separation between cells 0.241; Vertical separation between cells 0.395. Federal regulators agree that the dot dimensions are approximate and should be close to those approved by various blind associations. Dot height can be from 0.020; (per blind foundation specs) to 1/32", the ADA required character height.
    2. Grade 2 Braille shall be located in a consistent relationship with text on all signs.

2.03 MATERIALS

All signage shall be Series 200A (sand carved) and M-201 series frame with radius corners as manufactured by Mohawk Engraving Co., Schenectady New York, or approved equal.

A. Materials shall be 1/8" thick laminate with a melamine resin surface and a phenolic resin core. The material shall be NEMA rated and have flammability and smoke values that meet the standards for flammability of interior materials. Frame shall be extruded aluminum with a Duranodic Dark Bronze finish.

B. Color: to be selected by the Architect.

C. Letter Style: To be selected by the Architect.

D. Refer to the Door schedule for specific signage requirements. Interior signs to be 6"x6" minimum. 8" minimum height required at A.D.A. complying restroom signage.

2.02 ADDITIONAL APPROVED MANUFACTURERS

B. BEST Sign Systems Inc.

2.04 EXTERIOR SIGNAGE .– NOT USED

A. Cast aluminum letters on the building location shown on exterior elevation drawings. Finish to be anodized. Color and font style to be selected by Owner - See drawings.

B. Cast aluminum sign 20" wide x 12" for the building listing the names of the Project, board members, Architect, and Contractor; Verify all information and location with the Architect. .– NOT USED

PART 3 - EXECUTION

3.01 INSTALLATION

A. Mechanically mount all signage. Install all signage accessories in strict compliance with manufacturer directions and ADA Requirements.

END OF SECTION

SECTION 10810 TOILET ACCESSORIES

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all materials, labor, equipment and incidentals necessary for the installation of toilet accessories.

1.02 SUBMITTALS

A. Submit manufacturer's literature (cut sheets) fully describing, verbally and graphically, the items to be furnished along with a schedule showing quantity and location of each accessory.

PART 2 - PRODUCTS

2.01 PRODUCTS

Toilet accessories shall be the following fixtures as shown on the Drawings, and as manufactured by Bradley:

A. Paper Towel Dispenser-#250-15, one in each toilet. .– NOT USED

B. Recessed Toilet Paper Holder- #5104, .– NOT USED

C. Toilet Paper Holder-#5054 with theft-resistant spindle, one at each water closet.,

D. Mop Rack-#9953 one at each mop sink

E. Grab Bars-#812-001 x 24, #812-001 x 36" and #812-001 x 42" as shown on drawings.

F. Framed Mirrors- #780, one at each lavatory (size shown on Drawings)

G. Clothes Hook Strip- #SA39, 18" wide with 4 hooks.– NOT USED

2.02 APPROVED MANUFACTURERS

A. Bobrick Washroom Equipment

B. American Specialties, Inc.

2.03 FINISHES

A. All accessories shall be type 304 satin finish stainless steel unless otherwise noted.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Installation of all accessories shall be in accordance with manufacturer's instructions. Grab bars shall withstand a 250# pull or load for five minutes.

B. Mounting heights shall conform to ADA handicapped accessibility standards.

C. Prior to installation, insure that adequate blocking is in place for proper and secure anchorage.

D. Adjust as required for smooth operation and properly functioning mechanisms. Clean and patch all exposed surfaces after removing protective coatings.

3.02 WARRANTY

A. Provide standard manufacturer's warranty.

END OF SECTION

DIVISION 13 SPECIAL CONSTRUCTION

SECTION 13121 PRE-ENGINEERED BUILDING

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes: The pre-engineered metal building and erection of the building including snow guards.

B. Furnish complete labor, materials, and equipment for the building as shown on drawings.

1.02 SUBMITTALS

A. Manufacturer's specifications, catalog cut sheets, and other data needed to prove compliance with the specified requirements.

B. Shop drawings with Oklahoma registered professional Engineers seal and other data shall be required to indicate method of erection. Refer to drawings for additional requirements.

1.03 DESIGN LOADS

A. Design load requirements shall be 20 p.s.f. live load plus collateral load of 3 p.s.f., 90 M.P.H. wind load, exposure C, Seismic load - 2009 INTERNATIONAL BUILDING CODE (IBC). Application of design loads shall be in accordance with the design practices sections of the 2009 IBC CODE.

B. Horizontal deflection shall be limited to "H"/180, bare frame drift at eave, under full wind load where masonry clad, H/120 at other locations.

C. Specified design loads shall be considered to act in various combinations so as to produce the most unfavorable effect on the building or structural member concerned. Unless otherwise specified, load combinations shall be those listed in the design practices section of the 2009 IBC CODE.

D. Vertical deflections of purlins shall not exceed IBC code requirements.

E. Horizontal deflection of girts which brace framing for brick veneer = L / 360 max.

F. Refer to structural drawings for additional loading and submittal requirements.

1.04 WARRANTIES

A. Successful building manufacturer shall provide a one (1) year limited warranty against failures caused by faulty or sub-standard materials.

B. Building manufacturer shall warrant exterior wall panels for a period of ten (10) years against chalk, fade, crack, blister or peel.

C. Building manufacturer shall warrant all unpainted Galvalume roof panels, for a period of twenty (20) years against rupture, perforation and structural failure.

1.05 REFERENCES

A. Steel shapes, bars and plates - conform to ASTM A- 36.

B. Paint - red color, air-drying, alkyd zinc chromate primer or rust-oleum-red.

C. Standard bolts and nuts - conform to ASTM A-307.

D. Anchor bolts - conform to ASTM A-36.

PART 2 - PRODUCTS

2.01 MATERIAL

A. Materials furnished by metal building manufacturer shall include primary and secondary structural framing members, bracing, metal panels for roof and walls, flashings, fasteners, sealants, accessories and all other miscellaneous component parts required for a complete building.

2.02 ANCHOR BOLTS

A. Anchor bolts shall be furnished by the General Contractor along with required templates from the building manufacturer to the concrete sub-contractors for proper installation.

B. Anchor bolts shall be of length and strength to properly resist the governing reactions induced by the design loads and shall be of the diameter shown on building manufacturer's anchor bolt drawings. All anchor bolts shall be unpainted so as to bond with the concrete in which they are set.

2.03 STRUCTURAL PAINTING

A. All framing members shall be cleaned to remove loose mill scale, and other foreign matter and given one shop coat of red color, air-drying, and alkyd zinc chromate primer. Cleaning process shall meet or exceed Steel Structures Paint Council Specification SSPC-5 for power, hand cleaning. The primer coat thickness shall be a minimum of one mil., except .5 mil. on pre-painted coldform.

2.04 ROOF AND WALL PANELS

A. Roof panels: Shall be 24 Ga., "STANDING SEAM", U.L. 90 rating, KYNAR 500 finish applied over the Galvalume or galvanized substrate. Surfaces shall be chemically cleaned, pre-treated, primed and coated, then over baked to cure. Color shall be selected by Owner from manufacturers standard. Total coating system shall have a one-mil dry film thickness.

B. Wall panels: Shall be 26 Ga., KYNAR 500 finish applied over the Galvalume or galvanized substrate. Surfaces shall be chemically cleaned, pre-treated, primed and coated, then over baked to cure. Color shall be selected by Owner from manufacturers standard. Total coating system shall have a one-mil dry film thickness.

2.05 SOFFIT

A. Soffit panels: Soffit at doors, entry and canopy overhangs shall be 24 Ga., "Accent 12" flat metal soffit, color coated panels shall have the exterior side finished with a silicone polyester, coating system applied over the Galvalume or galvanized substrate. Color selected from manufacturer standard.

2.06 FASCIA PANELS – ***NOT USED***

A. Fascia panels: Shall be 26 Ga. "R" panel, color coated panels and shall have the exterior side finished with KYNAR 500 finish applied over the Galvalume or galvanized substrate. Surfaces shall be chemically cleaned, pre-treated, primed and coated, then over baked to cure. Color shall be chosen from manufacturer's standard KYNAR 500 finish colors submitted by Contractor. Total coating system shall have a one-mil dry film thickness.

2.07 ACCESSORIES

A. Insulation for walls and roofs as specified in section 07200.

B. Liner panels. Shall be 26 Ga., Color shall be chosen from manufacturer's standard KYNAR 500 finish colors submitted by Contractor. Total coating system shall have a one-mil dry film thickness.

C. Flashing, Trim and Closures: Shall be 26 Ga., flashing and/or trim shall be furnished at eaves, corners, framed openings and wherever necessary to seal against the weather and provide a finished appearance. Color shall be selected by Owner from manufacturers standard. Total coating system shall have a one-mil dry film thickness.

D. Gutters and downspouts (26 Ga.): Gutters to be box shaped with face profile shaped to match rake trim. Downspouts are rectangular shaped and shall have 45 degree elbow at the bottom. Color shall be selected by Owner from manufacturers standard. Total coating system shall have a one-mil dry film thickness.

E. Preformed, closed cell, polyethylene closure strips matching the profile of the panel shall be installed along the eaves and at other locations as required to provide weather tightness.

F. Snow guards: "S-5 Colorgard" by Metal Roof Innovations LTD. Provide and install quantities as shown on drawings. Install metal insert of color to match roof color.

2.08 SEALANTS

A. Sealants for sideslips, endlaps, accessories, etc. shall be a reformed, butyl rubber based compound. The material shall be non-hardening, non-shrinking and non-corrosive and shall have excellent adhesion to metals, painted surfaces and plastics at temperatures from 30 to 160 degrees F. These sealants shall be in tape mastic form, of shape and size recommended by the structure supplier for various applications.

B. Tube sealants shall be used to supplement tape mastic sealants and shall be applied in locations indicated by erection instructions. Tube sealant shall be a synthetic elastomer based material, which becomes tack-free in less than 2 hours at 75 degrees F but retains flexibility.

PART 3 - EXECUTION

3.01 ERECTION OF SUPER STRUCTURE

A. The various structural steel members shall be set true and level and temporary bracing shall be used wherever necessary.

B. Erector shall not make any field modifications to any structural member except as authorized and specified by the Architect and building manufacturer.

C. Install all work square, plumb, straight and true, accurately fitted and with tight joints and intersections.

D. Field quality control: Material furnished under this specification shall be subject to inspection and tests in the mill, shop and field by the Owner or his representative.

3.02 INSTALLATION OF ROOF AND WALL PANELS

A. Roof panels shall be continuous from eaves to ridge.

B. Fastener population and pattern for roof panels shall be as required by building manufacturer.

C. Wall panels shall be installed to the requirements of the manufacturer.

3.03 CLEAN UP

A. At completion, remove all excess materials and debris resultant from operations of work in this section and place in dumpster provided.

END SECTION