AM07 - Texas A&M AgriLife
Extension Service

Purchase Order

| Vendor Number: 00093978 |
| K Tillman Construction LLC |
| 4848 Lemmon Ave Ste 610 |
| Dallas, TX 75219 |

| Shipping To |
| ENTOMOLOGY - MIKE MERCHANT |
| TEXAS AgriLife EXTENSION CENTER |
| 17360 COIT RD |
| DALLAS, TX 752526502 |
| US |
| Email: ELJackson@tamu.edu |
| (972) 952-9204 |

| Invoice Vendor |
| ENTOMOLOGY - MIKE MERCHANT |
| TEXAS AgriLife EXTENSION CENTER |
| 17360 COIT RD |
| DALLAS, TX 752526502 |
| US |
| Email: ELJackson@tamu.edu |
| (972) 952-9204 |

| Billing To |
| AGRILIFE EXTENSION ENTOMOLOGY |
| AgriLife Administrative Services (AGSV) |
| 430 |
| 578 John Kimbrough Blvd |
| 2147 TAMU |
| COLLEGE STATION, TX 77843 |
| US |
| Email: Apinvoices@ag.tamu.edu |
| (976) 968-5581 |

- Payment Terms: Net 30
- Shipping Terms: F.O.B., Destination
- Freight Terms: Freight Allowed
- Delivery Calendar Day(s): A.R.O.: 0

SHOW THIS NUMBER ON ALL PACKAGES, INVOICES AND SHIPPING PAPERS.

Vendor Number: 00093978
K Tillman Construction LLC
4848 Lemmon Ave Ste 610
Dallas, TX 75219

INVOICING VENDOR SHALL SUBMIT AN ITEMIZED INVOICE SHOWING PURCHASE ORDER NUMBER. IF YOUR INVOICE IS NOT PROCESSED AS INSTRUCTED, PAYMENT MAY BE DELAYED.
IPM Experience House in Dallas, Texas . Project No. 0135.

Specifications:
Vendor shall furnish all labor, materials, and equipment necessary for the demolition/removal of the following:
Interior walls in kitchen, water heater closet, bedroom 104 and 105.
Remove interior wall between closet 105B and 104A.
Remove all electrical, plumbing and HVAC, as specified on plans.
Remove all popcorn ceiling texture.

Furnish all labor, materials, and equipment necessary for construction of the following:
Pull down staircase, 47' x 12' plywood walkway (3/4") in attic, flooring in all areas, relocation of water heater to attic space, 4 ton central air conditioning unit w/ gas furnace, electrical and plumbing as specified on plans.
Repair water damage to ceiling and retexture.
Install plexiglass look through ports on walls as specified on plans for demonstration purposes. Sizes vary.
Install a drip system inside wall to simulate termite tube, as specified on plans.

See attached bid package for complete specifications.

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Unit Price</th>
<th>UOM</th>
<th>Discount %</th>
<th>Total Discount Amt.</th>
<th>Tax Rate</th>
<th>Tax Amount</th>
<th>Freight</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>$82,132.00</td>
<td>JOB</td>
<td>0.00 %</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$82,132.00</td>
</tr>
</tbody>
</table>
TERMS AND CONDITIONS OF PURCHASE:
VENDOR'S ACCEPTANCE OF THIS PURCHASE ORDER IS SUBJECT TO THE AGENCY'S TERMS AND CONDITIONS. THESE SUPERSEDE ANY OTHER TERMS AND CONDITIONS ISSUED BY THE VENDOR. HAVING THE STATUS OF A STATE AGENCY, TEXAS A&M AGRILIFE MUST ABIDE BY THE LAWS OF THE STATE OF TEXAS.

COMPLETE SPECIFICATIONS/TERMS AND CONDITIONS ARE CONTAINED WITHIN PROJECT NO. 0135 BID PACKAGE.

PERIOD OF SERVICE:
COMPLETION WITHIN 90 DAYS AFTER RECEIPT OF PURCHASE ORDER.

TERMS OF PAYMENT:
NET 30 DAYS AFTER SERVICES ARE RENDERED BY THE VENDOR AND ACCEPTED BY THE AGENCY, OR NET 30 DAYS UPON RECEIPT OF CORRECT INVOICE, WHICHER IS LATER.

INSURANCE:
THE VENDOR IS REQUIRED TO CARRY INSURANCE NAMING THE BOARD OF REGENTS FOR AND ON BEHALF OF THE TEXAS A&M UNIVERSITY SYSTEM, THE TEXAS A&M UNIVERSITY SYSTEM, AND TEXAS A&M AGRILIFE AS ADDITIONAL INSUREDS UNTIL THE SERVICES INCLUDED IN THIS PURCHASE ORDER HAVE BEEN COMPLETED. RENEWED, REVISED, OR NEW CERTIFICATES OF INSURANCE SHALL BE SENT TO THE TEXAS A&M AGRILIFE PURCHASING OFFICE VIA FAX TO 979-458-1217. THE INSURANCE REQUIREMENTS ARE ATTACHED.

PUBLIC INFORMATION:
(A) VENDOR ACKNOWLEDGES THAT TEXAS A&M AGRILIFE IS OBLIGATED TO STRICTLY COMPLY WITH THE PUBLIC INFORMATION ACT, CHAPTER 552, TEXAS GOVERNMENT CODE, IN RESPONDING TO ANY REQUEST FOR PUBLIC INFORMATION PERTAINING TO THIS AGREEMENT, AS WELL AS ANY OTHER DISCLOSURE OF INFORMATION REQUIRED BY APPLICABLE TEXAS LAW.
(B) UPON TEXAS A&M AGRILIFE'S WRITTEN REQUEST, VENDOR WILL PROVIDE SPECIFIED PUBLIC INFORMATION EXCHANGED OR CREATED UNDER THIS AGREEMENT THAT IS NOT OTHERWISE EXCEPTED FROM DISCLOSURE UNDER CHAPTER 552, TEXAS GOVERNMENT CODE, TEXAS A&M AGRILIFE IN A NON-PROPRIETARY FORMAT ACCEPTABLE TO TEXAS A&M AGRILIFE EXTENSION. AS USED IN THIS PROVISION, "PUBLIC INFORMATION" HAS THE MEANING ASSIGNED SECTION 552.002, TEXAS GOVERNMENT CODE, BUT ONLY INCLUDES INFORMATION TO WHICH TEXAS A&M AGRILIFE HAS A RIGHT OF ACCESS.
(C) VENDOR ACKNOWLEDGES THAT TEXAS A&M AGRILIFE MAY BE REQUIRED TO POST A COPY OF THE FULLY EXECUTED AGREEMENT ON ITS INTERNET WEBSITE IN COMPLIANCE WITH SECTION 2261.253(A)(1), TEXAS GOVERNMENT CODE.

WARRANTY:
PRODUCT SELLER SHALL NOT LIMIT OR EXCLUDE ANY IMPLIED WARRANTIES AND ANY ATTEMPT TO DO SO SHALL RENDER ANY CONTRACT VOIDABLE AT THE OPTION OF THE BUYER. SELLER WARRANTS THAT THE GOODS/SERVICES FURNISHED WILL CONFORM TO THE SPECIFICATIONS, DRAWINGS, AND/OR DESCRIPTIONS PROVIDED IN THE BID INVITATION AND TO SAMPLES AND/OR DESCRIPTIVE OR TECHNICAL INFORMATION PROVIDED BY THE SELLER, IF ANY. IN THE EVENT OF ANY CONFLICT, THE SPECIFICATIONS, DRAWINGS AND DESCRIPTIONS PROVIDED BY THE AGENCY SHALL GOVERN.

TAX: $ 0.00
FREIGHT: $ 0.00
TOTAL: $ 82,132.00

ANY EXCEPTIONS TO PRICING OR DESCRIPTION CONTAINED HEREIN MUST BE APPROVED BY THE TEXAS A&M UNIVERSITY AGENCY PROCUREMENT OFFICE PRIOR TO SHIPPING.

The State of Texas is exempt from all Federal Excise Taxes.
State and City Sales Tax Exemption Certificate: The A&M System claims an exemption from taxes under Chapter 20, Title 122A Revised Civil Statutes of Texas for purchase of tangible personal property described in this order, purchased from Vendor listed above as this property is being secured for the exclusive use of the State of Texas.

The Terms and Conditions of the State shall prevail.

FAILURE TO DELIVER: If the Vendor fails to deliver these supplies by the promised delivery date or a reasonable time thereafter, without giving acceptable reasons for delay, or if supplies are rejected for failure to meet specifications, the State reserves the right to purchase specified supplies and equipment elsewhere, and charge the increase in price and cost of handling to the Vendor. No substitution or cancellations permitted without prior approval of The Texas A&M University System.

STATE OF TEXAS AND THE TEXAS A&M UNIVERSITY SYSTEM TERMS AND

APPROVED
By: CHRISTOPHER CHAMBERLAIN
Phone#: (979) 845-4786

BUYER
CONDITIONS APPLY.
INVITATION FOR BID — RETURN SEALED BIDS TO:

TEXAS A&M AGRILIFE - ENGINEERING
2147 TAMU
COLLEGE STATION, TX 77843-2147
PHONE 979-845-2180
FAX 979-845-0365

BIDDER MUST SIGN BELOW
FAILURE TO SIGN WILL DISQUALIFY BID

AUTHORIZED SIGNATURE

Yakira Braden

PRINT OR TYPE NAME
Managing Member 3-1-2016

TITLE DATE
K. Tillman Construction LLC

COMPANY NAME
4848 Lemmon Ave. Suite 610

ADDRESS
Dallas TX 75219

CITY STATE ZIP
8326223160 8325659999

BID NO: 0135 BUYER:

BY SIGNING, VENDOR AGREES TO COMPLY WITH ALL TERMS AND CONDITIONS WHICH ARE EITHER ATTACHED HERETO, MAY BE FAXED OR EMAILED UPON REQUEST, OR ARE AVAILABLE AT http://agrilife.tamu.edu/library/pdf/forms/terms-conditions-bid.pdf.

BY SIGNING, BIDDER CERTIFIES THAT IF A TEXAS ADDRESS IS SHOWN AS THE ADDRESS OF THE BIDDER, BIDDER QUALIFIES AS A TEXAS RESIDENT BIDDER AS DEFINED IN 34 TEXAS ADMINISTRATIVE CODE, RULE 20.32(60).

BID TO BE "F.O.B. DESTINATION FREIGHT PREPAID AND ALLOWED UNLESS OTHERWISE SPECIFIED BELOW.

DESTINATION OF GOODS:
Texas A&M AgriLife Research Center
17360 Colt Road
Dallas, Texas 75252

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Quantity</th>
<th>UOM</th>
<th>Unit Price</th>
<th>Ext Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPM Experience House</td>
<td>Base Bid: Furnish all labor, materials, and equipment necessary for the demolition/removal of the following:</td>
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<td></td>
<td>Interior walls in kitchen, water heater closet, bedroom 104 and 105.</td>
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<td></td>
<td>Remove interior wall between closet 105B and 104A.</td>
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<tr>
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<td>Remove all electrical, plumbing and HVAC, as specified on plans.</td>
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<td></td>
<td>Remove all popcorn ceiling texture.</td>
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<tr>
<td></td>
<td>Furnish all labor, materials, and equipment necessary for construction of the following:</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Pulldown stair case, 47'x12' plywood walkway (3/4&quot;) in attic, flooring in all areas, relocation of water heater to attic space, 4 ton central air conditioning unit w/ gas furnace, electrical and plumbing as specified on plans.</td>
<td></td>
<td></td>
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<td>Repair water damage to ceiling and retexture.</td>
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<td>Install plexiglass look through ports on walls as specified on plans for demonstration purposes. Sizes vary.</td>
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<tr>
<td></td>
<td>Install a drip system inside wall to simulate termite tube, as specified on plans.</td>
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<tr>
<td></td>
<td><strong>In Words</strong> Eighty Two Thousand One Hundred Thirty Two Dollars</td>
<td></td>
<td></td>
<td></td>
<td>$82,132</td>
</tr>
</tbody>
</table>

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<th>Unit Price</th>
<th>Ext Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alternate 1: Furnish all labor, materials, and equipment necessary for construction of an 18'x28' concrete patio, including relocation of existing 1-1/4&quot; gas line and relocation of hose bib.</td>
<td></td>
<td></td>
<td></td>
<td>$7,312</td>
</tr>
</tbody>
</table>
Alternate 2:
Shingled roof over patio with 7:12 slope similar to existing, as specified on plans.

A mandatory Pre-Bid Conference will be held at 10:30AM February 16, 2016. Each contractor is required to visit the site and examine the condition of the site. Directions from Coit Rd are provided in Appendix.

DELIVERY IN 90 DAYS

If claiming preference under 34 Texas Administrative Code, Rule 20.38, please complete section 1.13 of the terms and conditions and submit with signed bid response.

If claiming to be a TPASS certified Historically Underutilized Business (HUB), please specify: ( ) BLK ( ) HSP ( ) WIO ( ) AIP ( ) Al

PURCHASING AGENT FOR TEXAS A&M AGRILIFE
SPECIFICATIONS

IPM Experience House

Texas A&M AgriLife Research & Extension Center

Dallas, Texas

Texas A&M System

PROJECT NO. 0135
February 2016
NOTICE OF PROJECT

IPM Experience House
Texas A&M Animal Science
Dallas, Texas
February 2016  Project No. 0135

SCOPE OF WORK

**Base Bid:**
Furnish all labor, materials, and equipment necessary for the demolition/removal of the following:

Interior walls in kitchen, water heater closet, bedroom 104 and 105.
Remove interior wall between closet 105B and 104A.
Remove all electrical, plumbing and HVAC, as specified on plans.
Remove all popcorn ceiling texture.

Furnish all labor, materials, and equipment necessary for construction of the following:

Pulldown stair case, 47’x12’ plywood walkway (3/4”) in attic, flooring in all areas, relocation of water heater to attic space, 4 ton central air conditioning unit w/ gas furnace, electrical and plumbing as specified on plans.
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**Alternate 2:**
Shingled roof over patio with 7:12 slope similar to existing, as specified on plans.

A mandatory Pre-Bid Conference will be held at 10:30AM February 16, 2016. Each contractor is required to visit the site and examine the condition of the site. Directions from Coit Rd are provided in Appendix.
INFORMATION AND BIDDING DOCUMENTS

A mandatory site inspection is required prior to bidding (Re. Instructions to Bidders p.9).

Specifications may be obtained electronically from the Texas Building Procurement Commission’s Electronic State Business Daily website http://esbd.tbpc.state.tx.us/1380/sagency.cfmhttp://esbd.cpa.state.tx.us

Search for agency: TX AgriLife Research - 556 or by contacting Trent Burford Trent.Burford@ag.tamu.edu 979-458-2184 or Jimmy Dunn at jd-dunn@tamu.edu, 979-845-1945.

RECEIPT OF BIDS

Sealed bids will be received until 2:00 p.m., March 2, 2016. Bid documents may be submitted by email to Trent.Burford@ag.tamu.edu or jd-dunn@tamu.edu, or mail bid to:

( attn. Trent Burford) or faxed to 979-845-0365 or delivered prior to bid opening time to:

Mailing address:
AgriLife Admin. Services - Engineering
TAMU 2147
College Station, Texas 77843-2147

Delivery address:
Admin. Services Building - Bldg. #1536
578 John Kimbrough Blvd., Room 516
College Station, Texas 77843
ITEMS BELOW APPLY TO AND BECOME A PART OF TERMS AND CONDITIONS OF BID
ANY EXCEPTIONS THERETO MUST BE IN WRITING

The following are the terms and conditions for Texas A&M AgriLife Research, Texas A&M AgriLife Extension Service, and Texas A&M Veterinary Medical Diagnostic Laboratory (TVMDL), hereafter referred to as the Agency.

1. BIDDING REQUIREMENTS

1.1 Bidders must comply with all rules, regulations and statutes relating to purchasing in the State of Texas in addition to the requirements of this form.

1.2 Pricing must be quoted on a "per unit" basis, extended as indicated. Any trade discounts included must be itemized and deducted from extended prices. Unit prices shall govern in the event of extension errors. Bidder guarantees product or service offered will meet or exceed specifications included as part of this Invitation for Bid (IFB). If a price quotation is submitted as part of the bid, the quotation must be referenced on the bid document and signed by the bidder to establish formal linkage to the bid.

1.3 Bids should be submitted on this form. Each bid that is mailed should be placed in a separate envelope completely and properly identified. Bidder should show opening date and bid invitation number on the fax coversheet, subject line of email, or the lower left hand corner of the sealed envelope. Please show return address of company. Bids must be received by the Agency on or before the hour and date specified for the bid opening.

1.4 When sending bids via the U.S. Postal Service, use the address on the front of this IFB. When using a delivery service or hand delivering, which requires a street address, address is Administrative Services Building, 578 John Kimbrough Blvd., Room #419, Texas A&M University, College Station, TX 77843-2147.

1.5 Late or unsigned bids will not be considered under any circumstances.

1.6 Bids should be quoted “F.O.B. destination, freight prepaid and allowed”. If quoting freight otherwise, show exact delivery cost and who bears cost if not included in unit price.

1.7 Bid prices are requested to be firm for the Agency’s acceptance within 30 days of the bid opening date. "Discount from list" bids are not acceptable unless requested. Cash discount will not be considered in determining an award. All cash discounts will be taken if earned.

1.8 Bids should give Vendor ID Number, full name and address of bidder. Failure to sign bid will disqualify it. Person signing bid should show title or authority to bind his or her firm in a contract. Firm name should appear on each page of a bid, in the block provided in the upper right hand corner. The Vendor ID Number is the taxpayer number assigned and used by the Comptroller of Public Accounts of Texas. Enter this number in the spaces provided on the front side (upper left) of the IFB. If this number is not known, complete the following: 1. Enter your Federal Employer Identification Number. 2. Sole owner should also enter Social Security Number.

1.9 Bid cannot be altered or amended after opening time. Any alterations made before opening time should be initialed by bidder or authorized agent of bidder. No bid can be withdrawn after opening time without approval by the Agency based on a written acceptable reason.

1.10 Purchases made for the Agency’s use are exempt from the State Sales Tax and Federal Excise Tax. Do not include tax in bid. Excise Tax Exemption Certificate will be furnished by the Agency upon request.

1.11 The Agency reserves the right to make an award on the basis of low line item bid, low total of line items, or in any other combination that will serve the best interest of the Agency and to reject any and all bids items at the sole discretion of the Agency. The Agency also reserves the right to accept or reject all or any part of any bid, waive minor technicalities and award the bid to best serve the interests of the Agency. Any contract may also be extended up to three months at the sole discretion of the Agency.

1.12 Consistent and continued tie bidding could cause rejection of bids by the Agency and/or investigation for antitrust violations.

1.13 Check below if preference is claimed under Texas Administrative Code, Title 34, Part 1, Chapter 20, Subchapter C, Section §20.38:

☐ Goods produced or offered by a Texas bidder that is owned by a Texas resident service-disabled veteran
☐ Goods produced in Texas or offered by a Texas bidder that is not owned by a Texas resident service-disabled veteran
1. The telephone number for fax submission of bids is 979-845-0365. This is the only number that will be used for the receipt of bids. The Agency shall not be responsible for failure of electronic equipment or operator error. Late, illegible, incomplete, or otherwise non-responsive bids will not be considered.

2. SPECIFICATIONS

2.1 Any catalog, brand name, or manufacturer’s reference used in the IFB is descriptive only (not restrictive), and is used to indicate type and quality desired. Bids on brands of like nature and quality will be considered unless otherwise specified. If bidding other than specified, bid should show manufacturer, brand or trade name, and other description of the product offered. If brand(s) other than specified is offered, illustrations and complete description of product offered are requested to be made part of the bid. If bidder takes an exception to specifications or reference data in his or her bid, bidder will be required to furnish brand names, numbers, etc., as specified in the IFB.

2.2 All items shall be new and unused, in first class condition, including containers suitable for shipment and storage, unless otherwise indicated in IFB. Oral agreements to the contrary will not be recognized.

2.3 All electrical items must meet all applicable OSHA standards and regulations, and bear the appropriate listing from UL, FMRC or NEMA.

2.4 Samples, when requested, must be furnished free of expense to the Agency. If not destroyed in examination, they will be returned to the bidder, upon request, at bidder’s expense. Each sample should be marked with bidder’s name and address, and the Agency bid number. Do not enclose in or attach bid to sample.

2.5 The Agency will not be bound by any oral statement or representation contrary to the written specifications of this IFB.

2.6 Manufacturer’s standard warranty shall apply unless otherwise stated in the IFB.

3. TIE BIDS

In case of tie bids, the award will be made in accordance with Rule §20.36 (b) (3) in Title 34 of the Texas Administrative Code.

4. DELIVERY

4.1 Bid should show number of days required to place material in receiving Agency’s designated location under normal conditions. Failure to state delivery time obligates supplier to complete delivery in 14 calendar days. Unrealistically short or long delivery promises may cause bid to be disregarded.

4.2 If delay is foreseen, supplier shall give written notice to the Agency. Bidder must keep the Agency advised at all times of the status of the order. The Agency has the right to extend delivery date if reasons appear valid. If the vendor fails to deliver these supplies by the promised delivery date or a reasonable time thereafter, without giving acceptable reasons for delay, or if supplies are rejected for failure to meet specifications, the Agency reserves the right to purchase specified supplies elsewhere, and charge the full increase in price, cost of handling, and rebidding, if any, to the vendor.

4.3 No substitutions or cancellation permitted without written approval of the Agency.
4.4 Delivery shall be made during normal working hours only, unless prior approval for late delivery has been obtained from the Agency.

5. INSPECTIONS AND TESTS
All goods will be subject to inspection and test by the Agency to the extent practicable at all times and places. Authorized Agency personnel shall have access to any supplier's place of business for the purpose of inspecting merchandise. Tests shall be performed on samples submitted with the bid or on samples taken from regular shipment. In the event products tested fail to meet or exceed all conditions and requirements of the specifications, the cost of the sample used and the cost of the testing shall be borne by the bidder. Goods which have been delivered and rejected in whole or in part may, at the Agency's option, be returned to the bidder or held for disposition at bidder's risk and expense. Latent defects may result in revocation of acceptance.

6. AWARD OF CONTRACT
A response to an IFB is an offer to contract with the Agency based upon the terms, conditions, and specifications contained in the IFB. Bids do not become contracts until they are accepted and an authorized purchase order is issued. The contract shall be governed, construed, and interpreted under the laws of the State of Texas. The factors listed in Texas Education Code, Title 3, Chapter 51, Section 51.9335, shall also be considered in making an award when specified. Any legal actions must be filed in Brazos County, TX.

7. PAYMENT
Vendor shall submit one copy of an itemized invoice showing order number and Agency purchase order number. Please note: If the invoice is not addressed as instructed, payment will be delayed. The Agency will incur no penalty for late payment if payment is made in 30 or fewer days from receipt of goods or services and an uncontested invoice. All payments will be made in accordance with the Texas Prompt Payment Act, Texas Government Code, Chapter 2251.

8. PATENTS OR COPYRIGHTS
The bidder agrees to protect the Agency from claims involving infringement of patents or copyrights.

9. BIDDER ASSIGNMENTS
Bidder hereby assigns to the Agency any and all claims for overcharges associated with this contract which arise under the antitrust laws of the United States 15 U.S.C.A. Section 1, et seq. (1973), and which arise under the antitrust laws of the State of Texas, Texas Business and Commerce Code Ann. Sec. 15.01, et seq. (1967).

10. BIDDER AFFIRMATION
Signing this IFB with a false statement is a material breach of contract and shall void the submitted bid and any resulting contracts, and the bidder shall be removed from all bid lists. By signature hereon affixed, the bidder hereby certifies that:

10.1 The bidder has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the submitted IFB.

10.2 The bidder is not currently delinquent in the payment of any franchise tax owed to the State of Texas.

10.3 Under §2155.004, Texas Government Code, the bidder certifies that the individual or business entity named in this bid or any contract resulting from this IFB is not ineligible to receive the specified contract and acknowledges that the contract may be terminated and payment withheld if this certification is inaccurate. §2155.004 prohibits a person or entity from receiving a state contract if they received compensation for participating in preparing the solicitation or specifications for the contract.

10.4 Pursuant to 15 U.S.C. §1, et seq. and Texas Business and Commerce Code §15.01, et seq. neither the bidder nor the firm, corporation, partnership, or institution represented by the bidder, or anyone acting for such a firm, corporation, or institution has violated the antitrust laws of this state, federal antitrust laws, nor communicated directly or indirectly the bid made to any competitor or any other person engaged in such line of business.

10.5 The bidder shall defend, indemnify, and hold harmless the Agency, all of its officers, agents, contractors, and employees from and against all claims, actions, suits, demands, proceedings costs, damages, and liabilities, from any acts or omissions of vendor or any agent, employee, subcontractor, or supplier of vendor in the execution or performance of any contract with vendor resulting from this IFB. Bidder shall coordinate its defense with Texas Attorney General as requested by the Texas A&M University System,
Office of the General Counsel. This section is not intended to and shall not be construed to require bidder to indemnify or hold harmless the State or Agency for any claims or liabilities resulting from the negligent acts or omissions of the Agency or its employees.

10.6 Bidder agrees that any payments due under this contract will be applied towards any debt, including but not limited to, delinquent taxes and child support that is owed to the State of Texas.

10.7 In accordance with §2155.4411, Texas Government Code, bidder agrees that during the performance of a contract for services, it shall purchase products and materials produced in Texas when they are available at a price and time comparable to products and materials produced outside this state.

10.8 Pursuant to Section 2262.003 of the Texas Government Code, the State Auditor may conduct an audit or investigation of the vendor or any other entity or person receiving funds from the State directly under this contract or indirectly through a subcontract under this contract. The acceptance of funds by the vendor or any other entity or person directly under this contract or indirectly through a subcontract under this contract acts as acceptance of the authority of the State Auditor, under the direction of the Legislative Audit Committee, to conduct an audit or investigation in connection with those funds. Under the direction of the Legislative Audit Committee, the vendor or other entity that is the subject of an audit or investigation by the State Auditor must provide the State Auditor with access to any information the State Auditor considers relevant to the investigation or audit. Vendor will ensure that this clause concerning the authority to audit funds received indirectly by subcontractors through the vendor and the requirement to cooperate is included in any subcontract it awards.

10.9 Bidder certifies that they are in compliance with Section 669.003 of the Texas Government Code, relating to contracting with an executive head of a state agency. If Section 669.003 applies, bidder will complete the following information in order for the bid to be evaluated:

| Name of | Former Executive: ____ |
| Name of State Agency: ____ |
| Date of Separation from State Agency: ____ |
| Position with Bidder: ____ |
| Date of Employment with Bidder: ---------------------------- |

10.10 Bidder certifies that the bidding entity and its principals are eligible to participate in this transaction and have not been subjected to suspension, debarment, or similar ineligibility determined by any federal, state, or local government entity. Bidder certifies that the bidding entity is in compliance with the State of Texas statutes and rules relating to procurement, and that bidder is not listed on the federal government’s terrorism watch list as described in Executive Order 13224. Entities ineligible for federal procurement are listed at http://www.epis.gov.

10.11 Bidder represents and warrants that payment to the bidder and the bidder’s receipt of appropriated or other funds under any contract resulting from this IFB are not prohibited by §556.005 or §556.008, Texas Government Code, relating to the prohibition of using state funds for lobbying activities.

10.12 Sections 2155.006 and 2261.053, Texas Government Code, prohibit state agencies from awarding contracts to any person who, in the past five years, has been convicted of violating a federal law or assessed a penalty in connection with a contract involving relief for Hurricane Rita, Hurricane Katrina, or any other disaster, as defined by §418.004, Texas Government Code, occurring after September 24, 2005. Under §2155.006, Texas Government Code, bidder certifies that the individual or business entity named in its bid is not ineligible to receive a contract and acknowledges that any contract resulting from this IFB may be terminated and payment withheld if this certification is inaccurate.

10.13 Bidder represents and warrants (“EIR Accessibility Warranty”) that the electronic and information resources and all associated information, documentation, and support that it offers to provide to the Agency under this bid (collectively, the “EIRs”) comply with the applicable requirements set forth in Title 1, Chapter 213 of the Texas Administrative Code and Title 1, Chapter 206, Rule §206.70 of the Texas Administrative Code (as authorized by Chapter 2054, Subchapter M of the Texas Government Code.) To the extent vendor becomes aware that the EIRs, or any portion thereof, do not comply with the EIR Accessibility Warranty, then bidder represents and warrants that it will, at no cost to the Agency, either (1) perform all necessary remediation to make the EIRs satisfy the EIR Accessibility Warranty or (2) replace the EIRs with new EIRs that satisfy the EIR Accessibility Warranty. In the event that vendor is unable to do so, then the Agency may terminate this Agreement and vendor will refund to the Agency all amounts the Agency has paid under this purchase order within thirty (30) days after the termination date.
11. NOTE TO BIDDERS
   If bidder takes any exceptions to any provisions of the IFB, these exceptions must be specifically and clearly identified by section in the bid and bidder’s proposed alternative must also be provided in the bid. Bidders cannot take a ‘blanket exception’ to the entire IFB. If any bidder takes a ‘blanket exception’ to the entire IFB or does not provide proposed alternative language, the bid may be disqualified from further consideration.

12. TEXAS PUBLIC INFORMATION ACT
   Information, documentation, and other material in connection with this solicitation or any resulting contract may be subject to public disclosure pursuant to Chapter 552 of the Texas Government Code (the “Public Information Act”). Any part of the solicitation response that is of a confidential or proprietary nature must be clearly and prominently marked as such by the bidder. Pursuant to Texas Government Code, Sections 552.021 and 552.023, individuals are entitled to request, receive, review, and correct information collected by the Agency related to the individual. To request information, please email da-schneider@tamu.edu or call 979-847-5801.

13. TEXAS FAMILY CODE SECTION 231.006
   Pursuant to §231.006(d), Texas Family Code, regarding child support, the bidder certifies that the individual or business entity named in this bid is not ineligible to receive the specified payment and acknowledges that the contract may be terminated and payment may be withheld if this certification is inaccurate. Furthermore, any bidder subject to §231.006, Texas Government Code, must include names and Social Security numbers of each person with at least 25% ownership of the business entity submitting the bid. This information must be provided prior to award. Enter the Name & Social Security Numbers for each person below:

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<thead>
<tr>
<th>Name:</th>
<th>Social Security Number:</th>
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<td>Name:</td>
<td>Social Security Number:</td>
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<td>Name:</td>
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14. PROTEST PROCEDURES
   Any actual or prospective bidder who is aggrieved in connection with this IFB, evaluation, or award of any contract resulting from this IFB may formally protest as provided in the Agency’s rules at http://aagrifefas.tamu.edu/library/pdf/purchasing/vendor-protests.pdf.

15. NON-APPROPRIATION OF FUNDS
   Any contract resulting from this IFB is subject to termination or cancellation, without penalty to the Agency, either in whole or in part, subject to the availability of federal or state funds. The Agency is a state agency whose authority and appropriations are subject to actions of the Texas Legislature. If the Agency becomes subject to a legislative change, revocation of statutory authority, or lack of appropriated funds which would render the Agency’s or bidder’s delivery or performance under the contract impossible or unnecessary, the contract will be terminated or cancelled and be deemed null and void. Additionally, any federally funded purchases may also be terminated for the same reasons. In the event of a termination or cancellation under this Section, the Agency will not be liable to bidder for any damages, which are caused or associated with such termination, or cancellation, and the Agency will not be required to give prior notice.

16. FORCE MAJEURE
   Neither bidder nor Agency shall be liable to the other for any delay in, or failure of performance, of any requirement included in any contract resulting from this IFB caused by Force Majeure. The existence of such causes of delay or failure shall extend the period of performance until after the causes of delay or failure have been removed provided the non-performing party exercises all reasonable due diligence to perform. Force Majeure is defined as acts of God, war, fires, explosions, hurricanes, floods, failure of transportation, or other causes that are beyond the reasonable control of either party and, that by exercise of due foresight, such party could not reasonably have been expected to avoid, and which, by the exercise of all reasonable due diligence, such party is unable to overcome. Each party must inform the other in writing, with proof of receipt, within three (3) business days of the existence of such Force Majeure, or otherwise waive this right as a defense.
17. CONFLICT OF INTEREST

An Agency employee may not have an interest in, or in any manner be connected with, a contract or bid for a purchase of goods or services by an agency of the State; or in any manner, including by rebate or gift, accept or receive from a person to whom a contract may be awarded, directly or indirectly, anything of value or a promise, obligation, or contract for future reward or compensation. Entities who are interested in seeking business opportunities with the Agency must be mindful of these restrictions when interacting with public purchasers of the Agency.

18. INDEPENDENT CONTRACTOR

Bidder or bidder’s employees, representatives, agents and any subcontractors shall serve as an independent contractor in providing the services under any contract resulting from this IFB. Bidder and bidder’s employees, representatives, agents and any subcontractors shall not be employees of the Agency. Should bidder subcontract any of the services required in this IFB, bidder expressly understands and acknowledges that in entering into such subcontract(s), the Agency is in no manner liable to any subcontractor(s) of bidder. In no event shall this provision relieve bidder of the responsibility for ensuring that the services rendered under all subcontracts are rendered in compliance with this IFB.

19. DISPUTE RESOLUTION

The dispute resolution process provided for in Chapter 2260 of the Texas Government Code shall be used as further described herein, by the Agency, and the bidder to attempt to resolve any claim for breach of contract made by vendor:

19.1 Bidder’s claim for breach of this contract, that the parties cannot resolve in the ordinary course of business, shall be submitted to the negotiation process provided in Chapter 2260, Subchapter B, of the Texas Government Code. To initiate the process, bidder shall submit written notice, as required by Subchapter B, to:

Dr. David Lunt, Texas A&M AgriLife Research
Mr. Kyle Smith, Texas A&M AgriLife Extension Service
Dr. Roger Parker, Texas A&M Veterinary Medical Diagnostic Laboratory (TVMDL)

Said notice shall also be given to all other representatives of the Agency and bidder otherwise entitled to notice under the parties’ contract. Compliance by bidder with Subchapter B is a condition precedent to the filing of a contested case proceeding under Chapter 2260, Subchapter C, of the Texas Government Code.

19.2 The contested case process provided in Chapter 2260, Subchapter C, of the Texas Government Code is the bidder’s sole and exclusive process for seeking a remedy for any and all alleged breaches of contract by the Agency if the parties are unable to resolve their disputes under subparagraph (a) of this paragraph.

19.3 Compliance with the contested case process provided in Subchapter C is a condition precedent to seeking consent to sue from the Legislature under Chapter 107 of the Civil Practices and Remedies Code. Neither the execution of this contract by the Agency, nor any conduct of any representative of the Agency thereafter, shall be considered a waiver of sovereign immunity to suit.

(1) The submission, processing, and resolution of bidder’s claim is governed by the published rules as adopted by the Office of the Attorney General of the State of Texas pursuant to Chapter 2260 as currently effective, hereafter enacted or subsequently amended.

(2) Neither the occurrence of an event nor the pendency of a claim constitutes grounds for the suspension of the performance by the bidder, in whole or in part.

(3) The designated individual responsible on behalf of the Agency for examining any claim or counterclaim and conducting any negotiations related thereto, as required under Section 2260.052 of the Texas Government Code shall be Dr. David Lunt (Research) / Mr. Kyle Smith (Extension) / Dr. Roger Parker (TVMDL).
MANDATORY EXAMINATION OF SITE

A mandatory Pre-Bid Conference will be held at 10:30AM February 16, 2016. Each contractor is required to visit the site and examine the condition of the site. The project site is located at Texas A&M Agrilife Research & Extension Center, 17360 Coit Road, Dallas, Texas. The Contractor shall sign in with the Owner’s Representative and provide the following information in writing:
- Company Name
- Address
- City, State
- Phone Number/fax
- Person’s Name
- E-mail address

Failure to comply with this section will be grounds for rejection of bid.

No information noted in the specifications shall relieve the Contractor of the responsibility of visiting the site and making such investigations as he/she may require.

PERFORMANCE and PAYMENT BONDS

Performance and Payment Bonds are not required on contracts of $25,000 or less. Chapter 2253, Texas Government Code, T.C.S., requires that if the Contract Sum exceeds $25,000, the Contractor shall provide an executed Payment Bond and if the Contract Sum exceeds $100,000, the Contractor shall also provide an executed Performance Bond. Bonds are not required until after award of the project.

1. Each bond shall be executed and contain an embossed seal by a Surety(ies) on forms approved by the Attorney General of Texas. If any Surety upon any bond furnished in connection with the Contract becomes insolvent, or otherwise not authorized to do business in the State, the Contractor shall promptly furnish equivalent security to protect the interests of the State and of persons supplying labor, materials and/or equipment in the performance of the Work.

2. Each bond shall have attached a valid Power-of-Attorney issued by the Surety, signed and sealed with the corporate embossed seal, authorizing the agent who signs the bond to commit the Surety to the terms of the bond, and stating the limit on the face of the Power-of-Attorney, if any, in the total amount for which the agent is empowered to issue a single bond.

3. The Owner may consider Performance and Payment Bonds only from a Surety authorized to do business in Texas.

The cost of any such bonding must be included in the Base Bid amount. No additional charges will be allowed for bonding. Bonds must be executed on standard TAMUS forms.

INSURANCE

The Contractor shall carry insurance in the types and amounts indicated in this section for the duration of the Contract, and this coverage shall include items owned by the Owner in the car, custody and control of the Contractor prior to, during construction and during the warranty period. In this circumstance, the Owner will provide in the Special Conditions a listing of such equipment and its value. The Contractor must also complete and file the declaration pages from the insurance policies with the Owner whenever a previously furnished
policy period expires during the term of the Contract, as proof of continuing coverage. Acceptance of the insurance policy declaration pages by the Owner shall not relieve or decrease the liability of the Contractor.

Unless otherwise provided for in these specifications, the Contractor shall provide and maintain, until the Work covered in the Contract is completed and a report of final acceptance is issued by the Owner, the insurance coverage in the minimum amounts as described below. Coverage shall be written on an occurrence basis by companies authorized and admitted to do business in the State of Texas and rated A- or better by A.M. Best Company, or otherwise acceptable to the Owner.

<table>
<thead>
<tr>
<th>Type of Coverage</th>
<th>Limits of Liability</th>
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<tbody>
<tr>
<td>1. Employer's Liability</td>
<td></td>
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<tr>
<td>Bodily Injury by Accident</td>
<td>$500,000 Each Accident</td>
</tr>
<tr>
<td>Bodily Injury by Disease</td>
<td>$500,000 Each Employee</td>
</tr>
<tr>
<td>Bodily Injury by Disease</td>
<td>$500,000 Policy Limit</td>
</tr>
</tbody>
</table>

2. Comprehensive General Liability, including coverage of Combined Single Limit of Bodily Injury and Property Damage of $1,000,000 Per Occurrence or its equivalent for the following:
   a) Premises Operations
   b) Independent Contractors
   c) Products/Completed Operations
   d) Personal Injury
   e) Contractual Liability
   f) Explosion, Collapse, Underground
   g) Broad form property damage, to include fire legal liability.

3. Business Automobile Liability owned/leased, owned, hired Combined Single Limit for Non-bodily Injury and Property Damage of $1,000,000 Per Occurrence or its equivalent.

4. Workers' Compensation Statutory

The worker’s compensation insurance coverage must include the responsibility of the Contractor to provide coverage for every worker either under the Contractor’s policy or under the policy provided by a Subcontractor. The Contractor’s policy shall provide that, in the event that a Subcontractor’s policy fails to provide worker’s compensation coverage of a worker, such insurance coverage is provided by the Contractor’s policy. The Contractor shall obtain certificates of coverage from Subcontractors carrying their own policies, prior to any Subcontractor providing services to the Project.

By signing the Contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the Owner that all employees of the Contractor who will provide services on the Project will be covered by worker’s compensation coverage for the duration of the Project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier, or in the case of self-insured, with the Texas Workers’ Compensation Commission. Providing false or misleading information may subject the Contractor to administrative penalties, criminal penalties, civil penalties or other civil litigations.
Policies must include the following clauses, as applicable:

a. “This insurance shall not be canceled, limited in scope or coverage, or non-renewed until after thirty (30) days prior written notice, of the (10) days for non-payment of premium, has been given to the Owner.”

b. “It is agreed that the Contractor’s insurance shall be deemed primary with respect to any insurance or self-insurance carried by the State agency for liability arising out of operations under the Contract with the Owner.”

c. “The Owner, its officials, directors, employees, representatives, and volunteers are added as additional insured as respects operations and activities of, or on behalf of the named insured performed under contract with the Owner.” This is not applicable to the workers’ compensation policy.

d. “The workers’ compensation and employers’ liability policy will provide a waiver of subrogation in favor of the Owner.”

If insurance policies are not written for the amounts specified, the Contractor shall carry Umbrella or Excess Liability Insurance for any differences in amounts specified. If Excess Liability Insurance is provided, it shall follow the form of the primary coverage.

The furnishing of the above listed insurance coverage, as may be modified herein, must be tendered prior to performance of the Contract, and in no event later than ten (10) days from the date of the Notice-to-Proceed. Failure to provide the insurance in a timely fashion may result in loss of the Contractor’s bid surety and/or cancellation of the Contract.

The Owner shall be entitled, upon request and without expense, to receive copies of the policies and all endorsements as they apply to the limits set out in these specifications.

HISTORICALLY UNDERUTILIZED BUSINESSES (HUBS)

A HUB Subcontractors Plan is required to be turned in with bids of $100,000 or more.

Contact Dee Ann Schneider at (979) 845-4771 for all questions concerning the HUB Subcontracting Plan

A Historically Underutilized Business (HUB) is defined by statute as: (a) a corporation formed for the purpose of making a profit in which at least 51% of all classes of the shares of stock or other equitable securities are owned by one or more persons who are socially disadvantaged because of their identification as members of certain groups, including Black Americans, Hispanic Americans, women, Asian Pacific Americans, and Native Americans, and have suffered effects of discriminatory practices or similar insidious circumstances over which they have no control; and, have a proportionate interest and demonstrate active participation in the control, operation, and management of the corporation's affairs; (b) a sole proprietorship created for the purpose of making a profit that is 100% owned, operated, and controlled by a person described in (a); (c) a partnership formed for the purpose of making a profit in which at least 51% of the assets and interest in the partnership is owned by one or more persons who are described in (a) and have a proportionate interest and demonstrate active participation in the control, operation, and management of the partnership's affairs; (d) a joint venture in which each entity in the joint venture is a HUB; or, (e) a supplier contract between a HUB and a prime contractor under which the HUB is directly involved in the manufacture or distribution of the supplies or materials or otherwise warehouses and ships the supplies.
A goal-oriented system, established by the 73rd Legislature, encourages prime contractors to award subcontracts to and make material and supply purchases from HUBs. The goal of 30% is based on the total value of the Contract.

It is the contractor's responsibility to demonstrate to the State that a "good faith effort" has been made to meet the 30% goal. Examples of "good faith effort" are soliciting proposals from the Texas Certified Historically Underutilized Business Directory, reduce the size of subcontract packages, corresponding with HUB associations and advertising in HUB publications.

PURCHASE ORDER

Texas A&M AgriLife Research / AgriLife Extension / Forest Service / Veterinary Medical Diagnostic Lab reserves the right to substitute the word "Purchase Order" for "Contract" in the documents whenever it feels that a signed Purchase Order will expedite the Project.

FINAL ACCEPTANCE AND PAYMENT

Notification: When the work is completed, the Contractor shall notify the engineer that the work will be ready for pre-final inspection on a definite date. Upon verification by the engineer that the deficiencies found during pre-final inspection have been corrected and the Work is ready for final inspection and acceptance, the engineer will within 10 days make a final inspection, and when the work is found acceptable under the Contract documents, without exceptions, and the contract is fully preformed, the Owner will make final payment to the Contractor.

Final Payment Documentation: neither the final payment nor the remaining retained percentages shall become due until the Contractor submits to the Engineer (1) an affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the work for which the owner or its property might in any way be responsible, have been paid or will be paid or otherwise satisfied within thirty days after receipt of final payment from the Owner, or within the period of time required by Article 601f, T.C.S., (2) consent of surety, if any, to final payment and (3) if required by the Owner, other data establishing payment or satisfaction of all such obligations, such as receipts, release and waivers of claims arising out of the Contract, to the extent and in such form as may be designated by the Owner.

Final Payment: The making of final payment shall constitute a waiver of all claims by the Owner except those arising from: (1) faulty or defective work appearing after Beneficial Occupancy; (2) failure of the work to comply with the requirement of the contract documents; (3) terms of any special warranties required by the contract documents. Acceptance of Final Payment shall constitute a waiver of all claims by the contractor except those specifically enumerated at the time of final payment.
DIVISION 1

GENERAL REQUIREMENTS

PROJECT SITE AND CONTACTS

The project site is located at the Texas A&M Agrilife Research & Extension Center, 17360 Coit Road, Dallas, Texas. Owner’s Representative is Owner’s Representative will be Michael Merchant at 214-906-9550

WORK AREA AND ACCESS

All work, materials storage, staging, and parking shall be confined with the area(s) designated by the Owner’s Representative.

Access to the building(s) shall be coordinated directly with the Owner’s Representative. No construction traffic will be allowed over field/pasture roads or other non-designated areas.

RULES & REGULATIONS

Work shall be performed in accordance with current International Building Code, International Mechanical Code, International Fuel Gas Code, and National Electrical Code, NFPA.

Give precedence to drawings and specifications when they require higher standards than those required by rules, regulations, and/or codes. Otherwise rules, regulations and codes govern.

Facilities are state property, therefore not subject to municipal regulation or inspection.

ACCESSIBILITY

All construction shall comply with current requirements of the Texas Accessibility Standard and ADA. Any items not in compliance shall be promptly corrected as directed by the Engineer. No claims for corrected work due to mistake of Contractor or his/her Subcontractor shall be considered for payment.

CONSTRUCTION UTILITIES

Electrical Service: Electrical power will be available at the construction site. The Contractor shall be responsible to verify that adequate power is available for work operations. Tie-in and use shall be coordinated with Owner's Representative. The Contractor must furnish necessary labor, extension cords, temporary panels, lighting, equipment, etc. for his/her own use.

Water Service: The Owner will furnish water for construction purposes free of charge. Point of connection and use shall be coordinated with Owner's Representative. The Contractor must furnish all pipes, hoses, fittings, devices and accessories required for his/her operations.

DELIVERIES

The Contractor shall have personnel at the site necessary to accept delivery and accomplish unloading/handling of materials and equipment. The Owner will not be responsible for accepting and/or unloading of materials and equipment associated with this project.
TOOLS, EQUIPMENT, AND VEHICLES

The contractor shall furnish all tools (hand, power, pneumatic, etc.), equipment, and vehicles for the construction of this project. All facilities, tractors, welders, forklifts, etc. belonging to or otherwise under control of the Owner are off limits.

STORAGE AND PROTECTION

The Contractor shall properly store materials and equipment at the jobsite within an area designated by the Owner’s Representative. Protect same from the elements when in open storage. The Contractor shall be responsible for keeping the assigned area free from fire hazards relating from improper storage procedures.

The Owner accepts no responsibility for the security of the stored materials.

Properly protect equipment, insulation, and other materials during construction. Handle equipment, materials, and devices carefully to prevent damage.

Material or equipment improperly handled or damaged from rough usage or improper storage shall be removed and replaced with new units when so directed by the Engineer.

CLARIFICATION

In case of doubt, do not proceed with work without first obtaining from the Engineer additional information or detail drawings as may be necessary for proper execution of work. Report discrepancies found in drawings and specifications without delay.

SUBSTITUTION OF MATERIALS

Where any article or thing is specified by proprietary name, trade name, name of manufacturer or catalog number with or without the addition of such expressions as "or equal" or "approved equal," it is to be understood that the article named or the equal thereof is intended, subject to the approval of the Engineer as to the equality thereof, and it is distinctly understood (1) that the Engineer shall use his judgement in determining whether or not any article or thing proposed to be substituted is the equal of any article or thing as specified; (2) that the decision of the Engineer on such questions of equality shall be final; and (3) that in the event of any adverse decision by the Engineer, no claim of any sort shall be made or allowed against the Owner.

CUTTING AND PATCHING

Required cutting and patching shall be done by the Contractor and/or responsibility Subcontractor as necessary to accomplish the work described. Insure that all related penetrations, both old and new, are accomplished in a workmanlike manner and sealed as necessary for weather tight conditions upon completion of work.

DAMAGES

Care shall be exercised to prevent damages to existing facilities, trees, lawns, site improvements, site utilities, equipment, etc. Any such damages occurring shall be promptly corrected as directed by the Engineer. No claims for corrected work due to damages resulting from the Contractor or his Subcontractor shall be considered for payment.
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT

Under the provisions of the Clean Water Act, it is unlawful to discharge storm water from small construction sites (1 to 5 acres in size) to the waters of the United States unless authorized by a National Pollutant Discharge Elimination System (NPDES) permit. On December 8, 1999, the Environmental Protection Agency (EPA) published the final NPDES rules in the Federal Register Vol. 64, No.235, Phase II requiring small construction sites to comply with stormwater discharge rules and regulations. The Contractor shall provide all documents and required information to the proper authorities prior to any construction activity.

Stormwater Control: Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff storm water from heavy rains.

WASTE DISPOSAL AND CLEANING

All materials removed/replaced shall become property of the Contractor unless otherwise agreed with the Owner’s Representative.

Debris shall be contained in a container, truck, or restricted refuse area as coordinated with the Engineer and Owner’s Representative.

The Contractor shall be responsibility for keeping the jobsite picked up clean and uncluttered during the course of construction. This includes timely removal and proper legal disposal off-site of all waste and debris associated with his/her job.

The Contractor shall provide safe and reliable transportation of debris, so that no material is allowed to fall onto public property or any other property other than the destination to which the removed materials are being transported.

Prior to final inspection and acceptance, perform final cleaning and removal of all waste, debris, and/or surplus materials resulting from this work.

SUBMITTALS

Submittals for approval will be required for all shop drawings any proposed substitutions of materials. Three copies required for Engineer’s use.

Materials submittals shall include copies of manufacturer’s catalog descriptions, performance characteristics, data sheets and/or other information relative to a complete description of the items.

RECORD DRAWINGS

The contractor is to maintain on site a copy of drawings to record information concurrently with construction progress. This record set shall be stored in the Contractor’s field office apart from the construction set. Record drawings shall be available for the Owner and shall contain the following information:

1. Location of utilities and appurtenances concealed in construction
2. Location of internal utilities and appurtenances concealed in construction.
3. Indicate all field changes approved by the Engineer and all approved change orders.

INSPECTIONS

The Engineer shall be given at least 72 hour notice prior to each inspection milestone noted below:
Below grade inspections - Before the covering or backfilling of any improvements, a below grade inspection will be conducted to see that all items meet the plans and specs. Only after all the deficiencies have been corrected will the contractor be allowed to install any backfill.

Concrete inspection - Before the placing of any cast-in-place concrete, an inspection will conducted to see that reinforcing is in place and all items meet the intent of the plans and specs. Only after all the deficiencies have been corrected will the Contractor be allowed to proceed.

Wall inspection – Before the installation of sheetrock or plywood, a wall inspection will be conducted to see that all items within the walls fully meet the plans and specs. As a minimum the following should be in place before a wall inspection is scheduled, electrical conduit, plumbing, blocking and insulation. No sheetrock or plywood shall be placed until this inspection is complete (this includes one siding).

Pre-final Inspection - When all work is complete, a general inspection will be conducted. A written punch-list of all deficiencies found to date will then be issued to the Contractor for correction.

The Engineer shall be given at least 10 days notice prior to:

Final Inspection - Upon verification by the Owner’s Representative that all known deficiencies have been corrected, a final inspection will be conducted within 10 days.

GUARANTEE

The Contractor shall guarantee that the work performed under this contract is free from faulty materials and workmanship and will remain so for a period of one year from the date of substantial completion or acceptance by the Owner. Final payment on the contract by the Owner shall not relieve the Contractor of this responsibility.

Upon completion and prior to final payment, the Contractor shall furnish two complete copies of the following, all in clear vinyl jackets and assembled within 3-ring binder type covers:

Written certification, signed by the Contractor, attesting to the fact that the completed facility complies with the requirements of the drawings and specifications and is warranted for a period of one year as outlined above.

Until receipt of these guarantees, final inspection will not be conducted nor final payment released.
DIVISION 2 - SITE WORK

200 - DEMOLITION

WORK INCLUDED

Provide all labor, materials and equipment as necessary to:
Remove interior walls, ceiling texture, doors, cabinetry, electrical, plumbing, HVAC, and flooring (as specified on plans)

QUALITY ASSURANCE

Work must comply with all applicable Federal, State and local codes, ordinances and regulatory requirements and material disposal in compliance with regulations of authorities having jurisdiction.

PREPARATION/PROTECTION

Locate, identify, disconnect and seal/cap off any utilities that might be affected.
Protect adjacent buildings and facilities during demolition.
Do not disrupt existing utilities serving adjacent structures/buildings unless authorized to do so by Owner.

DEMOLITION GENERAL

Unless otherwise noted, demolish the noted items down to existing slab as necessary to provide for new construction. Use methods required to complete the work within the limitations of safety and governing regulations.

Conduct demolition and debris removal operations to ensure minimum interference with roads, streets, walkways, and adjacent occupied facilities.

Cabinetry shall be reused where ever possible.

Overhead cabinetry shall be reused over laboratory bench. (see page 1 of plans)

RELATED WORK

Re: Section 610 for rough carpentry
Re: Section 830 for doors and frames
Re: Section 1540 for plumbing
Re: Section 1610 for electrical
DIVISION 3

330 - Poured-In-Place Concrete

Work Included

Alternate 1:
Furnish and install 18’ x 28’ stained concrete patio as shown on the drawings and as outlined in these specifications.

General

Supervision: Perform reinforced concrete work under direct supervision of Contractor's Superintendent. The Superintendent shall control under direction of the Engineer.

Place inserts, anchors, anchor bolts and similar devices required as indicated on approved shop drawings. Do not place concrete until shop drawings and devices are received, devices set accordingly and setting approved by the Engineer.

Codes and Requirements

Reinforced Concrete Work: Conform to current issues of ACI-318, CRSL-59, CRSL-63 and Referenced ASTM Specifications and Standards, latest revision.

In the event of discrepancies between the various codes and standards and these specifications, the most stringent shall govern.

Notification

Notify the Engineer of the time schedule for any pouring operation at least 72 hours before the start of placing concrete so that he may inspect the proper placement of forms, reinforcing, embedded items, rough-ins and related conditions. Furnish adequate light and access to all parts of the work for inspection.

Notify Engineer when forms, fill, and reinforcing are sufficiently set to allow inspection. Do not place any concrete prior to receiving approval by the Engineer.

Materials

Reinforcing Steel: Intermediate grade new billet steel conforming to ASTM-615, No. 4 bars and larger, yield strength of 60,000 psi, No. 3 bars and smaller, yield strength of 40,000 psi, free from flaws or mill defects, cleaned of all loose rust, scale, grease, paint or other foreign matter.

Kinks or bends not shown on approved shop drawings will be cause for rejections. Do not bend or straighten bars in a manner that will weaken or otherwise injure the material.

Furnish certified copy of mill tests on reinforcing steel if requested.

Spacers, Chairs, Bolsters, Supports, etc.: Fabricated of standard bright basic wire or plastic as approved.

All items placed on fill for slabs shall be furnished with sand plates similar in construction.

Tie Wire: 16 gauge annealed wire.
Form Board: DFPA form board plywood or SYP #2 lumber.

Form Oil: A light clear oil which will not discolor or otherwise injuriously affect the concrete surface, delay or impair curing operations.

Cement: Portland Cement, Type 1, conforming to ASTM C-150, latest revision.

Fine Aggregate: Clean, sharp, washed natural sand, free from organic matter, conforming to ASTM C-33, latest revision.

Course Aggregate: Washed gravel graded from 1 1/2" to No. 2 sieve, ASTM C-33.

Water: Potable

Air-entraining Admixture: Use at rate recommended to achieve an air content of 3-4% in concrete at point of placement.

Curing/Sealing Compound: Chemical curing and sealing compound shall provide an initial cure and residual sealer for concrete. Curing/sealing compound used on exposed concrete shall be non-discoloring and shall not darken or yellow with age. Insure compatibility with any adhesives, sealants and/or other compounds to be used. Product manufactured by Sheplers, Sonneborn, Euclid, Nox-Crete Chemicals or equal. Submit for approval.

Expansion Joint Filler: 3/4" thick cedar/redwood lumber with removable plastic void strip along the top for a pre-molded expansion joint filler.

Sealant: One part urethane. Sonneborn NP-1 or approved equal.

Pour Grade Sealant: One or two part urethane, self-leveling. Sonneborn type SL- or approved equal.

Bonding Agent: Latex bonding agent, Daraweld-C or equal.

Concrete Stain: A standard concrete stain shall be selected by the Owner

FORMING/REINFORCING

Forms: Of good quality lumber free from loose and unsound knots, knot holes, twists, decay and other defects which would affect its strength or impair the finished surface of the concrete conforming to the shape, lines and dimensions of the members as called for on the plans. Substantially and sufficiently tight to prevent leakage of mortar and properly braced or tied together so as to maintain position and shape. Provide temporary openings for inspection and cleaning. Forms shall be set so that exterior face of concrete is formed to minimum 6" below adjacent natural grade.

Wetting and Oiling Forms: Coat facing of forms with an approved oil, applied before reinforcing is set. Wet all surfaces of forms that will be in contact with concrete with water immediately before concrete is placed. In hot weather, treat both sides of forms to prevent warping and to secure tight joints.

Expansion Joints: In locations indicated, install specified wooden expansion joint filler in sizes required and extend dowels through forms minimum 12" for placement in slab. Maintain top edge of filler 1/2" below concrete surface for sealant joint by means of removable plastic strips.
Sawed Control Joints: Score concrete by saw cutting into the surface in a pattern as shown on the drawings, approximately 15’ - 20’ on center each way and/or as approved by the Engineer.

Construction Joints: Keyed galvanized metal joint. Extend reinforcing continuously through the joint. Construct joints at locations and to details indicated on the drawings. Obtain approval of construction joints not indicated prior to forming or placing concrete.

Placement of Reinforcing Steel: Accurately form and place reinforcement in accordance with ACI 318, latest revision. Adequately support in position on metal chairs and spacers. Use ties or other positioning accessories to prevent movement in accordance with the ACI Building Code 318, latest revision.

Unless otherwise noted, bend all bars cold. Do not straighten or rebend bars without approval of the Engineer.

Keep splices to a minimum. Lap bars 30 bar diameters minimum, except as otherwise noted on the Foundation Drawings.

Tie reinforcing together at all intersections. Tie bars to stirrups at every intersection. Provide not less than two ties at all splices. Tie all steel sufficiently to provide proper spacing and to prevent dislocations during placement of concrete.

Clean steel of scale, heavy rust and any other coatings that will reduce bond. Reclean steel left projecting from concrete for subsequent bonding to remove cement or other contamination.

Support steel for slabs on fill with specified chairs and bolsters of proper height and size to support steel. Hang reinforcing of beams on grade at intervals to prevent deflection and provide ample bottom cover.

Setting Miscellaneous Items: Set required bolts, weld plates, angle nosings, anchors, dowels, sleeves, miscellaneous items, etc., occurring in connection with concrete work. Place to grade and secure in position before concrete mixture is placed. Building anchor bolts shall be bolted in place through wooden templates nailed to forms.

Protective Concrete Covering of Reinforcing Steel: As shown on the drawings. If not indicated on the drawings or if exceeded by requirements of ACI Building Code 318, conform to code.

QUALITY CONTROL AND TEST REQUIREMENTS

Testing Laboratory: The Owner will employ a testing laboratory to preform quality control testing. Testing Laboratory shall submit copies of test results both to the Engineer and the Contractor. The Contractor shall contact the testing laboratory directly to schedule testing.

Mix Design: Minimum ultimate compressive strength as 28 days; **3,500 pounds** per square inch. **Submit for Approval.**

Test Cylinders: Owner's testing laboratory shall take a minimum of one set of (three) test cylinders for each 80 cubic yards or fraction thereof during the time the foundation is being poured. Each set shall have one cylinder broken at 7 days and two at 28 days for compressive strength. Curing and tests shall be according to ASTM C-39, under the supervision of the testing laboratory with a copy of tests furnished to both the Engineer and Contractor.

Slump: Slump tests shall be made by the Owner's testing laboratory in accordance with ASTM C-143 at intervals similar to test cylinders and as requested by the Engineer. Allowable slump shall be 3-1/2" minimum to 4-1/2" maximum.
Contractor: Deliver to the Engineer, at the time of concrete delivery, one of the delivery invoices stating cement content per yard and volume of concrete.

CONCRETE MIXING, HANDLING AND PLACING


Proportion: Proportion such that concrete will flow readily into corners, angles of forms and around reinforcement without excessive spading, puddling, segregation or collection of free water, will not produce harshness in working or honeycombing and will produce a smooth and sound surface throughout when forms are removed.

Handling: Convey concrete to place of disposition without separation of ingredients. Should separation inadvertently occur, re-mix concrete before placing. If concrete starts to set before placing, remove from site. Retempering will not be permitted.

Form Preparation: Remove debris and waste from forms. Wet wood forms thoroughly immediately prior to placing concrete.

Deposition Against Set Concrete: Roughen contact surfaces of set concrete, remove loose material and scrub surface with latex bonding agent immediately prior to depositing fresh concrete.

Vibration: Compact concrete with stinger type internal vibrator to remove air pockets and work concrete around reinforcement and embedded items and in all beams. Use vibrator with care to prevent separation of ingredients, displacement of forms, inserts, reinforcement and cast-in items. Vibrator shall not be used to move concrete.

Placement of Concrete: Place as nearly as practicable in final position. In general, place in horizontal layers of uniform thickness. Compact each layer uniformly before the next layer is placed. Do not allow concrete to drop freely more than 4 feet.

Stopping Work: When conditions are such that work must be stopped before completion of mass, leave concrete with clean, rough surface without cavities or loose stones.

Construction Joints: Allowable only as shown at expansion joints or on approval of the Engineer. Locate in planes of minimum shear as directed or indicated on the drawings.

Cold Joints: Deposit concrete so as to secure as nearly as possible a monolithic structure without joints except as detailed. Pour slabs and the beams which support them in one continuous operation.

Bulkheads: Construct solid and plumb with suitable keys for stopping concrete. Locate at right angles to planes of stress and at locations of minimum shear.

Slabs on Fill: Before placing concrete directly on fill, all water, sewer, drainage lines and other subsurface piping shall be completed, inspected and back filled. Sand fill shall be carefully compacted and at elevation required.

Inspection: Concrete shall not be placed until forms, reinforcing, piping and anchors intended to be placed within the concrete mass have been inspected and approved by the Engineer. Notify the Engineer at least 72 hours prior to anticipated date of pour. **Do not place any concrete prior to receiving approval by the Engineer.**
CONCRETE FINISH WORK

Monolithic Slabs: Sereed concrete off to elevations, slopes and levels shown. Smooth with a "bull float." Sprinkling of raw cement on surface will not be permitted. When concrete is reasonably firm, finish as hereinafter specified.

Exterior Slab Finishes: Smooth trowel finish.

Uniformity of Slab Surfaces. Any non-uniformity of slab surface will be cause for rejection. In this event, chip the surface 3/4 inch deep and apply a satisfactory finish topping at no expense to the Owner. Slab surface shall be level within 1/8 inch when measured along a 10 foot straight edge.

Labor: Insure that for conditions at the time, adequate experienced labor is on hand to place and finish concrete as specified.

Curing/Sealing: After concrete has hardened sufficiently, immediately apply the specified curing/sealing compound with a hand sprayer at rate recommended by the chemical manufacturer. Other means of curing may be used only with approval of the Engineer.

Concrete shall be stained using standard practices and shall be approved by the Engineer.

COLD WEATHER REQUIREMENTS

Obtain approval of the Engineer before placing concrete during freezing or near-freezing weather.

Provide adequate equipment for protecting concrete. Use no frozen materials such as materials containing ice. All materials and all reinforcement, forms, fillers and ground with which concrete is to come in contact shall be free of frost.

Placement of concrete will not be permitted when temperature is below 45 degrees F and falling or when freezing conditions may be expected with 24 hours.

REMOVAL OF FORMS

Remove forms in a manner that will prevent damage to surfaces and breaking of corners on concrete work.

Leave forms in place a minimum of 24 hours after placing concrete.

After concrete has hardened sufficiently, remove void strips at expansion joints and seal as detailed and specified.

PATCHING

Fill and finish all honeycombed surfaces with mortar composed of one part cement, two parts sand and a small amount of latex bonding agent.

Remove unsound material from areas requiring patching, moisten and coat with bonding agent then pack solid with mortar. Trowel flush with finished surfaces and wet cure for three days.

Honeycombed or blemished surfaces exposed to view shall be patched in defective areas and rubbed over the entire surface of the member with carborundum stone as necessary to provide uniform appearance.
DIVISION 5 – METALS

540 – COLD-FORMED METAL FRAMING

WORK INCLUDED

Alternate 2
Furnish and install fabricated steel, and other items as shown on the drawings and as outlined in these specifications.

MATERIALS

Alternate 2
4”x4”x5/16” steel tubing w/ 3/8” plates welded each end, and shall be anchored to concrete pad by 2 - ½” anchor bolts 5½” minimum.

Steel of sizes and dimensions shown or otherwise necessary.

Miscellaneous Steel Framing: Conform to the requirements to ASTM A-36, A-529, A-572, Grade 42 or A-570. Grade E, latest revision as applicable.

All framing members shall be shop fabricated for bolted or welded assembly. Field cutting, drilling, bolting and welding operations shall be done in a workmanlike manner and subject to approval of the Engineer.
DIVISION 6 - CARPENTRY

610 - ROUGH CARPENTRY

WORK INCLUDED

Base Bid:
Furnish all labor, equipment, materials and services necessary to perform all carpentry work indicated on plans and/or described below. Work shall include the construction of all stud walls and 47’ x 12’ attic walkway as shown on plans.

Alternate 2:
Furnish all labor, equipment, materials and services necessary to perform all carpentry work. Work shall include the construction of 7:12 roof over patio, similar to existing, as shown on plans.

MATERIALS

All rough carpentry for wall construction shall be standard grade or No. 2 grade, except studs may be stud grade, Southern Pine or Douglas Fir with max. moisture content of 19%.

Treated wood shall be Wolmanized #2 or better.

Plywood decking material shall be 3/4” thick tongue and groove “Sturdi-Floor” sheets or approved equal.

Bottom plate seal shall be poly foam material manufactured for that purpose, Foam-R-Seal by Dow Corning or approved equal.

2 – 1”x4”x8’ treated southern pine for simulated termite tube.

INSTALLATION

Members shall be closely fitted, plumb, accurately set to required lines and levels and rigidly secured in place. Nailing shall be in accordance with the Recommended Nailing Schedule as contained in the NFPA publication, Manual for House Framing. Nail size and spacing shall be sufficient to develop an adequate strength for the connection without splitting the members.

Provide all rough bucks and nailing blocks of sizes and at locations indicated on plans and as required to suit their intended purposes. Firmly secure all rough bucks and nailing blocks in positions as required to receive, support and engage the other parts of the work. Provide all rough bucks, stripping and nailing blocks for other trades.

Set wood blocking for support of woodwork, cabinetry, toilet accessories, door stops, plumbing, electrical, etc. Provide nailers and blocking to receive all wood trim and molding. Coordinate with other trades as necessary.

Use specified treated lumber for bottom plates and/or where wood is anchored to concrete, exposed to weather or wet locations. Install poly foam seal strip between bottom 2x plate and concrete slab, to prevent direct contact and to insure tight seal.

Simulated Termite Tunnel: Simulated termite tube shall be constructed from 2 – 1”x4”x8’ treated pine. Rout a ¼” cut into one of the boards 1” from edge. Glue boards together using wood glue to create a mock stud. As specified on page 3 of drawings.
Alternate 2:
Patio roof shall have rafters spaced 16” o.c. and shall be decked with ¾” plywood. All design loads shall comply with the local codes and the International Building Code for the applicable region and in no case be less than 20 psf roof live load, and be capable of sustaining a 90 mph wind.

The roof slope shall be 7:12. Similar to existing.
WORK INCLUDED

Furnish and install all material for finishing interior walls specified on the plans and specifications.

MATERIALS

All lumber used for interior finish shall be kiln dried to below 15% moisture content.

Sheetrock shall be 1/2” and textured to match existing.

Base and moldings shall match existing.

Fasteners shall be acceptable industry standard.

Windows and plexiglass panels shall be trimmed with 3/4” wood framing, painted to match walls.

INSTALLATION

Insure that all materials are installed in a neat workmanlike manner.

RELATED WORK

Re: Section 610 for rough carpentry.
WORK INCLUDED

Alternate 1:
Seal leave-out strips at concrete expansion joints.

MATERIALS

Caulking: Paintable, Alex by DAP or approved equal
          One part urethane. Sonneborn Type NP-1 or equal.

Pour Grade Sealant: One or two part urethane, self-leveling. Sonneborn Type SL- or equal.

APPLICATION

Clean all surfaces to contact sealants before application.

Gun or pour caulking so as to fill leave-out strips at concrete expansion joints (re: drawing details) and other areas as necessary.
DIVISION 7 – THERMAL & MOISTURE PROTECTION

730 - ASPHALT SHINGLES

WORK INCLUDED

Alternate 1
Provide labor, materials and equipment necessary for construction of 7:12 shingle roof over concrete patio.

MATERIALS

Alternate 1
Any items not specifically noted, but required for a fully functional leak proof system, shall be furnished at no additional cost. This will include valley flashing, step flashing, lead stacks, etc.

Shingles shall be Owens Corning fiberglass reinforced similar to existing or approved equal 3 tab with a minimum of 25 year warranty

Underlayment shall be 15lb. felt
WORK INCLUDED

Base Bid
26-gauge galvanized sheet metal to surround simulated termite tube and be caulked and screwed to existing studs on each side. Metal shall surround tube on 3 sides and drain pan shall be placed on bottom with port to outside exterior wall.

MATERIALS

Base Bid
Galvanized sheet metal to surround simulated termite tube inside wall (see drawing). Drain pan to drain through exterior wall.
DIVISION 8 - DOORS AND WINDOWS

830 – DOORS AND FRAMES

WORK INCLUDED

Furnish all labor, equipment and materials necessary to install all interior doors and exterior doors as indicated on the plans and/or described herein.

INTERIOR/EXTERIOR PASS DOORS

Exterior door shall be a Colonial 9 Lite 2 Panel, pre-finished, white, pre-hung insulated steel door as manufactured by Stanley or approved equal. See drawing for location

Pocket door shall be Molded Panel Series 4 panel square smooth door, solid core wood, manufactured by Masonite or approved equal See drawing for location.

The door and frame supplier shall furnish to the Engineer two (2) complete copies of the proposed doors and frames schedule and/or shop drawings.

Doors and frames shall be properly marked with door opening mark number to correspond with the schedule.

Deliver all doors in cartons and palletized to provide protection during transit and job storage.

Store doors and frames at the job site under cover. Place units on wood sills on the floor in a manner that will prevent rust and damage. Avoid the use of non-vented plastic or canvas shelters, which could create a humidity chamber. If the wrapper on the door becomes wet, remove the carton immediately. Provide a ¼ inch space between stacked doors to promote air circulation.

Locate hardware on doors and frames in accordance with the manufacturer’s standard location and Texas Accessibility Standard/ADA.

When steel frames are used with wood doors, the hardware preparation in the door is governed by the location on the frame. If the doors are factory mortised, the door supplier is responsible for coordinating hardware locations.

Hardware reinforcements shall be in accordance with the minimum standard gages as listed in SDI-100.

Doors shall be mortised, reinforced and function holes provided at the factory in accordance with the hardware schedule and templates provided by the hardware supplier. Through bolt holes, attachment holes, or drilling and tapping for surface hardware, shall be done by others in the field.

Shall be hot dipped zinc coated steel that complies with ASTM designations A924 A60.

All frames, except slip on drywall, shall be assembled so that the face miter seam is “closed and tight”. Weld the face seam and the full web of the frame corner or intersection. Grind and dress the weld area smooth. Apply a zinc rich primer over the grinding area, and finish with a matching prime paint.

Frames shall be mortised, reinforced, drilled and tapped at the factory for template mortised hardware only, in accordance with approved hardware schedule and template provided by the hardware contractor. Where surface mounted hardware is to be applied, frames shall have reinforcing plates only; all drilling and tapping to be done in the field by others.
Doors and frames shall be cleaned, and chemically treated to insure maximum finish paint adhesion. All surfaces of the door and frame exposed to view shall receive a factory applied coat of rust inhibiting primer. The finish to meet the requirements for acceptance stated in ANSI A224.1 “Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces.” The prime finish is not intended to be the final layer of protection from the elements. Field painting using a good grade of paint to be provided in accordance with the recommendations of the door and frame manufacturer. For specialty types of finished coatings, the paint supplier should also be consulted. **Finish paint shall match existing.**

It is the responsibility of the General Contractor to make sure that all dimensions for existing opening or existing frames (strike height, hinge spacing, hinge back set, etc.) given to the steel door and frame manufacturer are accurate.

It is the responsibility of the General Contractor to assure that scratches or disfigurements caused in shipping or handling are properly cleaned and touched up with a rust inhibitive primer.

Prior to installation, all frames must be checked for rack, twist and out of square conditions. Place frames prior to enclosing walls and ceilings. Set frames accurately in position, plumbed and braced securely until permanent anchors are set. Remove shipping bar spreader and insert a wood spreader cut to the opening width, notched to clear the stops.

Install doors plumb and in true alignment in a prepared opening and fasten them to achieve the maximum operational effectiveness and appearance.

Proper door clearance must be maintained in accordance with SDI-110.

Where necessary, only metal hinge shims are acceptable to maintain clearances.

All exterior doors shall be fully weather-stripped.

**ATTIC STAIRWAY**

Attic stairway shall be a pull down stairway and have a maximum load of 800lbs or greater, manufactured by Bessler Stairway Company or approved equal

**INSTALLATION**

Insure that adequate blocking is installed in wall framing for support and reinforcement at latching points. Hardware required for accessible door passage shall be mounted no higher than 48” above finished floor in accordance with Texas Accessibility Standard/ADA.

**RELATED WORK**

Re: Section 870 for hardware.
Section 980 for painting.
WORK INCLUDED

Furnish and install all hardware for swing doors. See related work.

MATERIALS

Locksets shall match or be similar to existing locksets

Cylinders shall be keyed similar to existing.

Hinges shall be heavy duty with brass or zinc finish.

Closures shall be Sargent 1100 Series or approved equal.

Door bumpers shall be wall mounted.

INSTALLATION

Doors shall open and close smoothly with no binding.

Closures shall be thru bolted.

Caulk under all thresholds for seal along both edges.

RELATED WORK

Re: Section 830
DIVISION 9 - FINISHES

SECTION 925
DRYWALL

WORK INCLUDED

Furnish and install all gypsum drywall and ceiling work indicated or reasonably inferred from the drawings and specifications.

MATERIALS

Gypsum board shall be "X" rated, 1/2" X 48" wide X lengths required to minimize end joints. Gypsum board shall be manufactured by National Gypsum Co., U.S. Gypsum 60, Bestwall Gypsum Co., or approved equal.

Water Resistant Gypsum Board shall be 1/2" thick board with chemically treated face paper and water resistant core meeting all requirements of ASTM C79.

Sheetrock brand Gypsum Sheathing for use in exterior steel or wood framed construction as a backup for siding, brick veneer, and other similar cladding.

Joint tape and cement shall be as recommended by manufacturer of gypsum board.

Corner bead shall be U.S. Gypsum's "Dur-A-Bead," National Gypsum's Standard Corner, or approved equal.

Edge trim shall be National Gypsum's #200, U.S. Gypsum's #200-B or approved equal. Screws shall be 1" bugle head drywall screws.

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

INSTALLATION

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

In cold weather and during the period of laminating the gypsum boards and finishing the joints, temperatures within the building shall be maintained uniformly within the range of 45 degrees to 70 degrees F. Adequate ventilation shall also be provided to eliminate excessive moisture within the building during this period.

Work shall be coordinated with that to be done by other trades. Boards shall be cut neatly to fit around all electrical boxes and penetrations. Suitable fastener anchorage shall be provided as detailed or required for the attachment of shelves, cabinets, etc.

All abutting ends and edges shall occur over furring channels of framing members, except that long dimension may occur perpendicular to framing members in non-fire rated walls. Wallboard of the maximum practical length shall be used to minimize end joints. All end joints shall be neatly fitted and staggered. Joints on opposite sides of partitions shall be so arranged as to occur at different studs. Place joints at midpoints over door and window openings.
Nails for wood framing members shall be spaced a max. of 7" on centers at edges and intermediate bearings. Screws shall be power driven with an electric screwdriver, and screw heads shall provide a slight depression below the surface of the wallboard. Screws shall not be driven closer than 3/8" from edges and ends of the board. Do not stagger nails at adjoining edges.

Insure that walls have been reinforced with internal wood blocking at all door bumper, accessory, and cabinetry anchor locations before gypsum board is applied.

Where shown on drawings and at all locations where edges of gypsum board abutts dissimilar wall or ceiling surface, **gypsum board shall finish with manufacturer's standard edge trim**, as approved by the Engineer.

As gypsum board is placed, install metal trim as indicated and as required.

Interior corners shall be taped.

All screw head, nail head and other depressions in the surface of the wallboard shall be treated, and all joints shall be taped and bedded in accordance with gypsum board manufacturer's standard joint system. Sand between applications, leaving all finished surfaces in such condition that location of joints or irregularities will not be visible. All vertical or horizontal external corners shall have metal corner reinforcement applied in accordance with manufacturer's directions.

**RELATED WORK**

Re: Section 610 for Rough Carpentry
SECTION 960
RESINOUS FLOORING

WORK INCLUDED

Furnish all labor, materials and equipment required for the placement of approximately 80 sqft of 100% epoxy floor, as located on plans. Work shall include all surface preparation, leveling/floating, priming, placement and clean-up as indicated in the specifications.

QUALITY ASSURANCE

Material designations indicated below are those of Ceilcote. Equivalent first quality products will be acceptable. Obtain primary resinous flooring materials including primers, resins, hardening agents, finish or sealing coats from a single manufacturing and installing principal materials described in this section.

Submittals Required on all material

Samples: Submit for verification purposes, 4-inch square samples of each type of resinous flooring required, applied to a rigid backing, in color and finish indicated.

MATERIALS

The coating system shall be COROCRETE SF coated with two coats of CEILGARD 664 as manufactured by CEILCOTE or an approved equal equivalent is a nominal 1/4" thick system comprised of penetrating, moisture tolerant, two-component epoxy primer, a high performance, three-component mortar consisting of epoxy resin, curing agent, and selected, graded aggregates blended with inorganic pigments and two coats of a two-component, 100% solids, chemical resistant, bisphenol F epoxy coating.

Physical properties shall provide a flooring system in which physical properties topping include aggregate, when tested in accordance with standards or procedures referenced below, are as follows:

1. Compressive Strength (ASTM C-579): 10,000 psi
2. Tensile Strength (ASTM C-307): 1,750 psi
3. Flexural Strength (ASTM C-580): 4,000 psi
4. Tensile Elongation (ASTM D-638) 1.8%
5. Impact Resistance (ASTM D-5420) >240 psi
6. Absorption (ASTM 413-80): .056%
7. Flexural Modulus (ASTM C-580): 2.0-2.5x10 psi
10. Coefficient of Expansion (ASTM C 531): 1.88 x 10in/in/F
11. Time to place in service (at 70 degrees F(21°C):
    Traffic-12 hrs.
    Cure time: 5 days

Color as selected by the Owners Representative. Contractor shall provide standard color chart for selection.

PREPARATION

Commencement of installation of product and finishing operations indicates approval and acceptance of surfaces to be covered. Any surfaces not in proper condition for product shall be put in such condition before
work is begun. Doors, walls, drains, etc. and similar items in place prior to installation shall be removed or otherwise protected until flooring is finished, then replaced.

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign materials to ensure adhesion. Use ASTM D 4263 (plastic sheet test method) to ensure concrete is moisture free.

APPLICATION

Flooring materials shall not be applied unless the concrete surface temperature is a minimum of 50°F for 24 hours.

Mix and apply primer over properly prepared substrate with strict adherence to manufacturer’s installation procedures. The mixture shall be applied by brush or roller to a wet film thickness (WFT) of 2-5 mils. Ingredients are to be mixed thoroughly and applied to concrete.

Polymer topping is applied to a freshly wet primed surface, screed level to a 1/4" thickness, sloping to all floor drains as necessary. Finish with a cement finishing trowel. Apply a 6" cove base around the perimeter of each room, with a 1" radius transition from floor surface to vertical base. Thickness shall be measured from the highest point on the stamped concrete surface.

Apply two coats of a corrosion resistant coating with strict adherence to manufacturer’s installation procedures and coverage rates. Remove any surface imperfections by lightly abrading and vacuuming the floor surface. Re-coat in accordance with manufacturer’s recommendations.

PROTECTION

Contractor shall protect all equipment, stalls, etc. permanently attached in place.

CLEANING AND CURING

Cure resinous flooring materials in compliance with manufacturer’s directions, taking care to prevent contamination during stages of application and prior to the completion of the curing process. Close area of application for a minimum of 24 hours.

Clean material using materials and procedures recommended by resinous flooring manufacturer.
WORK INCLUDED

Paint, or otherwise finish all interior wood components which are exposed to view, drywall, ceiling, all metal and as scheduled. All colors shall be selected by the Owner’s Representative.

Wood sliding pocket door shall be painted to match existing.

Exterior pre-hung steel door shall be painted to match existing.

Retexturing of ceiling shall be stompbrush/knockdown texture

QUALITY ASSURANCE

Material designations indicated below are those of Sherwin-Williams Co. Equivalent first quality products of Benjamin Moore, PPG, or approved equal. Submittals Required.

MATERIALS

General Woodwork: Shall be coated with A-100 Alkyd Exterior Primer and of A-100 Gloss Latex House Paint.

Drywall ceiling and interior walls: Shall be taped, floated and textured before painting with two coats of A-100 Gloss Latex House Paint.

Colors shall be as selected by the Owner.

PREPARATION OF SURFACES

Commencement of painting operations indicates approval and acceptance of surfaces to be covered. Any surfaces not in proper condition for painting shall be put in such condition before painting is begun. Finish hardware, hardware accessories and any fixtures in place prior to painting shall be removed or otherwise protected until painting is finished and then replaced.

APPLICATION

Ceiling retextrue shall be done using a stompbrush/knockdown method

All coatings shall be applied per manufacturer's recommendations in order to achieve a workmanlike finish. Acceptable finishes shall be smooth, free of runs, laps, brush marks, dust, scratches, etc. and shall be fully covered with uniform color and texture. All coats shall be thoroughly dry before applying succeeding coats.

Application shall be done with a brush, roller or airless gun. Standard spray gun will not be allowed.

Primer: One coat shop or field applied.

Finish Coat-Drywall: Two coats as necessary for complete coverage.

PROTECTION

Floor Slabs, equipment, adjacent surfaces, etc. must be fully protected during painting operations.
CLEANING

Clean paint spots from floor, glass, trim and other surfaces.
DIVISION 13 - SPECIAL CONSTRUCTION

SECTION 1310

PLEXIGLASS VIEW PORTS AND LABORATORY BENCH

WORK INCLUDED

Furnish and install all materials and labor necessary for the installation of plexiglass view ports as specified on plans.

MATERIALS

Optix clear acrylic sheet ¼” thick, size varies at each location. See drawings for locations.

2 – 60”W x 30”D x 30”H lab benches w/ plastic laminate bench top by VWR or approved equal. VWR model number 10682-760

INSTALLATION

Acrylic sheets shall be installed flush with sheetrock to establish a viewing port in wall, using 2” SS wood screws with matching finishing washers. See page 3 of plans for detail.

Acrylic sheets shall be framed using 1”x4” Select Pine, painted to match existing.
DIVISION 15 - MECHANICAL

SECTION 1540

PLUMBING

WORK INCLUDED

Furnish and install all materials and labor necessary for the installation of water piping and gas lines (above grade & underground), and all plumbing equipment/fixtures as indicated on the drawings and as outlined in these specifications.

DRAIN SYSTEM

All under slab drain/waste plumbing shall be schedule 40 PVC.

All drain and vent piping shall be schedule 40 PVC meeting local codes.

All lines shall be properly graded with minimum uniform pitch downward in the direction of flow at a minimum rate of 1/8" per foot, 1/4" preferred. All slab drains shall be as scheduled.

Cleanouts shall be provided as shown on the plans and at all points in the system required for proper maintenance.

Traps and vents shall be provided as shown on the plans and as necessary for proper system operation.

VALVES & APPURTENANCES

Add exterior hose bib. As specified on plans

DOMESTIC WATER SYSTEM

All other water piping below grade shall be schedule 40 PVC.

All water piping above finish floor shall be Pex with approved fittings.

Where copper pipes join steel pipes, an insulating bushing shall be used.

All water piping shall be installed in such a manner to prevent back siphoning in the system and allow for draining lines above grade for freeze protection.

Water supply piping to each plumbing fixture shall have stop valves installed.

Exposed piping shall be anchored to structural framing or otherwise supported with approved brackets or hangers as necessary.

1/8” tubing shall be ran from cold water line at sink through attic space to simulated termite tube, as specified on drawings.
DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

Inject chlorine disinfectant into all new and/or modified water supply lines as necessary to obtain 50-80 mg/L residual at min. 50% of outlets. Maintain disinfectant in system for 24 hour. If final residual tests are less than 25 mg/L, repeat treatment. Flush disinfectant from system until residual equals to that of incoming water of 1.0 mg/L. Take samples no sooner than 24 hours after flushing, from 50% of outlets plus from water entry and analyze in accordance with AAWA C601.

GAS LINE & APPURtenances

Natural gas lines shall be relocated as specified on plans.

Natural gas piping above grade shall be black steel type with threaded or welding fittings. Gas piping buried within 5 feet of the building shall be similar except with polyethylene jacket or double layer, half-lapped 10 mil polyethylene tape.

Piping for other than dry gas conditions shall be sloped not less than 1/4" in 15 ft. to prevent traps. Horizontal lines shall slope upward to risers and from the risers to the meter, or service regulator where a meter is not provided.

Connector tubing shall be corrugated stainless or yellow coated brass of adequate diameter, max. 24” long unless approved otherwise by the Engineer.

Furnish and install manual shut-off ball valve, connector tubing, and regulator if necessary for each gas heater / appliance.

TESTING

All pipes shall be tested before they are backfilled, concealed, covered or otherwise rendered inaccessible.

Vent and drain lines shall be pressure tested under a minimum of 10 feet of water head for at least one hour.

Water systems shall be pressure tested under water pressure of 100 psi and proved tight.

Gas lines shall be tested with a pressure measuring device designed and calibrated to read, record, or indicate a pressure loss due to leakage during the pressure test period. The piping system shall withstand the test pressure specified without showing any evidence of leakage or other defects.

RELATED WORK

Re: Section 980 for pipe coating requirements.
WORK INCLUDED

Furnish all labor, materials and equipment required for the installation of complete air conditioning unit, furnace, and ventilating system as per plans and specifications.

GUARANTEE

The Contractor shall guarantee that the work performed under this Section is free from faulty materials and workmanship and will remain so for a period of one year from the date of substantial completion or acceptance by the Owner and AC compressors shall be guaranteed for a period of five years.

Re: Division 1 General Requirement for extended warrantee on compressor and seal system.

MATERIALS AND EQUIPMENT

Equipment as scheduled on the plans to include:

One 4-ton split system air conditioning unit with furnace, manufactured by Carrier, Trane or approved equal, including programmable thermostat.

Equipment shall be as scheduled on the drawings or approved equal.

Duct components shall be fabricated of standard galvanized sheet metal complete with appurtenances including stiffeners, extractors, turning vanes, etc.

At each flexible duct branch take-off to air devices, provide spin in connector with elevated integral balancing damper (or with damper with stand-off/extended neck) equal to Rainier 84 MTD or Flexmaster FLD for sheet metal ducts.

All taps shall be provided and installed so that the integral damper when in the open position is parallel to the flow direction in the trunk duct.

Flexible air duct shall be UL listed 181 Class I pre-insulated duct. Duct shall conform to NFPA 90A and 90B. Wrap metal duct with min. 2" scrim reinforced foil back insulation blanket. Tape and seal all joints.

Provide fresh air ventilation supply to each unit. Install filter box and provide balancing damper for fresh air regulation and back draft dampers to prevent drawing air from idle unit.

Provide ceiling grill with open duct extended 6" to 8" above bottom truss members in attic space (two locations). Install gravity dampers in duct to allow air flow when units are running and prevent back draft when units are idle.

Registers shall be as scheduled on the drawings and properly sized as necessary for adequate air flow.

Indoor air handler section shall be configured for horizontal flow (as shown on the drawings) with centrifugal type multi-speed blower, thermal expansion valve, back up heating and filter assembly.
The outdoor fan shall be propeller type, vertical discharge and direct drive.

Exposed vapor lines shall be insulated with min. 3/4" pipe insulation, as specified herein.

Provide concrete pads (C.I.P. or precast) for outside condensing units sized to the unit dimensions plus min. 9" each way.

Provide emergency drain pan under indoor unit w/ cut off switch.

**INSTALLATION**

Installation shall conform to the latest editions of the Standard Mechanical Code and National Electrical Code.

Except as otherwise shown on the drawings or specified, the workmanship of sheet metal duct work, method of forming joints, fastening, etc. shall conform to the latest edition of "Standard Practice in Sheet Metal Work," issued by the National Association of Sheet Metal Workers.

The installing contractor shall be currently licensed by the State of Texas for similar work.

Penetrations through walls, decks, etc. between conditioned and unconditioned space shall be adequately sealed so as to prevent air infiltrations.

Coordinate penetrations with rough carpentry work.

Support indoor units on neoprene rubber weatherstrip or vibration pads. Seal to supporting deck where necessary.

Place outside A/C condensing units at clearances from the building, each other, etc. in compliance with manufacturer’s recommendations and/or a minimum of 30".

Low voltage control wiring shall be installed within conduit per electrical requirements.

Route condensate drain to waste piping below slab.

Route emergency drain to stub out below ceiling directly above sink or lavatory.

Route refrigerant lines overhead and/or along walls. Route lines down to outside condenser units in exterior wall(s) to minimize piping exposed to exterior. Protect lines penetrating walls with sleeves of 3/4" pipe insulation or equal.

**All breakers and electrical wiring shall be confirmed on site by the contractor. Coordinate with electrical.**

Mount thermostats on electrical boxes at scheduled (TAS/ADA) heights and locations.

**RELATED WORK**

Re: Section 980 for additional finishes.
    Section 1610 for electrical work
DIVISION 16 - ELECTRICAL

SECTION 1610

ELECTRICAL

WORK INCLUDED

Furnish and install complete power and lighting systems for IPM Experience House, including, panel boards, disconnects, breakers, conduit, wire, boxes, outlets, switches, covers, fixtures, lamps, low voltage controls), etc.

GENERAL REQUIREMENTS

All electrical work shall be installed with proper regard for and in harmony with other construction. Required cutting and patching shall be done by this Subcontractor as described hereinafter. Adjacent general construction shall not be weakened or damaged and should any question arise as to the placement of conduit, fixtures or other materials or equipment, the Engineer shall be referred to for instructions. The Subcontractor will be responsible for all damage caused by his work or through the neglect of his workmen.

Furnish all other trades with information relative to roughing, spacing and space requirements. Plan all work in advance to determine whether interferences occur and whether existing services are complementary.

Furnish and install any items required for a complete installation but not specifically shown on the plans at no additional expense to the Owner.

**Electrical Contractor shall verify electrical connections and coordinate with mechanical that there is adequate power supplied for HVAC.**

POWER SUPPLIER

Coordinate all supply and service entrance work with the local power supplier. It shall be the responsibility of the contractor to coordinate with the power supplier for information associated with connections and installation of secondary.

TEMPORARY POWER

Power may be provided from existing panel.

RULES AND REGULATIONS

Work shall be performed in accordance with requirements of the National Electrical Code, latest edition, published by the National Board of Fire Underwriters, as well as the rules and regulations of the local power supplier.

Give precedence to drawings and specifications when they require higher standards than those required by rules and regulations.

Rules and regulations govern in case of direct conflict between regulations and drawings and specifications.

SUPERVISION

Maintain on the job site at all times work is in progress a competent supervisor of electrical work.
PLANS AND SPECIFICATIONS

Layout: The general arrangement of the circuits and outlets, the location of main switches, panel boards, conduit, fixtures and other work shall be as indicated on the drawings.

Deviations: If deviations from the arrangements are necessary to meet conditions, make changes without additional expense to the Owner.

GROUNDING/BONDING

Securely ground all outlets, panel boxes, switch boxes, equipment and all other devices in strict accordance with requirements of the National Electrical Code.

Grounding conductors with a green colored insulated jacket shall be provided and installed in all raceways.

Grounding materials, devices and workmanship shall be as approved by the Engineer.

CONDUIT

Exterior: Rigid nonmetallic conduit (PVC) shall conform to the National Electrical Code requirements for nonmetallic conduit in dimension and wall thickness as manufactured by Carlon, R&G Sloane or any equal approved by the Engineer.

Interior: Metallic Tubing shall conform to National Electrical Code requirements for electric metallic tubing in dimension and wall thickness. Finish for steel tube shall be galvanized or sherradized inside and outside with lacquer or synthetic resin coating inside as manufactured by General Electric, Republic, Triangle or equal.

Electrical Nonmetallic Tubing (ENT) shall not be used (no exceptions).

All conduit shall be run in a neat and workmanlike manner with particular care being taken for convenience of arrangements and identification of circuits attached to the panel box.

Run all conduit concealed and parallel to framing members insofar as possible.

Attach conduit with approved clamps. The use of wire, nails or perforated hanger iron for securing conduit will not be permitted. No conduit shall be attached to the steel wall panels.

Conduit shall be properly sized for THW conductor fill even if THWN conductors are used.

Ream all conduit after cutting.

Keep ends plugged watertight during construction.

Swab all damp conduit dry before pulling wires.

Use standard bends in conduit larger than 1”. Conduit with crushed or deformed walls shall not be used.

Attach conduit fittings to panels, pull boxes, switch boxes, outlet boxes, etc. with locknuts and bushing inside.
WIRE AND CABLE

Feeders and branch circuit conductors shall be type THW or THWN Code grade copper, 600 volt. Insulation thickness shall not be less than 15 mils thick plus outer covering.

Ground/bond wires, as a minimum, shall be as detailed on the drawings and as specified in Grounding/Bonding section.

Wire shall be sized so that the drop in the potential to the farthest point on the circuit does not exceed 3%.

Interior wire no. 8 or larger shall be stranded and smaller wire shall be solid except where noted otherwise.

Low voltage control wire shall be solid copper conductor with thermo-plastic insulation.

Run all mains and feeders full length with no joints or splices. Joints in branch circuits may occur at pull boxes, outlet boxes, junction boxes and panels only.

One conductor in each circuit shall be identified by a distinctive color and the unified plan of color coding, Article 210 of the National Electric Code, shall be followed throughout the entire installation.

CIRCUITS

Arrange circuits for lighting, power and special outlets as indicated on the drawings. On completion of this wiring distribution panel, a typed circuit description for each circuit with an additional copy for permanent file shall be delivered to the Owner.

Follow National Electric Code, Article 210 for color coding.

BOXES

Use 4" octagon boxes where fixtures are attached directly to the box.

Where necessary to provide junction of pull boxes, they shall be of weatherproof type. Boxes shall be of sufficient size to allow easy handling of wire and shall be covered with a suitable weatherproof cover. All boxes shall be accessible as defined by the National Electrical Code.

The Engineer reserves the right to make slight changes in the location of the outlets for centering, for convenience or for improved function. Such changes are to be made without additional expense to the Owner, provided instructions for moving are issued before actual installation of raceway and outlets.

SWITCHES

Wall Switches: Wall switches for lighting shall be single pole or three way, 20 amp, 125 volt AC. Leviton, as scheduled, or equal.

Safety Switches: Safety switches shall be fused type and properly sized for the application. Install complete with fusing per equipment manufacturer’s rating. GE Heavy Duty or approved equal.

All switches shall be mounted at 48” max. A.F.F. to comply with TAS/ADA or as otherwise noted. See drawings for general locations.
PLATES

Furnish and install weatherproof plates for receptacles or other outlets in the proper gangs adapted to each location. Bryant 63101, or approved equal.

OUTLET RECEPTACLES

All receptacles shall be NEMA heavy duty straight blade, specification grade, grounding types, high-dielectric casing, 20 amp, 125 volts. Leviton, as scheduled, or approved equal.

Mounting height shall be as shown on the plans

All receptacles shall typically be mounted 48” A.F.F., or as otherwise shown on the plans, except comply with TAS/ADA in offices and restrooms. See drawings for general locations.

PANELBOARDS

Panelboard shall be a GE Type AQ or approved equal.

All panelboards shall have copper buses, surface mounted, bottom feed, and NEMA 1 enclosures.

Configuration, voltage, ratings, etc. as designated on the panel schedule.

Leave typed schedule of circuit identification on the panel with an additional copy for permanent file to be delivered to the Owner.

FIXTURES

Provide and properly hang fixtures for every light outlet shown.
Mounting height shall be as shown on the plans or as determined by the Engineer.

All fixtures shall be complete with lamps.

Verify the application for each fixture unit, and ascertain properties of adaptability before ordering.

The schedule on the drawings establishes the character and pattern of each unit in the several applications. The catalog number is used to establish qualities, performances, finish, dependability and appearance and will be used as basis of comparison in the consideration of possible substitutions.

RELATED SECTIONS

Re: Section 255 for utilities trenching and backfilling.
Section 1540 for Plumbing equipment
Section 1580 for heating and ventilating equipment.
APPENDIX