

**PROJECT MANUAL
INCLUDING SPECIFICATIONS
FOR CONSTRUCTION**

**CROSS COUNTY
SUPERINTENDENT RESIDENCE
Cherry Valley, Arkansas**

**ARCHITECT PROJECT NO. 24041
DATE: August 30, 2024**

**LEWIS
ARCHITECTS
ENGINEERS**  **ELLIOTT • MCMORRAN • VADEN
RAGSDALE • WOODWARD • INCORPORATED
501.223.9302 • FAX 501.223.9909 • WWW.LEMVRW.COM**

11225 HURON LANE • SUITE 104 • LITTLE ROCK, AR 72211

TABLE OF CONTENTS

COVER PAGE
TABLE OF CONTENTS
NOTICE TO BIDDERS
INSTRUCTION TO BIDDERS
BID FORM
BIDDER ASSURANCES AND DISCLOSURE
REQUIRED CONTRACT FORMS
SAMPLE OF LIABILITY INSURANCE FORM
LIEN WAIVER FORM
GENERAL CONDITIONS
SUPPLEMENTARY CONDITIONS

DIVISION ONE GENERAL REQUIREMENTS

01 11 00 Summary of Work
01 21 00 Allowances with Attachment
01 23 00 Alternates
01 31 19 Project Meetings
01 33 23 Shop Drawings, Product Data & Samples
01 45 29 Testing Laboratory Services
01 50 00 Temporary Facilities and Controls
01 74 23 Final Cleaning
01 77 19 Contract Closeout
01 78 39 Project Record Documents

DIVISION TWO EXISTING CONDITIONS

02 30 00 Subsurface Investigation

DIVISION THREE CONCRETE

03 31 00 Concrete

DIVISION FOUR MASONRY

04 01 20 Unit Masonry Cleaning
04 05 13 Masonry Mortaring
04 05 23 Masonry Accessories
04 21 13 Brick Masonry

DIVISION FIVE METALS

05 50 00 Metal Fabrications

DIVISION SIX WOOD, PLASTICS AND COMPOSITES

06 06 00 Lumber
06 10 00 Rough Carpentry
06 17 53 Shop-Fabricated Wood Trusses
06 20 00 Finish Carpentry
06 22 00 Millwork

DIVISION SEVEN THERMAL AND MOISTURE PROTECTION

07 19 00 Water Repellants
07 21 00 Thermal Insulation
07 25 00 Weather Barrier
07 26 16 Under Slab Vapor Barrier/Retarder
07 31 00 Fiberglass Shingles
07 60 00 Flashing and Sheet Metal
07 92 00 Joint Sealants

DIVISION EIGHT OPENINGS

08 36 13 Sectional Doors
08 71 00 Door Hardware

DIVISION NINE FINISHES

09 21 00 Gypsum Board Assemblies
09 91 00 Painting

DIVISION TEN SPECIALTIES

Not Used

DIVISION ELEVEN EQUIPMENT

Not Used

DIVISION TWELVE FURNISHINGS

Not Used

DIVISION THIRTEEN SPECIAL CONSTRUCTION

Not Used

DIVISION FOURTEEN CONVEYING EQUIPMENT

Not Used

DIVISION TWENTY ONE FIRE SUPPRESSION

Not Used

DIVISION TWENTY TWO PLUMBING

Not Used

DIVISION TWENTY THREE HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

Not Used

DIVISION TWENTY FIVE INTEGRATED AUTOMATION

Not Used

DIVISION TWENTY SIX ELECTRICAL

Not Used

DIVISION TWENTY SEVEN COMMUNICATIONS

Not Used

DIVISION TWENTY EIGHT ELECTRONIC SAFETY AND SECURITY

Not Used

DIVISION THIRTY ONE EARTHWORK

31 11 00 Clearing and Grubbing
31 22 00 Grading
31 23 00 Excavation and Fill
31 25 00 Erosion and Sedimentation Control
31 31 16 Termite Control

DIVISION THIRTY TWO EXTERIOR IMPROVEMENTS

32 92 19 Seeding

DIVISION THIRTY THREE UTILITIES

Not Used

DIVISION THIRTY FOUR TRANSPORTATION

Not Used

DIVISION THIRTY FIVE WATERWAY AND MARINE CONSTRUCTION

Not Used

DIVISION FORTY	PROCESS INTERCONNECTIONS
Not Used	
DIVISION FORTY ONE	MATERIAL PROCESSING AND HANDLING EQUIPMENT
Not Used	
DIVISION FORTY TWO	PROCESS HEATING, COOLING AND DRYING EQUIPMENT
Not Used	
DIVISION FORTY THREE	PROCESS GAS AND LIQUID HANDLING, PURIFICATION AND STORAGE EQUIPMENT
Not Used	
DIVISION FORTY FOUR	POLLUTION AND WASTE CONTROL EQUIPMENT
Not Used	
DIVISION FORTY FIVE	INDUSTRY-SPECIFIC MANUFACTURING EQUIPMENT
Not Used	
DIVISION FORTY SIX	WATER AND WASTEWATER EQUIPMENT
Not Used	
DIVISION FORTY EIGHT	ELECTRICAL POWER GENERATION
Not Used	
	END OF TABLE OF CONTENTS

NOTICE TO BIDDERS

CROSS COUNTY
SUPERINTENDENT RESIDENCE
CHERRY VALLEY, ARKANSAS

Sealed proposals will be received on General Contract for CROSS COUNTY SUPERINTENDENT RESIDENCE, CROSS COUNTY SCHOOL DISTRICT, CHERRY VALLEY, ARKANSAS. The Owner will receive sealed proposals until 2:00 p.m., September 17, 2024, at the office of the Superintendent of Schools, Cross County School District, 21 CR 215, Cherry Valley, Arkansas, at which time they will be publicly read aloud. Any bids received after the stated time and opening date will be returned unopened.

The Proposed Contract Documents may be examined at the following locations:

Lewis, Elliott, McMorran, Vaden,
Ragsdale & Woodward, Inc. (Architect)
11225 Huron Lane, Suite 104
Little Rock, AR 72211

Office of the Superintendent of Schools
Cross County School District
21 CR 215
Cherry Valley, AR 72324

Dodge Construction Network (DCN)
<http://Dodge.construction.com>

Construction Market Data, LLC
www.constructconnect.com

Southern Reprographics, Inc.
901 West 7th St.
Little Rock, AR 72201

General Contractors may secure copies of the Proposed Contract Documents from the Architect on the following basis:

Three sets of the Project Manual, including Specifications, plus three sets of Drawings upon payment of any costs of shipping and \$300 deposit. Deposit is completely refundable if all sets are returned to the Architect in good condition within five days after bid opening. General contractors who secure plans but do not submit legitimate bids shall forfeit their deposit.

Subcontractors and material suppliers may obtain additional copies of the Project Manual, including Specifications, plus additional sets of prints of the Drawings, upon payment of \$100 per set, nonrefundable.

No partial sets will be issued.

All bidders must be licensed in the State of Arkansas, as provided by Act 142 of 1967, amended by Act 293 of 1969, and Act 397 of 1971, and Act 546 of 1971, as enacted by the General Assembly of the State of Arkansas.

Bid proposals must be accompanied by a bidder's bond or cashiers check in the amount of five percent (5%) of the bid, made payable to the Cross County School District, Cherry Valley, Arkansas.

The successful bidder will be required to furnish satisfactory performance and payment bond using AIA Document A312.

The Owner reserves the right to waive any informality, or to reject any or all bids.

No bid shall be withdrawn for a period of thirty (30) days subsequent to the opening of the bids, without written consent of the Owner.

Cross County School District
Nathan Morris, Superintendent
21 CR 215
Cherry Valley, AR 72324

Lewis, Elliott, McMorran, Vaden,
Ragsdale & Woodward, Inc.
11225 Huron Lane, Suite 104
Little Rock, AR 72211
Telephone: (501) 223-9302

END OF NOTICE TO BIDDERS

INSTRUCTION TO BIDDERS

1. Securing Documents:

Copies of the proposed Contract documents are on file at the office of the Architect:

Lewis, Elliott, McMorran, Vaden,
Ragsdale & Woodward, Inc.
11225 Huron Lane, Suite 104
Little Rock, AR 72211

2. General Instructions, Terms and Conditions:

a. These General Instructions, Terms and Conditions and any special terms and conditions become part of any contract entered into in the event any part or all of the bid is accepted by Cross County School District.

3. Definitions:

a. All definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, are applicable to these Instructions to Bidders.

b. Bidding documents include the advertisement or invitation to bid, execution of the contract which modify or interpret the bidding documents, including drawings and specifications, by addition, deletions, clarifications or corrections. Addenda will become part of the Contract Documents when the construction contract is executed.

c. The words vendor, bidder, offerer, company, proposer and contractor may be used synonymously in this document.

d. The terms "District" or "Owner" are used interchangeably and refer to the Cross County School District.

e. Pursuant to Arkansas Code Annotated 22-9-203, the State encourages all small, minority, and women business enterprises to submit bids for capital improvements. Encouragement is also made to all general contractors that in the event they subcontract portions of their work, consideration is given to the identified groups.

4. Examination of Drawings, Specifications, and Site of Work:

a. Before submitting a bid, each bidder shall carefully examine the Drawings, read the Specifications and all other proposed Contract Documents, and visit the site of the Work. Each Bidder shall fully inform himself prior to bidding as to all existing conditions and limitations under which the Work is to be performed, and he shall include in his bid a sum to cover all costs of all items necessary to perform the Work as set forth in the proposed Contract Documents. No allowance will be made to any bidder because of lack of such examination or knowledge. The submission of a bid will be construed as conclusive evidence that the bidder has made such examination.

b. Should the bidder find discrepancies in, or omissions from the drawings, or other bidding documents, or should he be in doubt as to their meaning, he should at once, notify the Architect, who will send a written addendum to all bidders. Neither the Owner nor the Architect will be responsible for any oral instructions. Any addenda issued during the time of bidding are to be covered in the proposal and in closing a contract, they will become a part thereof.

5. Bidding Procedures:

a. Proposals shall be made upon the bid form issued by the Architect. The signature of the individual authorized to bind the bidder shall be in longhand; no oral, or telephonic proposals will be considered, but modifications by fax of bid already submitted will be considered if received prior to the hour set for opening.

b. Proposals shall also include "Bidder Assurances and Disclosure" form as issued by the Architect. Failure to include the "Bidder Assurances and Disclosure" form may result in disqualification.

c. Proposals, including "Bidder Assurances and Disclosure" form, must be signed by an individual authorized to bind the bidder. The person signing the bid should show title or authority to bind his/her firm to a contract. Signature must be in ink. Failure to sign the bid may result in disqualification. Bid must be completed in ink or typed. "Bidder Assurances and Disclosure" form must be notarized.

d. Proposals shall be addressed to and mailed to the Owner at the Owner's address as shown on the Bid form or delivered to the place designated for opening of bids before the time for opening the bids as set forth in the Notice to Bidders, enclosed in an opaque, sealed envelope, addressed as stated above, marked "Proposal" and bearing the title of work and the name and address of the bidder.

e. Bids received prior to the time of opening will be kept, unopened. No bid received after the hour set for their opening, will be considered, except that when a bid arrives by mail after the time fixed for opening, but before the award is made, and is shown to the satisfaction of the Owner that the non-arrival on time was due solely to delay in the mails, a fault for which the bidder was not responsible, such bids will be received and considered. No responsibility will be assumed by any person for the premature opening of a bid not properly addressed and identified.

f. In case of a difference in written words and figures the amount in written words shall govern.

6. Bid Bond:

a. A 5% bid bond or a certified check in the amount of 5% of the bid shall accompany all bids submitted on projects that exceed \$35,000 (A.C.A. § 22-9-203). The bid bond shall be executed by a surety company approved by the Owner, and authorized to do business in the State of Arkansas. In lieu of bond, the Bidder may furnish a cashiers check, in an amount equal to 5% of Bid, drawn on National Bank or a Bank having a membership in the Federal Reserve System and signed by the President or Cashier. The successful bidder's security will be retained until he has signed the Contract and furnished the required Labor and Materials Payment and Performance Bond. The Owner reserves the right to retain the security of the next lowest bidder until the lowest bidder enters into contract or until 60 days after bid opening, whichever is shorter. All other bid security will be returned as soon as practicable. If any bidder refuses to enter into a contract, the Owner will retain his bid security as liquidated damages but not as a penalty.

7. Wage Requirements:

a. Contractors attention is called to the fact that the wage rates for laborers and mechanics engaged in the construction of the project will be not less than required in full compliance with any state minimum wage law that may be applicable, or any published wage scales bound here in the project manual.

8. Construction time and liquidated damages:

The Agreement will include a stipulation that the Work be completed in a period of time established in the Bid Form. The Agreement will also include a stipulation that liquidated damages will be established in the amount as indicated on the Bid Form per calendar day for each calendar day after the completion date that the Work is not fully completed and the Owner is unable to occupy and utilize the new construction.

9. Substitutions:

a. Where a definite material is specified, it is not the intent to discriminate against any "approved equal" product of another manufacturer. It is the intent to set a definite standard.

b. Open competition is expected, but in all cases, complete data must be submitted for comparison and test when required by the Architect.

c. The materials, products and equipment described in the Bidding documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution.

d. No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten days prior to the date for receipt of Bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. Information shall be submitted in a format that compares the proposed product in a direct comparison to the specified product; line number to line number in specifications. A statement setting forth changes in other materials, equipment or other portion of the Work including changes in the work of other contracts that incorporation of the proposed substitution would require shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

e. If the Architect approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.

f. No substitutions will be considered after the Contract award unless specifically provided in the Contract documents.

g. No substitution shall be made unless authorized in writing, by the Architect.

h. All bidders shall base their proposals on the material or specialty specified. Any proposal for substitution shall be submitted within 30 days after the award of the contract.

i. Should a substitution be accepted and should the substitute material prove defective or otherwise unsatisfactory for the service intended within the guaranty period, the Contractor shall replace this material or equipment with that which was originally specified, without cost to the Owner.

10. Conflict of Interest:

a. By submitting a bid, the Contractor represents and warrants that no director, board member or employee of the District is in any manner interested directly or indirectly in the bid or contract which may result from the bid or in any of the expected profits which might arise therefrom; further, that no attempt has been made to influence or gain favorable advantage by communicating directly or indirectly with any official of the School District. It is understood that any action taken which might tend to degrade the integrity of the competitive bidding process will be considered as grounds for disqualification or a breach of this contract.

11. Qualifications of bidders:

a. The bidder will not be acceptable if he is engaged on any other work which impairs his ability to finance this contract or provide proper equipment for the proper execution of same.

b. The bidder must be prepared to furnish a performance bond and labor & material payment bond in accordance with the Contract Documents written by a surety company authorized to do business in the State of Arkansas.

c. Contractor shall name the sub-bidder whose bid he proposes to use on Mechanical (Plumbing, Heating, Ventilation, and Air Conditioning), Electrical and Roofing and Sheet Metal, and any other subcontractor, as provided on the Form of Bid.

d. In determining the responsibility of the low bidder, the following will be considered; whether the contractor has:

1. Permanent place of business.
2. Experienced job superintendent available.
3. Adequate equipment.
4. Financial ability to perform contract.
5. Had appropriate experience.
6. State contractor's license.

12. Rejection of bids:

a. The Bidder acknowledges the right of the School District to reject any or all bids and to waive any informality or irregularity in any bid received. In addition, the Bidder recognizes the right of the School District to reject a bid if the Bidder failed to furnish any required bid security, or to submit the data required by the bidding documents, or if the bid is in any way incomplete or irregular. The School District may reject any and all bids and may reject a bid of any party who has failed to perform, been unfaithful and/or delinquent in any former relationship with the School District. The School District shall be the sole judge as to which bid is best and, in determining that fact, may consider the contractor's business integrity, financial resources, experience, facilities and/or capacity for performing the work.

13. Submission of post-bid information:

a. Upon receipt of written notice of the acceptance of his bid, the successful Contractor shall execute a contract, in accordance with good and sufficient surety or sureties, within ten (10) calendar days after the prescribed forms are presented for signature. Required bond and insurance documents shall be furnished with the executed contract.

b. Within seven (7) days after execution of the contract, the Contractor shall furnish to the Architect a statement of costs for each major item or the work included in his bid and a list of the subcontractor's proposed for the principal portions of the work. The bidder will be required to establish to the satisfaction of the Architect and the Owner the reliability and responsibility of the proposed subcontractors to furnish and perform the required work.

c. The Contractor will be required to keep an accurate accounting of all labor and materials entering into the job. It will be required that this be brought up to date each month.

14. Assignments:

Neither this contract nor any interest therein nor claim thereunder may or shall be assigned or transferred by the Contractor except as expressly authorized in writing by the School District. No contract, subcontract or agreement shall be made by the Contractor with any other party for furnishing any of the product, work or services herein contracted without the written approval of the School District.

15. Contract Changes:

In no event shall any understanding or agreement, contract modification, change order or other matter which would constitute a deviation from the terms of this contract be effective or binding upon the School District unless expressly stated and agreed to in writing executed by the School District official possessing contractual authority for said district.

16. Contract Guidelines:

Offerers agree that a contract does not become effective until it is awarded and a written agreement, purchase order, award letter, or other notice to proceed is executed or issued by the School District and the Architect.

17. Non-Collusive Affidavit:

By submitting a bid, the company and the individual personally signing the bid represent and warrant that such bid is genuine and is neither collusive nor made for or on behalf of any person not named, and that he has neither induced nor solicited any other company to place a sham bid nor directly or indirectly caused another company to refrain from or be unable to present a bid.

18. Penalty for Collusion:

If at any time it shall be found that the person, firm or corporation to whom a contract has been awarded has, in presenting any bid, colluded with any other part or parties, then, in the sole discretion of the District, the contract so awarded shall be null and void or considered breached and the contractor shall be liable to the District for any and all loss and damage of whatsoever nature, which the District may suffer and the District may seek a new contractor.

19. Non-Discrimination:

The company shall not discriminate against, or segregate, a person or a group of persons on account of race, color, creed, religion, sex, sexual orientation, marital status, familial status, national origin, ancestry, disability or condition of acquired immune deficiency syndrome (AIDS) or AIDS-related complex in carrying out its duties and obligations pursuant to this agreement nor shall the company or any person claiming under or through the company establish or permit any such practice or practices of discrimination or segregation. The company must include in any and all subcontracts a provision similar to the proceeding.

20. Proprietary Information:

All information submitted in response to this bid is public after the bid opening. The bidder should not include as a part of the response to the invitation to bid any information which the bidder believes to be a trade secret or otherwise privileged or confidential. If the bidder wishes to include such material with a bid, then the material should be supplied under separate cover and identified as confidential. The District does not warrant or agree to, but will endeavor to, keep that information confidential. Contractor acknowledges that information in the possession of the District may be subject to the provisions of the Arkansas Freedom of Information Act.

21. Reservations:

The IFB does not commit the District to award a contract, to pay any costs incurred in the preparation of a bid in response to the invitation, or to procure or contract for services or supplies. The District reserves the right to accept, or reject, in part or its entirety, any bid received as a result of the IFB, it is in the best interest of the District to do so.

22. Severability:

The finding or determination of any part or parts of the General Instruction, Terms and Conditions is void, unenforceable, invalid or voidable shall result in only that part being stricken with the remainder to continue in full force and effect.

23. Withdrawal of Bid: A bid may be withdrawn before the expiration of the time during which bids may be submitted, without prejudice, by submitting a written request for its withdrawal to the District Contracting Official.

24. No Smoking Policy: The Cross County School District has a No Smoking Policy on all school properties.

It is the policy of the Board of Education that all uses of tobacco and tobacco products, including smokeless tobacco, will be prohibited on all District facilities. At no time will the use of tobacco products be permitted in classrooms, corridors, restrooms, locker rooms, work areas, cafeterias, offices, faculty lounges, gymnasiums, all other rooms and school grounds.

This policy applies to all Staff Members, Students, Visitors, General Contractors, Sub-Contractors, and Vendors. This policy is strictly enforced without exception.

END OF SECTION

BID FORM

CROSS COUNTY
SUPERINTENDENT RESIDENCE
CHERRY VALLEY, ARKANSAS

Proposal of _____

License No. _____ of _____ City _____ State _____

Date _____

To the
Board of Education
CROSS COUNTY School District
CROSS COUNTY, Arkansas

1. Pursuant to and in compliance with the invitation to bid and the Proposed Contract Documents relating to construction of:

CROSS COUNTY
SUPERINTENDENT RESIDENCE
CHERRY VALLEY, ARKANSAS

Including
addenda _____

The undersigned, having become thoroughly familiar with the terms and conditions of the Proposed Contract Documents and with local conditions affecting the performance and cost of the Work at the place where the Work is to be completed, and having fully inspected the site in all particulars, hereby proposes and agrees to fully perform the Work within the time stated and in strict accordance with the proposed Contract Documents, including furnishing any and all labor, and materials, and to do all of the work required to construct and complete said work in accordance with the Contract Documents, for the following sum of money:

A. BASE BID: All labor, materials, services, and equipment necessary for completion of the Work as shown on the Drawings and in the Specifications.

_____ dollars (\$ _____)

B. DEDUCTIVE ALTERNATE NO. 1: State the amount to be deducted from the Base Bid to omit the completion of the upper floor Bonus Room including plumbing, HVAC, electrical and finishes. Plywood flooring shall remain.

_____ dollars (\$ _____)

C. TRENCHING SAFETY SYSTEMS: Ark. Code Ann. §22-9-212 requires the Contractor to indicate on this bid form the cost of Trenching Safety Systems. (Note: This cost shall be included in the above Base Bid.)

_____ dollars (\$ _____)

2. Undersigned hereby agrees to use the following subcontractors subject to the approval of the Owner and Architect.

SUBCONTRACTOR

LICENSE NO.

Plumbing: _____

HVAC: _____

Electrical: _____

3. I understand that the Owner reserves the right to reject this bid, but that this bid shall remain open and not be withdrawn for a period of thirty (30) days from the date prescribed for its opening.

4. If written notice of the acceptance of this bid is mailed or delivered to the undersigned within thirty (30) days after the date set for the opening of this bid, or at any time thereafter before it is withdrawn, the undersigned will execute and deliver the Contract Documents to the Owner in accordance with this bid as accepted, and will also furnish and deliver to the Owner the Performance Bond, Labor, and Material Payment Bond and proof of insurance coverage, all within ten days after personal delivery or after deposit in the mails of the notification of acceptance of this bid.

5. Accompanying this proposal is a bid bond or cashiers check in the amount of _____ dollars (\$ _____) which will become the property of Cross County School District as liquidated damages if the undersigned fails to perform the requirements of Paragraph 4.

6. The accompanying "Bidder Assurances and Disclosure" form has been completed, signed and notarized.

7. The undersigned hereby agrees to complete the work within _____ calendar days after issuance of Notice To Proceed, and that the Owner may retain the sum of one thousand dollars (\$1,000) from the amount of compensation to be paid the undersigned for each calendar day after the above mentioned time that the work remains incomplete. The amount is agreed upon as the proper measure of liquidated damages which the Owner will sustain per day by the stipulated time and is not construed in any sense as a penalty.

8. The undersigned respectfully submits this bid:

Sign here:

Signature of Bidder

NOTE: If bidder is a corporation, set forth the legal name of the corporation together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation. If bidder is a partnership, set forth the name of the firm together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership.

Business Address:

Telephone Number:

Email Address:

Fax Number:

Date of Proposal:

END OF BID FORM

**Bidder Assurances and Disclosure -
School District Bid**

Name of School District: _____

Bid Description/Number: _____

Bid Opening Date: _____

Assurances:

I, _____ hereby state:

1. I am the duly authorized agent of _____, the bidder submitting the competitive bid which is attached to this statement, for the purpose of certifying the facts pertaining to the existence of collusion among and between bidders and school district officials, as well as facts pertaining to the giving or offering of things of value to school district personnel in return for special consideration in the awarding of any contract pursuant to the bid to which this statement is attached.
2. I am fully aware of the facts and circumstances surrounding the making of the bid to which this statement is attached and have been personally and directly involved in the proceedings leading to the submission of the bid.
3. Neither the bidder nor anyone subject to the bidder's direction or control has been a party:
 - a. To any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding;
 - b. To any collusion with any school district official or employee as to quantity, quality or price in the prospective contract, or as to any other terms of the prospective contract; or
 - c. In any discussions between bidders and any school district official concerning exchange of money or other thing of value for special consideration in the awarding of a contract.
4. I hereby guarantee that the specifications outlined in the bid shall be followed as specified and that deviations from the specifications shall occur only as part of a formal change process approved by the Board of Directors of the school district.

Disclosure:

1. Does any school board member or employee of the school district have a financial interest in your business or hold a position as officer, director, trustee, partner, or other top level management? _____ Yes _____ No
2. Does any school board member or employee of the school district have a family relationship with anyone employed by your business? _____ Yes _____ No

(If the answer is yes to either of the above questions, provide details in a separate attachment to this form.)

3. Did you or your company assist the school district or any agent of the school district with the development of the bid specifications? _____ Yes _____ No

If yes:

a. Were you or your company compensated? _____ Yes _____ No

b. Is your company's name or identity included anywhere within the specifications? _____ Yes _____ No

c. Were you offered any preferential treatment in the bid evaluation process? _____ Yes _____ No

(If the purchase will be from the school district's federal child nutrition food service fund, potential bidders cannot have input into the development of specification. – 7 Code of Federal Regulations 3016.60(b))

Signature

Date

Name

Title

Company

Subscribed and sworn to before me this _____ day of _____, 20_____.

Notary Public

Any person determined to have made a false statement on the form or any bidder who acts contrary to the provisions of the form after its agent has executed the form shall be guilty of a Class C misdemeanor.

REQUIRED CONTRACT FORMS

The following are the construction document forms that, where required by the Architect, will be used during this project. These documents are either furnished in the project manual or available for inspection at the Architect's office:

Lewis, Elliott, McMorran, Vaden,
Ragsdale & Woodward, Inc.
11225 Huron Lane, Suite 104
Little Rock, AR 72211

Bid Form	As furnished in Project Manual
*Form of Agreement Between Owner & Contractor	AIA Document A101
Contractors Qualification Statement	AIA Document A305
Bid Bond	AIA Document A310 or Cashier's Check
Performance Bond and Labor and Material Payment Bond	AIA Document A312
Insurance and Bonds	AIA Document A101 – 2017 Exhibit A
*Change Order.	AIA Document G701
Application and Certificate for Payment	AIA Document G702 and G703
*Certificate of Substantial Completion.	AIA Document G704
Certificate of Insurance	Acord Form (See sample furnished)
Contractor's Affidavit of Payment of Debts and Claims.	AIA Document G706
Lien Waiver Form (Builder's or Contractor's Affidavit)	As furnished in Project Manual
Consent of Surety - to Reduction or	
Partial Releases of Retainage	AIA Document G707A
Consent of Surety Company to Final Payment	AIA Document G707
*Architect's Supplemental Instructions.	AIA Document G710
Proposal Request.	AIA Document G709
Construction Change Directive	AIA Document G714
Project Team Directory.	AIA Document G808

*Indicates forms furnished and procedures initiated by the Architect.

END OF REQUIRED CONTRACT FORMS

SAMPLE OF LIABILITY
INSURANCE FORM

GENERAL:

The Contractor's insurance carrier shall supply the "Acord Certificate of Insurance" form exactly as shown on the sample form furnished in this Project Manual, and a notarized letter of endorsement "Specifically permitting the waiver of rights provision in Article 11.1.2.7 of the General Conditions of the Contract for Construction, AIA Document A201, as amended by the Supplementary Conditions and bound into this Project Manual".

END OF SECTION

AGENCY CUSTOMER ID: _____

LOC #: _____



ADDITIONAL REMARKS SCHEDULE

Page ____ of ____

AGENCY ABC Insurance Agency		NAMED INSURED ABC Construction Company	
POLICY NUMBER			
CARRIER	NAIC CODE	EFFECTIVE DATE:	

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 **FORM TITLE:** Certificate of Liability Insurance: Notes

Attach policy forms regarding Additional Insured, Blanket Waiver of Subrogation, Notice of Cancellation, Primary/Non-Contributory status, etc that are applicable to the policies listed on this certificate:

General Liability:

- *Owner & Architect shall be named as an Additional Insured or included in Blanket Additional Insured policy form
- *Per Project Aggregate Limit of Liability
- *Primary Non-contributory endorsement
- *Waiver of Subrogation in favor of Certificate Holder
- *30 Day Notice of Cancellation in favor of Certificate Holder

Workers Compensation:

- *Waiver of Subrogation in favor of Certificate Holder

Umbrella:

- *Confirmation of Following Form for Additional Insured & Waiver of Subrogation on underlying policies

LIEN WAIVER FORM

STATE OF ARKANSAS

COUNTY OF _____

_____ of _____
(Name) (Address)

being first duly sworn deposes and says:

That he is the sub-contractor and/or material supplier who worked on or furnished material to be used in the construction and improvements on the property located in _____, more particularly described as follows:

Affiant further states that all material used therein was of the quality prescribed in plans and specifications approved by the architects, Owner, or both, that all laws, ordinances, building codes and civic regulations concerning construction or repair of building(s) have been complied with and that the Owner has inspected said improvements and accepted same as being complete and satisfactory.

Affiant further states that all charges and costs for labor performed, material furnished, and fixtures installed on said premises have been fully paid; that said premises are free and clear of all lienable claims whatsoever arising under and by virtue of said construction, and warrants and guarantees to hold Owner, and those claiming under the Owner, including any mortgagee or title insurance company, free and immune from any liability therefore.

The release is given in order to induce payment in the amount of _____ and on receipt of this amount due, this release may be recorded, becomes valid, enforceable and of full effect.

Affiant further states that said construction began on the _____ day of _____ 2024 and was completed on or before the _____ day of _____ 2024, and he acknowledges receipt of all monies due him in connection therewith.

Sub-Contractor/Material Supplier

STATE OF ARKANSAS
COUNTY OF _____

Subscribed and sworn to before me this _____ day of _____, 2024.

Notary Public

My commission expires: _____ Seal

GENERAL CONDITIONS

"THE GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION", STANDARD FORM OF THE AMERICAN INSTITUTE OF ARCHITECTS, 2017 EDITION, A.I.A. DOCUMENT, A201, ARTICLES 1 THROUGH 15 INCLUSIVE, CONSISTING OF THIRTY NINE PRINTED PAGES, ARE HEREBY INCORPORATED AS A PART OF THE PROJECT MANUAL AND SHALL BE AS THOUGH THEY WERE ATTACHED HERETO. THE GENERAL CONDITIONS ARE ON FILE FOR PUBLIC INSPECTION AT THE OFFICE OF LEWIS, ELLIOTT, MCMORRAN, VADEN, RAGSDALE & WOODWARD, INC., 11225 HURON LANE, SUITE 104, LITTLE ROCK, ARKANSAS."

SUPPLEMENTARY
CONDITIONS

1. The "General Conditions of the Contract for Construction", AIA Document A201, 2017, Articles 1 through 15 inclusive, is a part of this Contract.
2. The following supplements shall modify, delete, and/or add to the General Conditions. Where any article, paragraph, or subparagraph in the General Conditions is supplemented by one of the following paragraphs, the provisions of such article, paragraph, or subparagraph shall remain in effect and the supplemental provisions shall be considered an added thereto. Where any article, paragraph, or subparagraph in the General Conditions is amended, voided, or superseded by any of the following paragraphs, the provisions of such article, paragraph, or subparagraph not so amended, voided, or superseded shall remain in effect.
3. Add subparagraph 1.1.9:

"The word "Provide" shall mean to furnish and install, complete in place, operating, tested and approved".
4. Add subparagraph 1.1.10:

"The word "Product(s)" refers to the materials, systems, and equipment provided by the Contractor".
5. In subparagraph 3.4.3, add: "Any person whose work is unsatisfactory to the Owner or the Architect shall be removed from the work upon receipt of written notice from the Architect".
6. Add subparagraph 3.4.4:

"All Contractors and Subcontractors engaged in the Work shall conform to the labor laws of the State of Arkansas, and the various acts amendatory and supplementary thereto, and to all other laws, ordinances, and legal requirements applicable there to".
7. Add subparagraph 3.7.6:

"The Contractor shall be licensed contractor as provided by the Act Number 124 of the 1939 Act Number 217 of 1945 and Act Number 153 of 1951 and Act Number 150 of 1965 as enacted by the General Assembly of the State of Arkansas".
8. Delete subparagraphs 3.9.2 and 3.9.3 in their entirety and substitute the following subparagraph 3.9.2:

"The superintendent and assistants shall be satisfactory to the Architect, and shall not be changed except with the consent of the Architect, unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in his employ".
9. Add subparagraph 3.13.1:

3.13.1 "All material shall be arranged and maintained in an orderly manner without hindering the use of walks, drives, roads, and entrances. Should it be necessary at any time to move material, sheds, or storage platforms, the Contractor shall do so as and when directed, and at his own expense".

10. Add subparagraphs 7.2.2 and 7.2.3:

7.2.2 The contractor shall be required to furnish the original bills and payrolls and support the statement with proper affidavits. The burden of proof of the costs rests upon the Contractor. Bills for extras will be allowed only when work is ordered in writing. No bills based on verbal orders will be allowed by the Architect unless accompanied by a written order from the Architect. The Contractor waives all claim for extension of time of completion on account of extra work, unless application for such extension is made by the Contractor in writing within twenty (21) days of the time such work is ordered.

7.2.3 The Contractor shall not make any changes except on written order of the Owner. Contractor's request for a Change Order to the Work shall be made on the AIA Document G709 and shall provide itemized breakdown of whole sum listing unit quantities and costs of all labor and materials. Contractor shall submit all verifying data as required to support claims, such as copies or original invoices, payrolls, etc. Requests shall identify percentage sums included for insurance, taxes, bonds, overhead and profit. Percentages shall not be allowed for changes altering allowances. Changes in the work by cost and a mutual acceptable fixed or percentage fee shall be computed as follows:

- a. Net cost of materials, plus State Sales Tax.
- b. Net delivery cost.
- c. Net placing cost plus W.C. Insurance premium and FICA Tax.
- d. 12% Overhead and Profit Charge on a. through c. allowed.
- e. Allowable Bond Premium.

Where changes in the work involve subcontract work, the General Contractor shall add to cost of subcontract work a profit charge of 5% total overhead and profit charge.

11. Delete subparagraph 7.4 and substitute the following:

"The Architect will have authority to order minor changes in the Work in the form of Field Orders which interpret the Contract Documents or order minor changes in the work without change in Contract Sum or Contract Time. Such changes shall be effected by written Field Order, and shall be binding on the Owner and the Contractor. The Contractor shall attend to such Field Order promptly".

12. Add subparagraphs 7.4.1 and 7.4.2:

7.4.1 "If the Contractor considers that a change in Contract Sum or Contract Time is required, he shall submit an itemized proposal to the Architect immediately and before proceeding with this work. If the proposal is found to be satisfactory and in proper order, the Field Order will in that event be superseded by a Change Order as provided in Paragraph 7.2. The Contractor shall attend to such Field Orders promptly".

7.4.2 "When the time required for processing a Change Order would cause a delay in the progress of the Work, the Architect may issue a Field Order which, when signed by the Owner and the Contractor, will authorize the Contractor to proceed with changes in the work, which may change the Contract Sum and/or the Contract Time. Such Field Orders will be subsequently incorporated in the work as Change Orders as provided in paragraph 7.2. The contractor shall attend to such Field Order promptly".

13. Delete subparagraph 9.3.1 and substitute the following:

"On or before the twenty-fifth day of each calendar month, the Contractor shall submit to the Architect an itemized Application for Payment on AIA Document G702, supported by data substantiating the Contractor's right to payment submitted on AIA Document G703 and attached thereto. The Contractor shall submit one (1) legible copy of these prepared Application for Payment forms and (1) legible copy of each invoice or statement supporting requests for payment of materials or equipment stored on job site or in an approved bonded warehouse". These forms can be emailed to the address as provided at the Pre-Construction meeting or by mailing, shipping or hand-delivery.

"Throughout entire job, the Owner will pay 95 percent of the amount due the Contractor on account of progress payments in compliance with Act 193 of 2009 amended AR. Code. Ann. §22-9-604(a). No retainage will be withheld on material and/or equipment stored on job site or in an approved bonded warehouse".

14. 10.2.2 Add the following new subparagraphs:

10.2.2.1 Project with trenching or excavation which exceeds five feet in depth shall comply with Arkansas Code Annotated §22-9-212.

10.2.2.2 The current edition of OSHA Standard for Excavation and Trenches Safety System, 29 CFR 1926, Subpart P, shall be incorporated by reference in this contract.

15. NOTE: Refer to Sample of Liability Insurance Form for Sample Acord Form. Add the following clauses to 11.1.1:

11.1.1.1 The Contractor shall purchase and maintain Workers Compensation insurance providing Statutory Workers compensation benefits as well as Employers Liability Coverage of at least \$1,000,000.00 Limit of Liability.

The following endorsements providing extensions of coverage shall be attached forming a part of said Workers compensation policy:

- a. Broad Form All States Endorsement
- b. Maritime or Jones Act coverage - where applicable, such as work on navigable waters.
- c. United States Longshoremen's & Harbor Workers Coverage (may be voluntary if job is not close to body of water).

11.1.1.2 Comprehensive General Liability insurance shall be purchased and maintained by the contractor providing the following coverages and limits of liability:

- a. Premises & Operations
- b. Independent Contractors
- c. Completed Operations and Products
- d. X-Explosion, C-Collapse, U-Underground Property Damage Coverage – When Applicable Included
- e. Contractual Liability/Blanket Coverage
- f. Personal Injury Coverage with Employee Exclusion Removed
- g. Owner and Architect shall be named as an Additional Insured on CGL Policy including Completed Operations
- h. Additional insured shall be provided with a certificate of insurance

Limits No Less Than:

\$1,000,000 Per Occurrence
\$2,000,000 Annual Aggregate
\$2,000,000 Products/Completed Operations Aggregate

“Per Project Aggregate” endorsement shall be included.

11.1.1.3 Business Auto Liability or Comprehensive Auto Liability policy shall be purchased and maintained by the contractor providing coverage for all owned, non-owned and hired autos.

Limit of Liability required shall be:

\$1,000,000.00 Combined Single Limit.

11.1.1.4 An Umbrella Liability Policy shall be purchased and maintained by the contractor providing coverage over and above required underlying Employers Liability, Comprehensive General Liability, and Business Auto Liability coverages.

Limits of Liability shall be no less than \$1,000,000.00 per Occurrence/\$1,000,000.00 Aggregate.

The Owner and Architect shall be named as an Additional Insured.

11.1.1.5 Property Insurance, (Builder's Risk, Installation Floater, Boiler & Machinery coverage when applicable), providing All-Risk Coverage shall be purchased and maintained by the contractor providing full coverage for all materials, including labor, destined to be part of job and/or already part of job.

The Owner, Architect, Contractor and all Subcontractors shall be included as Named Insureds covering their interest of the said job.

The policy shall reflect a Deductible of \$250.00 per occurrence which shall be paid in all cases by the Contractor.

11.1.1.6 Miscellaneous Requirements:

- a. All required insurance coverages and bonds shall be provided by an insurance company of a sound financial rating and licensed to do business in the state of the designated job.
- b. Certificates of Insurance shall be filed in duplicate with the Architect and approved by the Owner prior to commencement of the work. The certificates shall reflect coverages, limits of liability, and wording at least as broad as the attached specimen. Use the Accord Certificate of Insurance form as shown by specimen included in this set of specifications. All certificates shall include 30 day written notice of cancellation applicable to the General Liability, Workers Compensation, Automobile and Umbrella policies.

- c. The contractor shall not commence work under this contract or allow any subcontractor or anyone directly or indirectly employed by anyone of them to commence work until he has obtained all insurance required under this, and two duly executed Certificates of such insurance shall have been filed with the Architect and approved by the Owner and Contractor has complied with bonding requirements and work order has been issued. Each such certificate and policy shall contain a provision that coverages afforded under the policies will not be cancelled or materially altered until at least thirty days prior written notice has been given to the Owner.
- d. The insurance carrier shall issue an endorsement specifically permitting the waiver of rights provision in AIA Document A201, Article 11.3.1.

16. Add subparagraph 11.1.1.7:

If by the terms of this insurance any mandatory deductibles are required, or if the Contractor should elect, with the concurrence of the Owner, to increase the mandatory deductible amounts or purchase this insurance with voluntary deductible amounts, the Contractor shall be responsible for payment of the amount of the deductible in the event of a paid claim.

17. Add subparagraph 11.1.2.1:

"Contractor shall furnish and pay for an Executed Performance Bond on AIA Document A311 and Labor and Material Payment bond on AIA Document A311 in the amount of 100% of the contract sum. No modification to the standard bond forms will be allowed without written consent of the Architect".

18. Add subparagraph 11.1.2.2:

"After being approved by the Architect and prior to any work under this contract, the Contractor shall file the bonds with the circuit clerk and recorder of the county in which the work to be performed is located. Contractor shall obtain from the circuit clerk certificates as evidence that the bonds have been approved and filed with the clerk and said certificates shall be filed with the Architect".

19. Add subparagraph 11.1.5:

"If at any time a surety on any such bond is declared bankrupt or loses its right to do business in this state, Contractor shall notify the Owner immediately and within ten (10) days, furnish an acceptable bond (or bonds), in such form and sum and signed by such other surety or sureties as may be satisfactory to the Owner. The premiums on such bond shall be paid by the Contractor. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable Bond to the Owner. Failure to comply with the above requirements may be deemed sufficient grounds for termination of this contract".

20. Delete subparagraph 11.2.1 in its entirety and substitute the following:

The Contractor shall be responsible for purchasing and maintaining liability insurance as will protect the Owner against claims which may arise from operations under the contract.

21. Delete subparagraph 11.2.2 in its entirety and substitute the following:

11.2.2 The Contractor shall purchase and maintain property insurance upon the entire Work at the site to the full insurable value thereof. Such insurance shall be in a company or companies against which the Owner has no reasonable objection. This insurance shall include the interests of the Owner, the Contractor, Subcontractors, and Subcontractors in the Work and shall insure against the perils of fire and extended coverage and shall include "all risk" insurance for physical loss or damage including, without duplication of coverage, theft, vandalism and malicious mischief. If not covered under all risk insurance or otherwise provided in the Contract Documents, the contractor shall effect and maintain similar property insurance on portions of the work stored off the site or in transit when such portions of the work are to be included in an application for Payment under subparagraph 9.3.2. The form of policy for this coverage shall be completed value.

22. Add subparagraph 11.5.3

The Owner's occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section 11.1.1.5 Property Insurance have consented in writing to the continuance of coverage. The Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.

23. Delete subparagraph 15.1.6.2 in its entirety and substitute the following:

"Extension of Time Due to Weather Delays: Claims for extension of time due to unusual inclement weather shall be granted only because such unusual inclement weather prevented the execution of major items of the work. Unusual inclement weather is defined as severe weather which is beyond the normal weather recorded and expected for the month of the year as shown in the chart below. Extension of time due to weather delays shall be granted only for those days in excess of the number of days shown. Extension of time requests shall be submitted in writing within 30 days of occurrence and submitted with current pay request.

PRECIPITATION

<u>MONTH</u>	<u>AVERAGE NO. OF DAYS .01" OR MORE</u>
January	10
February	9
March	10
April	10
May	10
June	8
July	9
August	7
September	7
October	6
November	8
December	9

- 24. In paragraph 15.3, omit any and all references to arbitration.
- 25. Delete paragraph 15.4 in its entirety.

END OF SUPPLEMENTARY CONDITIONS

SUMMARY OF WORK

PART ONE - GENERAL

1.1 WORK COVERED BY THE CONTRACT DOCUMENTS

A. The work generally consists of:

1. The construction of a 2,780 sq.ft. residence, including two-car garage with storage and 506 sq.ft. second level – bonus room. Construction shall include plumbing, HVAC, electrical and finishes complete.

1.2 LAYOUT OF NEW WORK

- A. The General Contractor shall be responsible for correct layout of all proposed improvements in accordance with the Drawings. He shall establish building lines, grades and elevations called for on the Drawings.

1.3 CONTRACT TIME

- A. The Contract Time shall be that time set forth in the Bid Form.

PART TWO – PRODUCTS

Not Used

PART THREE – EXECUTION

Not Used

END OF SECTION

ALLOWANCES

PART ONE - GENERAL

1.1 THE CONTRACTOR SHALL PROVIDE THE FOLLOWING ALLOWANCES IN THE BASE BID:

- A. Electrical Allowance: The General Contractor shall include a \$50,000 allowance to include the labor and material for all Electrical items/work and shall specifically include, but not be limited to, the attached Electrical scope of work included.

Note: \$10,000 of this allowance shall be specifically set aside for a Light Fixture Package to furnish/include all general lights, downlighting and ceiling fans as selected by Owner.

- B. Flooring Allowances: The General Contractor shall include the following material only flooring allowances in the Base Bid. All flooring shall be as selected by the Owner.

LVT - \$4.50/sq.ft.
Carpet - \$20.00/sq.ft.
Tile - \$7.50 sq.ft.

PART TWO – PRODUCTS

Not Used.

PART THREE – EXECUTION

Not Used.

END OF SECTION

Electrical

GENERAL SCOPE OF WORK

This contract shall include labor and material for the installation of all electrical items and shall specifically include, but not be limited to, the following:

1. Meter, panel, switches, receptacles and outlets.
2. Provide and Install all electrical fixtures, bulbs, and fans.
3. Dishwasher and disposal wiring and hook-up.
4. Smoke/CO detectors per code with battery back-up per code.
5. Front door chime with light and accessories.
6. Weatherproof outlets per code.
7. Ground fault breaker protection, per code.
8. Prewire of TV and Telecom outlets
9. Clean-up.
10. Warranty and Service work.
11. Hold all required licenses and insurances.
12. All trim plates will be level and flush to wall.
13. Must return after meter is on house to inspect work.
14. Must have journeyman electrician on job site.

ADDITIONAL INSTALLATION REQUIREMENTS/COMMENTS:

1. Provide and install all electrical work including, but not limited to, all switch gear, lighting fixtures, service conduit, outlets, receptacles, fittings, plates, cover plates, switches, grounding, hangers, support, strap, boxes, metering, disconnects, fuses, breakers, panels, circuits, premise cabling, specifications per all applicable Building Department Codes, NEC and authorized governing agency requirements. Garage door prewire including remote safety prewire shall be boxed and plated and sensor prewires will be vertically installed 10" above floor line.
2. Electrician shall furnish, install, and or connect the following, at a minimum:
 - a. LED Light fixtures/LED bulbs, Recessed lights w/trim to be installed by Electrician. Note: All fixtures shall be selected by owner under the lighting allowance.
 - b. Fan/light combinations and flush lights to be per plan and furnished and installed.
 - c. Complete telephone and television wiring box and cover plates are to be provided as directed by owner.
 - d. One (1) weatherproof outlet with weatherproof metal cover plates at front and (1) one at rear of all houses or per NEC.

3. Provide 110-Voltage power with convenience outlet for garage door opener on a separate circuit. Low voltage wire to be long enough to reach opener and sensors. (Include all low-voltage wiring)
4. Transformer for doorbell shall be located in the garage, not in entry closet.
5. Electrician shall provide electrical hook-up for exhaust fans (furnished and installed by others).
 - a. Chimes. Caulked to exterior for a quality complete look.
 - b. Smoke/CO detectors, furnished and installed, as required by City or County.
 - c. Plugs to be duplex decorator style above countertop with cover plates, switches to be finish by architect.
6. Installation of microwave/hood combination and/or hood only (supplied by others) shall be on a separate circuit.
7. Include assembly of all fixtures regardless of origin and the installation of light bulbs and fluorescent tubes as required.
8. Floor duplex receptacles shall receive brass cover plates with dust cover.
9. All plate covers installed flush to wall, level and with all screws slots vertical.
10. The electrician is responsible for cleaning and removing any handprints left on walls, ceiling or fixtures during trim installation.
11. Two (2) complete sets of "as-built" red-lined drawings of actual electrical locations shall be submitted to the general contractor, before final payment is made to electrician.
17. Electrician shall install any switch box blocking needed to assure that switch plates will set a minimum of 2" from cabinet: or door casing edges at finish.
18. Provide and install all bath ceiling exhaust fans/light.
19. Smoke/CO detectors per code with battery back-up per code.
20. Weather-proof outlets per code.
21. Ground fault breaker protection, per code.
22. Electrical hook-up and connection of kitchen disposals, ranges, and dishwashers. Kitchen disposals and dishwashers shall be furnished by others.

23. Electrician will "hot check" house before final electrical inspection.
24. All receptacles within 6' of water will be on an approved GFCI circuit, no more than 5 receptacles per circuit.
25. Hang all electrical fixtures, bulbs, and fans.
26. Dishwasher and disposal wiring and hook-up.
27. Standard air conditioner hook-up, wiring and T-stat wire (controls furnished by heating contractor).
28. Front door chime with light and accessories.
29. Prewire of TV and Telephone outlets, and fan prewires standard in all homes per owner specifications.
30. Electric panel shall be Square D QO load center or equal, 120-240 volt, 200A minimum, 42 circuit breaker panel equipped with breakers on all activated circuits. All breakers should be labeled correctly with indelible ink and legible. Provide AFCI/GFCI breakers for all circuits as required by code.
31. House shall have branch circuits rated at 20 AMPS and equipped with 12-gauge Copper minimum wire.
32. Electrician shall furnish labor to electrically connect and install kitchen range hoods.
33. Weatherproof outlets shall be located per the applicable plans and shall include GFI protection. Outlets are to be sealed with poly-seam seal caulking at time of installation.
34. Electrician shall supply and install chimes and front door chime button.
35. Electrician shall install three (3) wires for all ceiling fan outlets.
36. Light fixtures to be delivered per Superintendent's schedule to a secure location.
37. Ceiling fan rods to be a minimum of 12" away from ceiling.
38. All required inspections to be coordinated with the Superintendents.

ALTERNATES

PART ONE – GENERAL

1.1 THE CONTRACTOR SHALL PROVIDE THE FOLLOWING ALTERNATES TO THE BASE BID:

- A. Deductive Alternate No. 1: State the amount to be deducted from the Base Bid to omit the completion of the upper floor Bonus Room including plumbing, HVAC, electrical and finishes. Plywood flooring shall remain.

PART TWO – PRODUCTS

Not Used.

PART THREE – EXECUTION

Not Used.

END OF SECTION

PROJECT MEETINGS

PART ONE - GENERAL

1.1 PRECONSTRUCTION CONFERENCE

- A. Before the work order has been issued on the project by the Architect, a preconstruction conference shall be held on the job site with the following personnel; Architect's representative, General Contractor, Superintendent (who will be on the job at all times), mechanical contractor, plumbing and electrical contractor and, if he so desires, the Owner. This meeting is designed for a two-fold purpose: To clarify any questions about the plans and specifications and the transfer of ideas as to what the Architect will expect for all trades and subcontractors.
- B. The purpose being as follows: Distribution by Prime Contractor of following:
 - 1. List of subcontractors, including addresses, telephone numbers and person to contact (to be used also as a Job Directory).
 - 2. Tentative Progress Schedule prepared in accordance with the following provisions:
 - a. Schedule and regulate all construction activities. The schedule shall indicate start and finish dates for activities, submittal and delivery dates for major materials and equipment, and final completion date.
 - b. Prepare tentative Progress Schedule for preview at initial progress meeting, final schedule being prepared shortly thereafter.
 - c. Discussion of following:
 - 1) General over-all progress based on tentative Progress Schedule as presented by Prime Contractor.
 - 2) Shop Drawing submission procedure as presented by Architect-Engineer.
 - 3) Change Order processing procedure as presented by Architect-Engineer.
 - 4) Pay request submission procedure as presented by Architect-Engineer.
 - 5) Clarification of Architect-Engineer and Contractor personnel, duties, functions and responsibilities.
 - d. A pre-work conference shall be required between the Architect's representative, job superintendent and major trades subcontractor before their phase of work begins.

1.2 PROGRESS MEETINGS

- A. General Contractor, major subs and all trades on job at the time shall attend bi-monthly (twice a month) progress meetings upon request of the Architect.
- B. Architect reserves the right to initiate additional meetings between above parties as he deems necessary.

PART TWO – PRODUCTS

Not Used.

PART THREE – EXECUTION

Not Used.

END OF SECTION

SHOP DRAWINGS, PRODUCT
DATA & SAMPLES

PART ONE - GENERAL

1.1.1 Work included:

1.1.1.1 Wherever possible throughout the Contract Documents, the minimum acceptable quality of workmanship and materials has been defined by manufacturer's name and catalog number, reference to recognized industry and government standards, or description of required attributes and performance.

1.1.1.2 To ensure that the specified products are furnished and installed in accordance with design intent, procedures have been established for advance submittal of design data and for their review by the Architect. All required submittals, shop drawings, product data, and samples shall be submitted within four (4) weeks after construction contracts have been signed.

1.1.1.3 Make all submittals required by the Contract Documents, and revise and resubmit as necessary to establish compliance with the specified requirements.

1.1.1.4 Material Safety Data Sheets (MSDS) shall not be submitted as part of the submittal package. They are not a requirement of the Contract Documents.

1.1.2 Related work described elsewhere: Individual requirements for submittals are described in pertinent other Sections of these Specifications.

1.2 QUALITY ASSURANCE

1.2.1 Coordination of submittals: Prior to each submittal, carefully review and coordinate all aspects of each item being submitted and verify that each item and the submittal for it conforms in all respects with the requirements of the Contract Documents. By affixing the Contractor's signature to each submittal, certify that this coordination has been performed. Any Shop Drawing submitted to the Architect that has not been checked thoroughly, stamped and signed by the Contractor will be rejected.

1.2.2 Progress schedule: Designate in the Progress Schedule, or in a separate coordinated schedule, the dates for submission and the dates that reviewed Shop Drawings, Product Data, and Samples will be needed.

1.3 SHOP DRAWINGS – ELECTRONIC SUBMITTAL PROCEDURES

1.3.1 Summary:

1. Shop drawings and product data submittals shall be transmitted to Architect in electronic (PDF) format via Architect's SharePoint Portal (sp.laeprojects.com).
2. Details shall be identified by reference to sheet and detail, schedules, or room numbers shown on the Contract Drawings.
3. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.

4. The electronic submittal process is not intended for color samples, color charts, or physical material samples.
5. Shop Drawings shall be present in a clear and thorough manner.

1.3.2 Requirements:

1. All participants in electronic documentation process will be required to have internet access.
2. Necessary software Adobe Acrobat (www.adobe.com) or Blubeam PDF Revu (www.blubeam.com) to produce, view, apply comments and save to PDF files. A PDF reader only will not be adequate.

1.4 PRODUCT DATA

1.4.1 Preparation:

1. Provide cover page with project name and contractor name(s).
2. Include "Table of Contents" if multiple items are included in submittal.
3. Clearly mark each copy to identify pertinent products or models.
4. Show performance characteristics and capacities.
5. Show dimensions and clearances required.
6. Show wiring or piping diagrams and controls.
7. Include special installation instructions.

1.4.2 Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the Work.
2. Supplement standard information to provide information specifically applicable to the Work.

1.4.3 Submission:

1. Contractor shall request access to Architect's SharePoint Portal (sp.laeprojects.com).
2. Submittal Preparation - Contractor may use any or all of the following options:
 - a. Subcontractors and Suppliers provide electronic (PDF) submittals to Contractor through means provided by and required by Contractor.
 - b. Subcontractors and Suppliers provide paper submittals to General Contractor who electronically scans and converts to PDF format.
3. Contractor shall review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer / product, dimensions and coordination of information with other parts of the work.
4. Contractor shall transmit each submittal to Architect using the Architect's SharePoint Portal (sp.laeprojects.com).
5. At discretion of Architect's Reviewer, paper copies can be requested upon receipt of electronic submittal in order to assist in review. Request will be made through email. Contractor will provide the number of paper copies requested.
6. Architect / Engineer review comments will be made available on the Architect's SharePoint Portal for downloading. Contractor will receive email notice of completed review.
7. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of the Contractor.

1.5 SAMPLES

1.5.1 Samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integrally related parts and attachment devices.
2. Full range of color, texture and pattern.
3. Workmanship when applicable.

1.5.2 Field samples and mock-up:

1. Erect at the project site at a location acceptable to the Architect.
2. Size or area: That specified in the respective specification section.
3. Fabricate each sample and mock-up complete and finished.
4. Remove mock-ups at conclusion of the Work or when acceptable to the Architect.

1.6 NOTIFICATION

1.6.1 Notify the Architect in writing, at the time of submission, of any deviations in the submittals from requirements of the Contract Documents.

1.6.2 Notify the Architect in writing, at the time of resubmission, of changes made on re-submittals other than those previously requested by the Architect.

PART TWO – PRODUCTS

Not Used.

PART THREE – EXECUTION

Not Used.

END OF SECTION

TESTING LABORATORY
SERVICES

PART ONE – GENERAL

1.1 WORK INCLUDED

- A. The Owner will employ and pay for the services of an independent testing laboratory to perform specified testing, except where designated otherwise in the Specification Sections.
 - 1. Contractor shall cooperate with the laboratory to facilitate the execution of the required services.
 - 2. Employment of the laboratory by the Owner shall in no way relieve the Contractor's obligations to perform the Work of the Contract.
- B. The Owner will pay for all initial services of the testing agency. Similar services required of the Contractor, as outlined in 3.4 - Contractor's Responsibilities, shall be born by the Contractor.
- C. Testing laboratory curing and testing is required for cast-in-place concrete. See Section 03 31 00 - Concrete.

1.2 RELATED WORK

- A. Related requirements in other parts of the Project Manual:
 - 1. Inspections and testing required by laws, ordinances, rules, regulations, orders or approvals of public authorities: General Conditions of the Contract.
- B. Related requirements specified in other sections:
 - 1. Certification of products: The respective sections of Specifications.
 - 2. Test, adjust and balance of equipment: The respective Sections of Specifications.
 - 3. Laboratory tests required, and standards for testing: Each specification section listed.

1.3 QUALITY ASSURANCE

- A. The testing laboratory employed by the Owner will meet "Recommended Requirements for Independent Laboratory Qualification" published by the American Council of Independent Laboratories.
- B. In its work on this project, the testing laboratory will be required to meet the basic requirements of ASTM E329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction".

1.4 SUBMITTALS

- A. Submit a written report of each test and inspection to the following:
 - 1. Architect
 - 2. Contractor
 - 3. Project Record file at job site

PART TWO - PRODUCTS

Not used.

PART THREE - EXECUTION

3.1 DUTIES OF TESTING LABORATORY

- A. Cooperate with Architect and Contractor; provide qualified personnel after due notice.
- B. Perform specified inspections, sampling and testing of materials and methods of construction:
 - 1. Comply with specified standards.
 - 2. Ascertain compliance of materials with Requirements of the Contract Documents.
- C. Promptly notify Architect and Contractor of observed irregularities or deficiencies of work or products.
- D. Promptly submit copies of the written report of each test and inspection as required in Article 1.4 above.

3.2 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. The testing laboratory is not authorized to:
 - 1. Release, revoke, alter or enlarge on the requirements of the Contract Documents.
 - 2. Approve or accept any portion of the Work.
 - 3. Perform any duties of the Contractor.

3.3 FIELD WORK BY TESTING LABORATORY

- A. The testing laboratory personnel shall supply field services under the following limitations:
 - 1. There will be no laboratory field services provided for concrete work. Under the requirements of the concrete work, the General Contractor shall secure and deliver all samples for testing and the lab shall perform laboratory tests only.
 - 2. Samples of proposed fill material shall be secured by the contractor's personnel and delivered to the laboratory for testing. (See 3.4.2 below.)
 - 3. Laboratory field work is acceptable for the taking of compaction readings. The general contractor shall coordinate the tests, to be certain compacted soil is ready for testing so as to avoid unnecessary re-tests.

3.4 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel and provide access to the Work and to Manufacturer's operations.
- B. Secure and deliver to the laboratory adequate quantities of representational samples of materials proposed to be used and which require testing. The cost of securing and delivery to the laboratory shall be born by the Contractor.
- C. Provide to the laboratory the proposed design mix to be used for concrete and other material mixes which require control by the testing laboratory.
- D. Furnish copies of products test reports as required.
- E. Furnish incidental labor and facilities:
 - 1. To provide access to the Work to be tested.
 - 2. To obtain and handle samples at the project site or at the source of the product to be tested.
 - 3. To facilitate inspections and tests.
 - 4. For storage and curing of test specimens.
- F. Notify the laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.
- G. Provide all required time within the construction schedule for the testing laboratory to perform its tests and to issue each of its tests and to issue each of its findings.
- H. Provide at the site three extra standard test cylinder molds for emergency use.

END OF SECTION

TEMPORARY FACILITIES
AND CONTROLS

PART ONE – GENERAL

1.1 DESCRIPTION

A. Work included: Temporary facilities and controls required for this Work include, but are not necessarily limited to:

1. Temporary utilities such as heat, water and electricity.
2. Field Offices and sheds.
3. Sanitary facilities.
4. Enclosures such as tarpaulins, barricades, and canopies.

1.2 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with National Electric Code.
- B. Comply with Federal, State and local codes and regulations and with utility company requirements.

1.3 TEMPORARY ELECTRICITY AND LIGHTING

- A. Arrange with utility company, provide service required for power and lighting, and pay all costs for service and for power used.
- B. Install circuit and branch wiring, with area distribution boxes located so that power and lighting is available throughout the construction by the use of construction-type power cords.
- C. Provide adequate artificial lighting for all areas of work when natural light is not adequate for work, and for areas accessible to the public.

1.4 TEMPORARY HEAT AND VENTILATION

- A. Provide temporary heat and ventilation as required to maintain adequate environmental conditions to facilitate progress of the Work, to meet specified minimum conditions for the installation of materials, and to protect materials and finishes from damage due to temperature or humidity.
- B. Provide adequate forced ventilation of enclosed areas for curing of installed materials, to disperse humidity, and to prevent hazardous accumulations of dust, fumes, vapors or gases.
- C. Portable heaters shall be standard approved units complete with controls.
- D. Pay all costs of installation, maintenance, operation and removal, and for fuel consumed.

1.5 TEMPORARY WATER

A. Arrange with utility to provide temporary water service for construction.

B. Install necessary branch piping:

1. Locate taps so that water is available throughout the construction by the use of hoses.
2. Protect piping and fittings against freezing.

1.6 TEMPORARY SANITARY FACILITIES

A. Provide temporary sanitary facilities in the quantity required, for use of all personnel. Maintain in a sanitary condition at all times.

B. Service, clean, and maintain facilities and enclosures.

1.7 REMOVAL

A. Completely remove temporary facilities and equipment when their use is no longer required.

B. Clean and repair damage caused by temporary installations or use of temporary facilities.

1.8 FIELD OFFICES AND SHEDS

A. Provide a field office building and sheds adequate in size and accommodation for all Contractor's offices, supply and storage.

B. The entire facility, including furniture, will remain the property of the Contractor and shall be removed from the site after completion of the Work.

1.9 ENCLOSURES

A. Furnish, install, and maintain for the duration of construction all required scaffolds, tarpaulin, barricades, canopies, warning signs, steps, bridges, platforms, and other temporary construction necessary for proper completion of the work in compliance with all safety and other regulations.

1.10 PROJECT SIGNS

A. Provide 4' x 8' x 3/4" exterior grade plywood on two 8' x 4' x 4' treated wood posts. Paint sign as directed by Architect.

B. Allow no signs or advertising of any kind on the job site except as specifically approved in advance by the Architect.

PART TWO – PRODUCTS

Not Used.

PART THREE - EXECUTION

- 3.1 Maintain all temporary facilities and controls as long as needed for the safe and proper completion of the Work. Remove all such temporary facilities and controls as rapidly as progress of the Work will permit, or as directed by the Architect.

END OF SECTION

FINAL CLEANING

PART ONE - GENERAL

1.1 WORK INCLUDED

- A. Execute cleaning during progress of the Work and at completion of the Work.

PART TWO - PRODUCTS

2.1 MATERIALS

- A. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.

PART THREE - EXECUTION

3.1 DUST CONTROL

- A. Clean interior spaces prior to the start of finish painting and continue cleaning on an as-needed basis until painting is finished.
- B. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly-coated surfaces.

3.2 FINAL CLEANING

- A. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.
- B. Wash and shine glazing and mirrors.
- C. Polish glossy surfaces to a clear shine.
- D. Ventilating systems:
 - 1. Clean permanent filters and replace disposable filters if units are operated during construction.
 - 2. Clean ducts, blowers and coils if units were operated without filters during construction.
- E. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds disturbed during construction.

END OF SECTION

CONTRACT CLOSEOUT

PART ONE - GENERAL

1.1 PRODUCT CLOSEOUT

- A. Upon completion of the project, the Contractor shall remove all temporary structures and facilities from the site, and leave the premises in the condition required by the Construction Documents. The Contractor shall notify the Architect, in writing, as to the date when, in his opinion all or a designated portion of the work will be substantially completed and ready for final observation and the punch list to be performed on the building. If the Architect determines that the state of preparedness is as represented, the punch list will promptly be started on the building.
- B. The Architect will give written copies of the Punch List to the Contractor of observed defects. The Contractor shall promptly remedy any defects due to noncompliance of Construction Documents, faulty materials, or workmanship and pay for any damage to other work resulting therefrom.

1.2 FINAL OBSERVATION

- A. When defects are remedied as acceptable and upon receipt of punch list with each item initialed and dated acknowledging same, Architect shall arrange for final observation with the Owner, General Contractor and the Architect. Should Architect/Engineer perform additional observations due to failure of work not complying with the claims of status of completion made by the Contractor, the Architect/Engineer will be compensated for such additional observations by the Contractor. The amount of compensation due to the Architect/Engineer shall be deducted from the final payment to the Contractor.
- B. Immediately prior to final observation and acceptance, remove protective covers or markings and complete surface treatments, washing or polishing as specified, leaving all interior surfaces, including projections, in such condition that all areas can be occupied and used without further cleaning. (This includes all plumbing fixtures, trim, heat and air conditioning grilles, etc. provided under the Mechanical Work and all electrical fixtures and switch plates, etc., provided under the Electrical Work.)

1.3 PAPER WORK

- A. Final payment of the retainage will be withheld until the following documents are delivered to the Architect on two (2) USB flash drives – one (1) for the Architect and one (1) for the Owner.
 - 1. Shop Drawings:
An approved copy of each shop drawing, manufacturer's brochures, test data, etc., submitted to the Architect for approval during the course of construction shall be included with an index listing material, manufacturer and subcontractor of each submittal.

2. Operating Manuals:
Include all operating and instruction manuals (not submittals, shop drawings, etc.) for all material, equipment or assemblies furnished or installed as part of this contract. All items shall be arranged in alphabetical order and shall include an index of contents as its first page with name of subcontractor and material supplier on each separate item.
 3. Record Documents:
Provide, as described in Section 01 78 39, one (1) set of project record documents, with all dimensions of utility locations, variances from original drawings, etc., clearly documented in red.
 4. The following shall also be included:
 - a. Project Directory: Complete listing of all subcontractors, mechanics, and material suppliers involved in the work under this contract.
 - b. Guarantees/Warranties: Submit signed and notarized _____ copies of all manufacturers, mechanics, contractors or supplier guarantees required by the contract documents, including General Contractor's one year warranty. Form and wording of guarantees must be as specified and/or as submitted by the Contractor and approved by the Architect prior to bidding.
 - c. Letter stating that all materials used in construction are asbestos free. (To be written by the General Contractor.)
 - d. AIA Forms:
 - 1) AIA Document G704 – Certificate of Substantial Completion issued by the Architect. (To be signed by Owner, Architect, and Contractor.)
 - 2) AIA Document G706* - Contractor's Affidavit of Payment of Debts And Claims (To be completed by the General Contractor.)
 - 3) AIA Document G706A* - Contractor's Affidavit of Release of Liens (To be completed by the General Contractor.)
 - 4) AIA Document G707* - Consent of Surety Company to Final Payment (To be completed by the General Contractor.)
- *Forms can be obtained from:
AIA Dallas, (214)764-3153, www.aiadallas.org or www.aia.org
- e. Lien Waivers: Submit signed and notarized lien waivers from all subcontractors, mechanics, and material suppliers involved in the work of this contract. No partial lien waivers shall be accepted. Lien Waiver form to be as supplied by the Architect.

PART TWO – PRODUCTS

Not Used.

PART THREE – EXECUTION

Not Used.

END OF SECTION

PROJECT RECORD
DOCUMENTS

PART ONE - GENERAL

1.1 DESCRIPTION

- A. Reference: Applicable provisions of the General and Supplementary Conditions and Division 1, General Requirements, govern all work of this Section.

1.2 WORK

- A. Maintain at the site for the Owner one record copy of:
 - 1. Drawings, Specifications, Addenda, Change Orders, and other modifications to the Contract.
 - 2. Approved Shop Drawings, and Product Data.
 - 3. Field Test Records.
- B. Record actual construction on drawings at the job site. Provide the job site set of drawings with close-out documents as required and one (1) photo copied set to the Architect.

1.3 RELATED REQUIREMENTS

- A. Submittals - Section 01 33 23
- B. Conditions of the Contract

1.4 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Maintain documents in a secure, clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- B. Make documents available at all times for inspection by Architect.

1.5 RECORDING

- A. Label each document "PROJECT RECORD" in neat large printed letters with felt tip marking pen.
- B. Record information concurrently with construction progress.
 - 1. Do not conceal any work until required information is recorded.
- C. Legibly mark drawings to record actual construction:
 - 1. Depths of various elements of foundation in relation to finish first floor elevation.
 - 2. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
4. Field changes of dimension and detail.
5. Changes made by Field Order or by Change Order.
6. Details not on original contract drawings.

1.6 SUBMITTAL

At Contract Close-out, Record Documents shall be included on the two (2) USB flash drives as requested in Section 01 77 19 - Contract Closeout.

PART TWO – PRODUCTS

Not Used

PART THREE – EXECUTION

Not Used

END OF SECTION

SUBSURFACE INVESTIGATION

PART ONE - GENERAL

1.1 DESCRIPTION

- A. General: Bidders should visit the site and acquaint themselves with all existing conditions. Prior to bidding, bidders may make their own subsurface investigations to satisfy themselves as to site and subsurface conditions, but all such investigations shall be performed only under the time schedules and arrangements approved in advance by the Architect.

1.2 QUALITY ASSURANCE

- A. Adjustment of work: Readjust all work performed that does not meet technical or design requirements, but make no deviations from the Contract Documents without specific and written approval from the Architect.

PART TWO – PRODUCTS

Not Used

PART THREE – EXECUTION

Not Used

END OF SECTION

CONCRETE

PART ONE - GENERAL

1.1 GENERAL

- A. Work Included: This section covers all cast-in-place, reinforced and non-reinforced concrete construction as shown and specified.

1.2 REFERENCE STANDARDS

- B. ACI 318 "Building Code Requirements for Reinforced Concrete".
- C. Concrete Reinforcing Steel Institute, "Manual of Standard Practice".

1.3 DELIVERY, STORAGE AND HANDLING OF MATERIALS

- A. All materials shall be so delivered, stored and handled as to prevent the inclusion of foreign materials and the damage of materials by water or breakage. Package materials shall be delivered and stored in original packages until ready for use. Packages or materials showing evidence of water or other damage shall be rejected. All materials shall be of the respective quantities specified herein. Frozen or partially frozen aggregates shall not be used.

1.4 SUBMITTALS

- A. The contractor shall submit one hard copy (not to be returned) and one electronic copy in PDF format as per section 01340, through an approved testing laboratory, the proposed concrete mix to be used to the architect for approval. The proposed concrete mix must be proved by 3 cylinder tests in accordance with ASTM C-31. The owner shall pay for all design mixes and cylinder tests.
- B. Reinforcing steel fabricator shall submit one hard copy (not to be returned) and one electronic copy in PDF format as per section 01340 of detailed shop drawings for approval by the Architect on reinforcing bars and anchor bolts seating plans before fabrication or shipment.

PART TWO - PRODUCTS

- 2.1 CONCRETE: Concrete for interior slabs and footings shall have a 28-day minimum compressive strength of 3000 psi. Maximum water-cement ratio - .53 by weight. Exterior concrete shall have a 28 day minimum compressive strength of 4000 psi w/air entrainment of 6% ± 1%. Maximum water-cement ratio - .50 by weight. No other admixtures shall be used without approval of Architect.

- A. Portland cement shall conform to ASTM C-150, Type I.
- B. Water shall be potable.
- C. Aggregate shall conform to ASTM C-33.

2.2 REINFORCING STEEL

- A. Deformed bars shall conform to ASTM A615, Grade 60.
- B. Welded wire fabric shall conform to ASTM A-185. Provide 6 x 6 W1.4 x W1.4 in all floor slabs unless noted otherwise.

2.3 POLYETHYLENE SHEETING: Refer to Section 07 26 16 for under-slab vapor barrier.

2.4 FLOOR HARDENER: Provide "Intraseal" as manufactured by Conspec, or approved equal.

2.5 CONSTRUCTION JOINTS OR CONTROL JOINT: Provide 24 gage galvanized preformed steel screed keys as manufactured by Dayton Superior or approved equal. Provide steel stakes and splice plates as required by manufacturer.

2.6 Premolded expansion joint material shall be asphalt impregnated expansion joint material to meet ASTM specification D-1751-73. Expansion joint material shall have a "zip strip" or "tear tab" for ease in installation of backer rod and sealant.

PART THREE - EXECUTION

3.1 FORMS AND SCREEDS

- A. Form shall be so constructed that the finished concrete will conform to the shapes, lines, grades, and dimensions indicated on the drawings.
- B. Set all screeds with instrument. Wet screeds are unacceptable.

3.2 PLACING REINFORCEMENT

- A. Reinforcing shall be unpainted and uncoated, free from rust or scale and shall be cleaned and straightened before being shaped and put into position.
- B. Reinforcing shall be accurately positioned and securely tied.

3.3 CONCRETE MIXING

- A. Concrete shall be Ready-Mix in accordance with ASTM C-94.

3.4 CONCRETE PLACING

- A. Notify Architect 36 hours prior to placing to permit inspection of forms and reinforcing.
- B. Concrete shall be handled from the mixer to the forms as rapidly as possible by methods which shall prevent the separation of ingredients.
- C. Consolidate concrete as required.

3.5 CURING

- A. The slabs shall be moisture cured by ponding, continuous sprinkling and application of absorptive mats or 1 1/2 inch of sand kept continuously wet. Whichever method used, the slabs shall be kept continuously wet for 7 days.

3.6 FINISHES: Interior slabs shall receive a steel trowel finish typically. Exterior slabs shall receive a light broomed finish over a steel trowel finish.

- A. Apply floor hardener to interior slabs in accordance with manufacturer's recommendations.

3.7 TESTING

- A. Samples and tests of the concrete shall be made by an approved independent testing and inspection laboratory. At Contractor's expense, a certified ACI technician shall take test cylinders at the job site. All other test shall be at paid for by the owner unless noted otherwise. Not less than one test for 40 cu. yd. of concrete, or fraction thereof, will be required, and in any event not less than one test for each day's pour. Not less than four specimens will be made for each test. Specimens shall be made and cured in accordance with current ASTM Specifications C-39 and C-31. A slump test shall be made for each set of test cylinders.
- B. Test cylinders shall be made in accordance with ASTM C-31, latest edition. Test one cylinder at 7 days, one at 14 days and two at 28 days. Test cylinders shall be cast on the project site and cured under conditions approaching that of concrete poured on job as nearly as possible. If average strength of test cylinders falls below strength called for, the Architect shall have the right to order removal and replacement of any defective concrete at the contractor's expense.

END OF SECTION

UNIT MASONRY CLEANING

PART ONE - GENERAL

1.1 DESCRIPTION

- A. Work included: Cleaning of all masonry surfaces as shown on the Drawings, specified herein, or needed for a complete and proper installation.
- B. Related work described elsewhere:
 - 1. Masonry Mortaring Section 04 05 13
 - 2. Brick Masonry Section 04 21 13

PART TWO - PRODUCTS

2.1 CLEANING AGENTS

- A. All cleaning agents listed are as manufactured by Prosoco, Inc., Kansas City, Kansas or Architect approved equal.
 - 1. Brick veneer (red clay) with mortar – no color: Sure Klean No. 600 detergent.
 - 2. Brick veneer (buff clay) with mortar – no color: Sure Klean Vana Trol cleaner.
 - 3. Masonry with color mortar: Sure Klean Vana Trol cleaner.
 - 4. Colored block: Sure Klean Custom Masonry Cleaner.
- B. MURIATIC ACID WILL NOT BE ALLOWED AS A CLEANING AGENT.

PART THREE - EXECUTION

3.1 POINTING

Cut out any defective joints and holes to depth of 3/4 inch in exposed masonry and repoint with mortar.

3.2 CLEANING EXTERIOR SURFACES

- A. Clean masonry surface with rough cloth or brush. Clean at end of each day.
- B. Clean all exposed exterior masonry after mortar has cured:
 - 1. Clean initially with stiff brushes and water.
 - 2. Allow Architect to inspect initially cleaned surfaces.
 - 3. Where directed by Architect, apply cleaning agent to sample wall area of 20 square feet.
 - 4. Do not proceed with application of cleaning agent without approval of Architect.

5. When cleaning agent is required:
 - a. On block follow block manufacturer's recommendation.
 - b. Follow cleaning agent manufacturer's directions.
 - c. Rinse surface thoroughly with water following cleaning.
 - d. Protect surrounding non-masonry surfaces from exposure to the cleaning agent.

3.3 CLEANING INTERIOR SURFACES

A. Clean exposed interior masonry:

1. Brush surface or rub with rough cloth at end of each day's work.
2. Clean as necessary after mortar has cured with stiff brush dipped in bucket of water.
3. Mop up immediately any water puddling on the floors.

3.4 GENERAL CLEANING

- A. At the completion of work, all exposed block shall be cleaned from the top down with a solution of non-staining soap powder and clean water, using stiff fiber brushes for scrubbing. Rinse surface with clean water. Apply solution in strict accordance with the manufacturer's recommendations. No acid for cleaning masonry will be permitted on the job or in trucks on the job.

END OF SECTION

MASONRY MORTARING

PART ONE - GENERAL

1.1 DESCRIPTION

- A. Work included: Provide all material, complete, in place, as shown on the Drawings, specified herein, or needed for a complete and proper installation.
- B. Related work specified elsewhere:
 - 1. Unit Masonry Cleaning Section 04 01 20
 - 2. Masonry Accessories Section 04 05 23
 - 3. Brick Masonry Section 04 21 00
 - 4. Metal Doors and Frames Section 08 11 00

1.2 QUALITY ASSURANCE

- A. Use the same manufacturer's products throughout the project.
- B.. Submit manufacturer's certification that materials meet the specification requirements.

1.3 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM C144, Specification for Portland Cement.
 - 2. ASTM C144, Specification for Aggregate for Masonry Mortar.
 - 3. ASTM C207, Specification for Hydrated Lime for Masonry Purposes.
- B. Specification for Masonry Structures TMS 402/602-16.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store manufactured products in original unopened containers.
- B. Store cementitious ingredients in weather-tight enclosures and protect against contamination and warehouse set.
- C. Stock pile and handle aggregate to prevent contamination from foreign materials.
- D. Keep water free of harmful materials.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Heat mixing water when air temperature is below 40 degrees F and heat aggregates when air temperature is below 32 degrees F., to assure mortar temperatures between 40 degrees F and 120 degrees F., until used.
- B. Produce subsequent mortar batches within ± 10 degrees F. (± 6 degrees C.) of first batch.
- C. Do not heat water or sand above 120 F., (50 degrees C.).

PART TWO - PRODUCTS

2.1 MORTAR

A. Materials:

- 1. Portland Cement: ASTM C150, Type 1.
- 2. Pre-packaged portland cement, hydrated lime and dried masonry sand meeting specification is acceptable.
- 3. Hydrated Lime: ASTM C207.
- 4. Sand: ASTM C144, well screened, clean, hard, sharp siliceous, and free from loam, silt, or other impurities.
- 5. Water: Clean and free of deleterious amounts of acids, alkalies, oil, or organic materials.
- 6. Mortar coloring: None required.
- 7. Admixtures: Performance admixtures, except waterproofing, shall not be used without written proof from a recognized testing laboratory to the effect that the bond strength of mortar or grout to which said admixture has been added is not less than that for mortar or grout without addition of said admixture and the written approval of the Owner.

B. Mortar Mix:

- 1. Proportions by volume:

Mortar Type	Portland Cement	Masonry Cement	Hydrated Lime or Lime Putty	Aggregate Measured in Damp Loose Condition
S	1	None	1	Not less than 2-1/4 and not more than 3 times the sum of volumes of cement and lime used.

- 2. Measure in container of known volume, not by "Shovelfulls".
- 3. Provide Dry-Block Integral Water-Repellant admixture at recommended dosage rate for type of mortar being used (exterior walls and interior wet areas only).

PART THREE - EXECUTION

3.1 INSTALLATION

A. Mechanical:

1. Approved type: Batch type with controlled water quantity.
2. Mixing time: 5 minutes, 2 minutes continuous after water added.

B. Hand-mixing: Only when specifically approved by Architect.

1. Use for small batches only.
2. Use weather tight mixing box.
3. Rake each batch thoroughly and turn over together before adding water until dry mix is an even color throughout the mass.
4. Add water gradually until thoroughly mixed mortar of required plasticity is obtained.

C. General:

1. Keep all equipment and mixing boxes clean.
2. Prepare mortars in batches or volume that will be used before initial set takes place.
3. Transport mortar to point of use within 45 minutes after mixing.
4. Do not re-tamper mortar after it has set.
5. Mortar flow: Mortar of the materials and proportions used in the construction shall have a flow after suction for a one minute of not less than 65 percent of that immediately before suction. The flow shall be determined by the method of the Water Retention Test of the Standard Specifications for Masonry Cement, ASTM C91 if testing is required.
6. Mortar consistency: The mortar shall be as wet a consistency as can be conveniently handled. Mortar which has greatly stiffened or in which the cementing material has started to set shall not be used.

END OF SECTION

MASONRY ACCESSORIES

PART ONE - GENERAL

1.1 DESCRIPTION

- A. Work included: Provide all masonry accessories, complete, in place, as shown on the Drawings as specified herein, and as required for a complete and proper installation.
- B. Related work described elsewhere:
 - 1. Brick Masonry Section 04 21 13

PART TWO - PRODUCTS

2.1 GENERAL

- A. All masonry anchors, ties and wall reinforcement shall be corrosion resistant as manufactured by Hohman & Barnard, Inc., Hauppauge, New York.
- B. Metal accessories for use in exterior wall construction to meet local wind load requirements and shall be hot dipped galvanized after fabrication in accordance with ASTM A-153, Class B-2, and local codes.
- C. Metal accessories for use in interior wall construction shall be mill galvanized in accordance with ASTM A-641, Class 1, and local codes.

2.2 MASONRY WALL REINFORCEMENT

- A. VENEER ATTACHMENT (STUD WALL): (1'4" o.c. Horizontally, 1'4" o.c. Vertically)
Continuous 9 gage longitudinal rod
HB-213 Adjustable Veneer Anchor
- B. VENEER ATTACHMENT (MULTI-WYTHE WALL):
Continuous 9 gage longitudinal rod in veneer
(1'4" o.c. vertical spacing)
Backing Wall Reinforcement:
6", 8", 10", 12" Walls:
285 Grip-Lock Ladder, a system that includes pintel and backing wall reinforcing with 9 gage side rods (spaced at 1'4" o.c. vertically).

C. SINGLE WYTHE WALLS:

6", 8", 10", 12" Walls:

220 Ladder-Mesh with 9 gage side rods (spaced at 1'4" o.c. vertically).

4" wall: One (1) 9 gage rod continuous at 1'4" o.c.

D. SHEAR WALLS:

At Multi-Wythe Walls: 285 Grip-Lok Ladder

At Single Wythe Walls: 220 Ladder-Mesh

Ladder reinforcing at shear walls shall consist of side rods as noted below and horizontal joint reinforcing shall be spaced as below:

6" Wall: Four 9 gage side rods at 16" o.c. vertically.

8" Wall: Four 3/16" diameter side rods at 16" o.c. vertically.

10" Wall: Four 3/16" diameter side rods at 16" o.c. vertically.

12" Wall: Four 9 gage side rods at 8" o.c.

E. VENEER ATTACHMENT (CONCRETE WALL): (1'4" o.c. horizontally, 1'4" o.c. vertically)

305 24 gage Dovetail Anchor Slot
303 SV Seismic Notch Dovetail Anchor

F. VENEER ATTACHMENT (STEEL BEAM OR COLUMN): (1'4" o.c. horizontally, 1'4" o.c. vertically)

Continuous 9 gage longitudinal rod in veneer at
1'4" O.C. vertically.

360 Gripstay Channel Slot

364 SV Seismic Notch Gripstay Channel Slot Anchor

2.3 MASONRY WALL FLASHING

A. Provide .020 inch flexible membrane flashing, type HD concealed flashing and membrane waterproofing, as manufactured by Nervastral, Inc., of Greenwich, CT.

2.4 MASONRY CONTROL JOINT MATERIAL

A. #673 Masonry Control Joint by Greenstreak Plastics, Inc., of St. Louis, Missouri.

2.5 CAVITY WALL DRAINAGE SYSTEM

A. 0.4" trapezoidal shaped polyester mesh cavity wall drainage system, MortarNet, as manufactured by Mortar Net USA, Ltd., Burns Harbor, IN or approved equal.

PART THREE - EXECUTION

3.1 INSTALLATION

A. Joint reinforcement:

1. Place in horizontal joints of unit masonry work as described in Part 2 of Section 04 05 23.
2. Lap joints of 6 inches.
3. Use prefabricated shapes at corners and tees.

B. Ties and anchors:

1. Install mesh ties in horizontal joints of concrete masonry wall 16" O.C. or as shown on the Drawings.
2. Secure anchor brackets vertically to exterior wall, spaced 2'0" o.c. horizontal (min.).
3. Install flexible ties as brick masonry work progresses, spacing 16" o.c. vertical (min.).

C. Flashing:

1. Lap joints 4 inches and seal with mastic.
2. Install continuously in exterior wall masonry perimeter and at all lintels and openings as indicated on the Drawings.

D. Control joints:

1. Secure to masonry wall with masonry nails through flange at existing wall and grout flanges at new walls.

E. Cavity Wall Drainage System:

1. Lay the first 1 or 2 courses of brick at flashing level, then install cavity wall drainage system continuously by placing it against the inside of the openings. No fasteners or adhesives are required, and mortar need not have set.

END OF SECTION

BRICK MASONRY

PART ONE - GENERAL

1.1 DESCRIPTION

- A. Work included: Provide brick masonry complete, in place, as shown on the Drawings, as specified herein, and as required for complete and proper installation.
- B. Related work specified elsewhere:
 - 1. Unit Masonry Cleaning Section 04 01 20
 - 2. Masonry Mortaring Section 04 05 13
 - 3. Masonry Accessories Section 04 05 23
- C. Refer to Structural Plans for Seismic Category.

1.2 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM C 216, Specifications for Facing Brick shall be the minimum standard for brick. In addition, excessive chips or indentations due to manufacturing or handling defects will not be accepted.
- B. Brick Institute of American (BIA) Technical Notes.
- C. TMS 402/602-16 Specification for Masonry Structures.

1.3 MOCK-UP

- A. Prior to proceeding with masonry work, erect a 4'0" x 4'0" sample wall panel. Panel shall include 4" brick, masonry wall reinforcing, thru-wall masonry flashing, caulked control joint and weep holes. Remove rejected panel and erect new panel until workmanship is approved.
 - 1. Erect on jobsite away from the building foundation.
 - 2. Clean panel thoroughly and provide temporary cover as required to keep panel dry at all times.
 - 3. The approved panel shall be the standard of comparison for all masonry work on the project.
 - 4. The approved panel shall remain in place and not be altered, moved or destroyed until all masonry work is completed, or until removal is authorized by the Architect.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Store brick off ground to prevent contamination by mud, dust or materials likely to cause staining or other defects.
- B. Cover materials when necessary to protect from elements.
- C. Protect reinforcement from elements.

1.5 JOB CONDITIONS

- A. Cold weather installation: Do not erect masonry units when ambient temperature has dropped below 45 degrees F., unless it is rising, and at no time when it has dropped below 40 degrees, F., except by written permission of Architect.
- B. Cold weather protection: Protect in-place masonry construction from being exposed to temperatures 32 degrees F. or below for 24 hours after erection.
- C. Hot weather conditions: Protect masonry construction from direct exposure to wind and sun where erected in an ambient air temperature of 99 degrees F. in the shade with relative humidity less than 50 percent.
- D. Protection of Work:
 - 1. During erection, cover tops of exterior walls with strong waterproof membrane at end of each day.
 - 2. Prevent grout or mortar from staining the face of masonry to be left exposed or painted.

PART TWO - PRODUCTS

2.1 BRICK

- A. Facing brick: ASTM C 216 and C 652, FBS Type, meeting SW requirement, Standard Modular size, 35% maximum percent voids.
- B. Solid brick required for rowlock courses and other locations shown.
- C. Brick selection: As selected by the Architect.

2.2 MORTAR

- A. Refer to Section 04 05 13.

2.3 BRICK ALLOWANCE

- A. The following allowance figure shall cover the direct purchase price to the Contractor. All applicable taxes, unloading and handling charges, labor, installation costs, overhead, profit and other expenses shall be included in the Contract Sum and not in the allowance.

\$625.00 per thousand.

PART THREE - EXECUTION

3.1 PREPARATION

- A. Wet brick to nearly saturated, surface dry conditions:
1. Immerse brick to depth of one inch in water.
 2. The rate of absorption of water and the time of laying shall not exceed 0.7 ounce per brick per minute when partially immersed on its flat side.
- B. Clean reinforcement and place as specified in Section 04 05 23 and/or as shown on the Drawings.
- C. Do not proceed with construction of brick masonry without Architect's approval of sample panel.
- D. Secure anchors, ties, joint reinforcement, and in-wall flashing as specified in Section 04 05 23 and/or as shown on the Drawings.
- E. At exterior brick and block walls, the brick and block shall be laid separately.

3.2 GENERAL ERECTION REQUIREMENTS

- A. Pattern bond: Lay masonry in standard running bond except for Rowlock and Soldier courses shown on the Drawings. No batts shall be laid as headers or in the exposed face of walls, except for closures when approved by the Architect.
- B. Joining fresh masonry to partially set masonry:
1. Remove loose brick and mortar.
 2. Clean and lightly wet exposed surface of set masonry.
 3. Stop off horizontal run of masonry by racking back one half length of unit in each course.
- C. Tooling:
1. Tool exposed joints when "thumb-print" hard with a round joiner slightly larger than width of joints.
 2. Trowel-point or concave-tool exterior joints below grade.
 3. Flush-cut all joints not tooled.

D. Flashing:

1. Clean surface of masonry smooth and free from projections which might puncture the flashing.
 - a. Place the flashing material on bed of mortar.
 - b. Cover the material with mortar.
 - c. Seal with mastic at all laps in flashing and everywhere drawings show flashing applied to vertical face of walls.

E. Weep holes:

1. Provide weep holes in head joints in first course immediately above the flashing material by placing and leaving sash cord in joints.
2. Maximum spacing: 32" o.c.
3. Keep weep holes and area above the flashing free of mortar droppings.

F. Sealant recesses:

1. Leave joints around outside perimeters of exterior door frames, window frames, and other wall openings:
 - a. Depth: uniform 3/4 inch.
 - b. Width: 1/4 inch to 3/8 inch.

G. Control joints:

1. Keep clean from all mortar and debris.
2. Locate at maximum spacing of 24'0" apart or spacing as indicated on the Drawings, whichever is less.

H. Cutting brick:

1. Cut exposed brick with motor-driven saw or by other methods which provide cuts that are straight and true.

I. Mortar joint thickness:

1. 3/8 inch nominal.

3.3 BRICK MASONRY

A. Brick installation:

1. Lay brick plumb and true to lines with level courses.
2. Lay with completely filled mortar joints.
3. Do not furrow bed joints.
4. Butter ends of brick with sufficient mortar to fill head joints.
5. Rock closures into place with head joints thrown against two adjacent brick in place.
6. Do not pound corners and jambs to fit stretcher units after they are set in position. Where an adjustment must be made after mortar has started to harden, remove mortar and replace with fresh mortar.

B. Air space between walls:

1. Keep space clean of mortar droppings, mortar protrusions, and debris as work progresses.

C. Bond: All bond shall be kept plumb and uniform. When necessary to build portions of walls to higher level than adjacent portions, tooth courses. Provide sufficient "Line Blocks" to maintain level bed joints. Layout all face coursing before setting to minimize cutting closures or the jumping of bond.

D. Built-in work: Coordinate work with that of other trades so that all connecting work shall be properly installed. Build in panel boxes, anchors, grounds flashing and all other necessary incidental work.

3.4 CLEANING

A. Cut out any defective joints and holes in exposed masonry and repoint with mortar.

B. Clean all exposed unglazed brick and concrete masonry. Refer to Section 04 01 20.

C. Clean mortar boxes at the end of each day's work.

END OF SECTION

METAL FABRICATIONS

PART ONE - GENERAL

1.1 SCOPE

1.1.1 Work included: Provide miscellaneous metal work, complete, including:

- a. Steel supports for work of other trades.
- b. Miscellaneous metal steel attachments, anchors, plates, angles, etc.
- c. Anchors, angles, bolts, expansion shields for items in this section only, and other accessories shown in details and/or required for the complete installation of all work.

1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS

Concrete Section 03 31 00

1.3 SUBMITTALS

1.3.1 Comply with provisions of Section 01 33 23.

1.3.2 Product Data: Submit for products used in miscellaneous metal fabrications, including paint products and grout.

1.3.3 Shop drawings: Submit shop drawings for the fabrication and erection of all assemblies of miscellaneous metal work. Include plans, elevations, sections, and details of fabrications and their connections. Show anchorage and accessory items. Provide templates for anchors and bolts specified for installation under other sections.

1.4 PROJECT CONDITIONS

1.4.1 Field Measurements:

- a. Check actual locations of walls and other construction to which metal fabrications must fit, by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of work.
- b. Where field measurements cannot be made without delaying work, guarantee dimensions and proceed with fabrication of products without field measurements. Coordinate construction to ensure that actual opening dimensions correspond to guaranteed dimensions. Allow for trimming and fitting.

PART TWO - PRODUCTS

2.1 MATERIALS

- 2.1.1 Metal surfaces, general: For metal fabrications exposed to view upon completion of work, provide materials selected for their surface flatness, smoothness, and freedom from surface blemishes. Do not use materials whose exposed surfaces exhibit pitting, seam marks, roller marks, rolled trade names, and roughness.
- a. Miscellaneous Steel Bars, Rods and Shapes: ASTM A36, A283, A108, A663, A501, and A575, as applicable.
 - b. Pipe: ASTM A53 black finish steel pipe, standard weight (Schedule 40).
 - c. Bolts and Nuts: ASTM A307, Grade A. High strength bolts: ASTM A 325. Hot-dip galvanize all items in accordance with ASTM A 153.
 - d. Expansion Bolts Wedge Anchors: Ramset "Trubolt" or Hilti "Kwik Bolt".
 - e. Adhesive Anchors: Hilti "HVA".
 - f. Expansion Shields: F.S. FF-S-325.
 - g. Anchor Bolts: Furnish and deliver to site, anchor bolts and other items to be embedded in concrete. Provide necessary shop details and diagrams for concrete forms and, if required, provide templates to insure proper and accurate locations and setting of anchor bolts.
 - h. Toggle Bolts: Tumble-wing type F.S. FF-B-588 type, class and style as required.
 - i. Lock Washers: F.S. FF-W-84, helical spring type carbon steel.
 - j. Welding Rods and Electrodes: Select in accordance with AWS specifications for metal alloy to be welded.
 - k. Metal Stair Pans: For integral riser and treads up to 5'0" in length use 14 gage steel; for lengths up to 8'0" use 12 gage steel.
 - l. Miscellaneous Items: Furnish bent or otherwise custom fabricated bolts, plates, z-clips, anchors, hangers, dowels and other miscellaneous steel shapes as required for framing and supporting work and for anchoring or securing work to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Section 06 10 00.
 - m. Shop Paint: Lead free, alkyd primer; Tnemec 10-99, Southern coatings Enviro-Guard 1-2900, or approved equal, meeting performance requirements of F.S. TT-P-86, and passing ASTM B117 after 500 hours. Primer selected must be compatible with finish coats of paint. Coordinate selection of metal primer with finish paint requirements specified in Section 09 91 00.
 - n. Bituminous Paint: Cold-applied asphalt mastic complying with SSPC-Paint 12 except containing no asbestos fibers.
 - o. Non-shrink Nonmetallic Grout: Master Builders "Masterflow 713", Euclid "Euco N.S. Grout", L&M "Crystex", or U.S. Grout "Five Star Grout", or Sonneborn "SonogROUT", or W.R. Meadows "Sealtight 588 Grout".

2.2 FABRICATIONS, GENERAL

- 2.2.1 Workmanship: Use materials of size and thickness shown or, if not shown, of required size and thickness to produce strength and durability in finished product. Work to dimensions shown or accepted on shop drawings, using proven details of fabrication and support. Use type of materials shown or specified for various components of work.
- 2.2.2 Form exposed work true to line and level with accurate angles and surfaces and straight, sharp edges. Ease exposed edges to a radius of approximately 1/32" unless otherwise shown. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

- 2.2.3 Weld corners and seams continuously, complying with AWS recommendations. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces.
- 2.2.4 Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type shown, or if not shown, Phillips flat-head (countersunk) screws or bolts. Provide for anchorage of type shown, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use. Cut reinforce, drill and tap miscellaneous metalwork as indicated to receive finish hardware and similar items.
- 2.2.5 Shop painting:
- a. Shop paint miscellaneous metal work, except concealed metal work, members or portion of members to be embedded in concrete or masonry, surfaces and edges to be field welded, and galvanized surfaces, unless otherwise specified.
 - b. Remove scale, rust and other deleterious materials before applying shop coat. Clean off heavy rust and loose mill scale in accordance with SSPC SP-2 or SSPC SP-3.
 - c. Remove oil, grease and similar contaminants in accordance with SSPC SP-1.
 - d. Immediately after surface preparation, brush or spray on primer in accordance with manufacturer's instructions, and at rate to provide uniform dry film thickness of 2.0 mils for each coat. Use painting methods which will result in full coverage of joints, corners, edges, and exposed surfaces.

2.3 MISCELLANEOUS METAL FABRICATIONS

- 2.3.1 Steel supports: Provide structural steel lintels, channels, braces, angles, etc. as indicated and assemble as detailed. Secure all connections to provide rigid supports for all items required including supports not specifically specified in other sections.
- 2.3.2 Mechanical equipment frames: All mechanical equipment frames or miscellaneous steel required to complete the mechanical equipment installation shall be provided and detailed by the steel fabricator. The mechanical equipment contractor shall provide all necessary weights and dimensions to the steel fabricator.

PART THREE - EXECUTION

3.1 PREPARATION

- 3.1.1 Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions and directions for installation of anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to site.
- 3.1.2 Set sleeves in concrete with tops flush with finish surface elevations; protect sleeves from water and concrete entry.

3.2 INSTALLATION

- 3.2.1 Fastening to in-place construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications or frames to in-place construction; include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors as required.
- 3.2.2 Cutting, fitting, placement: Perform cutting, drilling and fitting required for installation. Set metal fabrication accurately in location, alignment and elevation; with edges and surfaces level, plumb, true, and free of rack; measured from established lines and levels.
- 3.2.3 Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, methods used in correcting welding work, and the following:
- a. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - b. Obtain fusion without undercut or overlap.
 - c. Remove welding flux immediately.
 - d. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches those adjacent.
- 3.2.4 Setting loose plates:
- a. Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean bottom of surface of bearing plates.
 - b. Set loose leveling and bearing plates on wedges, or other adjustable devices. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims, but if protruding, cut off flush with edge of bearing plate before packing with grout.

3.3 TOUCH UP SHOP PAINTING

- 3.3.1 Immediately after erection, clean field welds, bolted connections and abraded areas of shop paint, and paint exposed areas with same materials as used for shop painting.

END OF SECTION

LUMBER

PART ONE - GENERAL

1.1 DESCRIPTION

1.1.1 Work included: Provide all wood, nails, bolts, screws, framing anchors, and other rough hardware, and all other items needed for rough and finished carpentry in this Work but not specifically described in other Sections of these Specifications.

1.1.2 Related work described elsewhere:

1. Rough Carpentry Section 06 10 00
2. Finish Carpentry Section 06 20 00

1.2 QUALITY ASSURANCE

1.2.1 Standards: Comply with all pertinent codes and regulations, and with the standards listed in this Section or as described by the National Grading Rule as published by the Southern Pine Inspection Bureau.

1.2.2 Conflicting requirements: In the event of conflict between pertinent codes and regulations and the requirements of the referenced standard or these specifications, the provisions of the more stringent shall govern.

1.3 SUBMITTALS

Make all proposals for substitution in strict accordance with the provisions of Section 01 33 23 of these Specifications.

1.4 PRODUCT HANDLING

1.4.1 Protection:

1. Use all means necessary to protect lumber materials before, during, and after delivery to the job site, and to protect the installed work and materials of all other trades.
2. Deliver the materials to the job site and store, all in a safe area, out of the way of traffic, and shored up off the ground surface.
3. Identify all framing lumber as to grades, and store all grades separately from other grades.
4. Protect all metal products with adequate waterproof outer wrappings.
5. Use extreme care in the off-loading of lumber to prevent damage splitting, and breaking of materials.

1.4.2 Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

PART TWO - PRODUCTS

2.1 GRADE STAMPS

- 2.1.1 Framing lumber: Identify all framing lumber by the grade stamp of Southern Yellow Pine or West Coast Lumber.
- 2.1.2 Plywood: Identify all plywood as to species, grade, and glue type by the stamp of the American Plywood Association.
- 2.1.3 Other: Identify all other materials of this Section by the appropriate stamp of the agency listed in the reference standards, or by such other means as are approved by the Architect.

2.2 MATERIALS

All materials, unless otherwise specifically approved in advance by the Architect, shall meet or exceed the following:

<u>Item:</u>	<u>Description:</u>
Plates (in contact with concrete or masonry)	Pressure-treated Southern Pine
Studs and headers	Southern Pine #2 KD or Spruce #1
All other framing members	Southern Pine #2 KD
Plywood – concealed decking	C-D with exterior glue, group 4 30/12
Plywood – interior finish	A-B with one side sanded
Pressure-treated wood	Wolman CCA preservative by the Koppers Co. Pressure impregnated in accordance with AWWA Standard C-2 (or approved equal)
Wood Siding and Soffit Panels	Hardie Plank Board and Batten System
Steel hardware	ASTM 47 and A36 (use galvanized at exterior locations)
Machine bolts	ASTM A307
Lag bolts	Federal Spec. FF-B-561
Nails	Common (except as noted), Federal Spec. FF-N-1-1 (use galvanized at exterior locations)
Joist hangers, hurricane ties, and framing anchors	Simpson, or equal Finish: ZMax (G185) or post hot-dip galvanized (HDG)

2.3 OTHER MATERIALS

All other materials, not specifically described but required for a complete and proper installation as indicated on the Drawings, shall be new, suitable for intended use, and subject to the approval of the Architect.

PART THREE - EXECUTION

3.1 DELIVERIES

3.1.1 Stockpiling: Stockpile all materials sufficiently in advance of need to ensure their availability in a timely manner for this work.

3.1.2 Delivery schedule: Make as many trips to the job site as are necessary to deliver all materials of this Section in a timely manner to ensure orderly progress of the total work.

3.1.3 Wood roof cants shall be cut 4 x 4 treated wood in maximum 8' lengths.

3.2 COMPLIANCE

Do not permit materials not complying with the provisions of this Section of these specifications to be brought onto or to be stored at the job site. Immediately remove from the job site all non-complying materials and replace them with materials meeting the requirements of this Section.

END OF SECTION

ROUGH CARPENTRY

PART ONE - GENERAL

1.1 DESCRIPTION

1.1.1 Work included: Install all wood framing indicated on the Drawings or required for a complete and operable facility.

1.1.2 Related work described elsewhere:

- | | | |
|----|-------------------|------------------|
| 1. | Concrete Formwork | Section 03 11 00 |
| 2. | Lumber | Section 06 06 00 |

1.2 QUALITY ASSURANCE

1.2.1 Qualifications of workers: Provide sufficient workmen and supervisors who shall be present at all times during execution of this portion of the Work, and who shall be thoroughly familiar with the type of construction involved and the materials and techniques specified.

1.2.2 Rejection: In the acceptance or rejection of rough carpentry, the Architect will make no allowance for lack of skill on the part of workmen.

1.3 PRODUCT HANDLING

1.3.1 Protection:

1.3.1.1 Store all materials in such a manner as to ensure proper ventilation and drainage, and to protect against damage and the weather.

1.3.1.2 Keep all materials clearly identified with all grade marks legible. Keep all damaged material clearly identified as damaged, and store separately to prevent its inadvertent use.

1.3.1.3 Do not allow installation of damaged or otherwise non-complying materials.

1.3.1.4 Use all means necessary to protect the installed work and materials of all other trades.

1.3.2 Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

PART TWO - PRODUCTS

Refer to Section 06 06 00 – LUMBER

PART THREE - EXECUTION

3.1 INSPECTION

Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 WORKMANSHIP

3.2.1 General: All rough carpentry shall produce joints true, tight, and well nailed, with all members assembled in accordance with the Drawings and with all pertinent codes and regulations.

3.2.2 Selection of lumber pieces:

3.2.2.1 Carefully select all members. Select individual pieces so that knots and obvious defects will not interfere with placing bolts or proper nailing or making connections.

3.2.2.2 Cut out and discard all defects which will render a piece unable to serve its intended function. Lumber may be rejected by the Architect, whether or not it has been installed, for excessive warp, twist, bow, crook, mildew, fungus, or mold, as well as for improper cutting and fitting.

3.2.3 Shimming: Do not shim sills, joists, short studs, trimmers, headers, lintels, or other framing components.

3.3 TREATED LUMBER

3.3.1 General: Use only treated lumber for all wood bucks and nailing grounds (other than Foundation grade Redwood) in, or in contact with, concrete.

3.3.2 Treatment:

3.3.2.1 Treat all wood, as called for on Drawings and in the specifications by spraying with the preservative specified in Section 06 06 00.

3.3.2.2 Perform all treatment in strict accordance with the published recommendations of the manufacturer of the treatment preservative.

3.4 GENERAL FRAMING

3.4.1 General:

3.4.1.1 In addition to all framing operations normal to fabrication and erection indicated on the Drawings, install all backing required for work of other trades.

3.4.1.2 Set all horizontal or sloped members with crown up.

3.4.1.3 Do not notch, bore, or cut members for pipes, ducts, conduits, or other reasons except as shown on the Drawings or as specifically approved in advance by the Architect.

3.4.2 Bearings:

3.4.2.1 Make all bearings full unless otherwise indicated on the Drawings.

3.4.2.2 Finish all bearing surfaces on which structural members are to rest so as to give sure and even support. Where framing members slope, cut or notch the ends as required to give uniform bearing surface.

3.5 BLOCKING AND BRIDGING

3.5.1 Blocking:

3.5.1.1 Install all blocking required to support all items of finish, to include, but not limited to, all door stops, towel or grab bars, wall hung shelving, etc., and to cut off all concealed draft openings, both vertical and horizontal, between ceiling and floor areas.

3.5.1.2 Where treated blocking is in contact with metal structure, angles, roof deck, etc., blocking shall be wrapped in 15 lb. building felt.

3.5.2 Bridging:

3.5.2.1 Install wood cross bridging of not less than two inches by three inches nominal, metal cross bridging of equal strength, or solid blocking between joists as required by wood truss manufacturer.

3.6 STUD WALLS AND PARTITIONS

3.6.1 Studs: Make all studs single length, unspliced, and platform framed.

3.6.2 Corners and intersections: Unless otherwise indicated on the Drawings, frame all corners and intersections with three or more studs and all required bearing for wall finish.

3.7 ALIGNMENT

On all framing members to receive a finished wall or ceiling, align the finish subsurface to vary not more than 1/8 inch from the plane of surfaces of adjacent framing and furring members.

3.8 INSTALLATION OF PLYWOOD DECKING

3.8.1 Placement:

3.8.1.1 Place all plywood with face grain perpendicular to supports and continuously over at least two supports, except where otherwise specifically indicated on the Drawings.

3.8.1.2 Center joints accurately over supports. Unless otherwise specifically shown on the Drawings, stagger the end joints of plywood panels to achieve a minimum of continuity of joints.

3.8.2 Protection of plywood: Protect all plywood from moisture by use of all required waterproof coverings until the plywood has in turn been covered with the next succeeding component or finish.

3.9 FASTENING

3.9.1 Nailing: Do all nailing without splitting wood. Pre-bore as required. Replace all split members.

3.9.2 Bolting: Drill holes 1/16 inch larger in diameter than the bolts being used. Drill straight and true from one side only. Bolt threads shall not bear on wood. Use washers under head and nut where both bear on wood; use washers under all nuts.

3.9.3 Screws: For lag screws and wood screws, pre-bore same diameter as root of thread; enlarge holes to shank diameter for length of shank. Screw, do not drive, all lag screws and wood screws.

3.10 CLEANING UP

3.10.1 General: Keep the premises in a neat, safe, and orderly condition at all times during execution of this portion of the Work, free from accumulations of sawdust, cut ends, and debris.

3.10.2 Sweeping:

3.10.2.1 At the end of each working day, and more often if necessary, thoroughly sweep all surfaces where refuse from this portion of the Work has settled.

3.10.2.2 Remove the refuse to the area of the job site set aside for its storage.

3.10.2.3 Upon completion of this portion of the Work, thoroughly broom clean all surfaces.

END OF SECTION

SHOP-FABRICATED WOOD TRUSSES

PART ONE - GENERAL

1.1 GENERAL

Provide manufactured wood trusses, valley trusses, truss to truss connectors and framing anchors.

1.2 REFERENCE STANDARDS

- A. TPI-78 "Design Specifications for Light Metal Plate Connected Wood Trusses", Truss Plate Institute, Des Plains, IL.
- B. TPI-BWT-76 "Bracing Wood Trusses Commentary and Recommendations."
- C. 2012 International Building Code.

1.3 SUBMITTALS

- A. Provide for approval, design calculations for truss design stamped by Registered Engineer in the state of Arkansas.
- B. Shop drawings indicating sizes, spacing and location of trusses and connections. Provide load capacity tables and loadings for all connectors. Drawings Provide one reproducible (sepia) and 2 prints of each sheet.

PART TWO - MATERIALS

2.1 TRUSSES

- A. Shapes and configuration as shown on the plans.
- B. Trusses shall be of sufficient strength to support the imposed live, dead and wind loads and impact loads, without exceeding, in any of its elements, the allowable stresses as required by the "2021 International Building Code".
- C. Maximum truss spacing 24 inches.
- D. Truss design shall be as per "Design Specifications for Light Metal Plate Connected Wood Trusses" TPI-78, published by the Truss Plate Institute, Des Plains, IL.
- E. Manufacturer shall provide truss anchors supports to resist the specified uplift.
- F. Valley trusses shall distribute load into support trusses uniformly in order to prevent over-stressing the support truss.

2.2 ACCEPTABLE MANUFACTURERS

A. Truss manufacturer must be a member, in good standing, of the Truss Plate Institute, who subscribes to the "TPI In-Plant Quality Control Inspection Program."

PART THREE EXECUTION

- 3.1 Install in accordance with TPI "Quality Control Manual" QCM-77.
- 3.2 Brace in accordance with TPI "Bracing Wood Trusses; Commentary and Recommendations" BWT-76.
- 3.3 Install all truss to truss connections and all truss to support connections as per manufacturer's written instructions.

END OF SECTION

FINISH CARPENTRY

PART ONE - GENERAL

1.1 DESCRIPTION

1.1.1 Work included: Provide all finish carpentry needed for a complete and proper installation including, but not necessarily limited to:

1. Fitting and installing all wood doors.
2. Installing all finish hardware.

1.2 QUALITY ASSURANCE

1.2.1 Qualifications of personnel:

1.2.1.1 Throughout progress of the work of this Section, provide at least one person who shall be thoroughly familiar with the specified requirements, completely trained and experienced in the necessary skills, and who shall be present at the site and shall direct all work performed under this Section.

1.2.1.2 In actual installation of the Work of this Section, use adequate number of skilled workmen to ensure installation in strict accordance with the approved design and the approved recommendations of the material's manufacturers.

1.3 PRODUCT HANDLING

1.3.1 Protection: Use all means necessary to protect the materials of this Section before, during, and after installation, and to protect the work and materials of all other trades.

1.3.2 Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

PART TWO - PRODUCTS

2.1 FASTENERS

2.1.1 Fasteners shall be the appropriate size finish or casing nails and/or screws.

2.1.2 Bright finish nails may be used for interior work and smooth finish galvanized casing nails used for exterior work. Heads of all nails shall be counter-sunk and holes filled.

2.1.3 Screws shall be the appropriate size and finish with flat counter-sinking heads installed flush with finish surface unless designated to be counter-sunk and holes filled.

2.2 LUMBER

2.2.1 Trim and finish lumber: Wood fascias, door frames, shelving and all other trim and finish lumber shall be B or better Southern Yellow Pine or West Coast Fir in corresponding grade.

- 2.2.2 Moisture content: Moisture content for rough framing lumber shall not exceed 19%. Moisture content for trim and finish lumber shall not exceed 14%.
- 2.2.3 Protection of lumber: All lumber in contact with concrete or masonry or where called for on the drawings shall be given a pressure treatment against deterioration by "wolmanizing" or a similar and approved equal treatment.
- 2.2.4 Hardwood plywood: All plywood used to be installed as shown on the drawings. Provide grades 2-2 interior birch plywood where surfaces are exposed. 2-3 grade birch plywood may be used at all grades where one side is not exposed. Exposed plywood to be suitable for a smooth paint or stained surface.
- 2.2.5 Softwood plywood: PS20; custom grade in accordance with AWI; maximum moisture content of 8% for interior work and 12 percent for exterior work. Woodwork called to be painted shall be "C" or better white pine, Ponderosa pine or as otherwise noted.
- 2.3 PROTECTION
- 2.3.1 All work and materials shall be protected from weather, grease, stain, abuse, etc., after erection by temporary shielding or covering.
- 2.3.2 See Painting, Section 09 91 00, for priming requirements before erection and immediately thereafter.

PART THREE - EXECUTION

3.1 INSPECTION

Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF FINISH HARDWARE

- 3.2.1 Anchoring: Anchor all components firmly into position for long life under hard use. Use only the anchoring devices furnished with the hardware item, unless otherwise specifically directed.

3.3 WORKMANSHIP

- 3.3.1 All items of finish carpentry shall be installed with the latest practices and methods to accomplish a first class installation.
- 3.3.2 Any finish work showing hammer marks, open cut joints, joints that are not mitered, etc., or defects in material will be rejected and replaced at no additional cost to Owner.
- 3.3.3 All work shall be done by workmen who are skilled in the trade. Nails shall be set and holes filled.

3.4 INSPECTION, ADJUSTMENT, AND REPORTING

- 3.4.1 General: Inspect each item of installed finish hardware. Verify that each such item has been installed in strict accordance with the manufacturer's recommendations, is in proper condition, and functions in its intended manner.

END OF SECTION

MILLWORK

PART ONE - GENERAL

1.1 DESCRIPTION

1.1.1 Work included: Furnish and install all millwork indicated on the Drawings or required for a complete and proper installation including, but not necessarily limited to:

1. Counters
2. Shelf & brackets

1.1.2 Related work described elsewhere:

1. Finish Carpentry Section 06 20 00

1.2 QUALITY ASSURANCE

1.2.1 Qualifications of personnel:

1.2.1.1 Throughout progress of the work of this Section, provide at least one person who shall be thoroughly familiar with the specified requirements, completely trained and experienced in the necessary skills, and who shall be present at the site and shall direct all work performed under this Section.

1.2.1.2 In actual installation of the work of this Section, use adequate number of skilled workmen to ensure installation in strict accordance with the approved design and the approved recommendations of the materials manufacturers.

1.3 PRODUCT HANDLING

1.3.1 Protection: Use all means necessary to protect the materials of this Section before, during, and after installation, and to protect the work and materials of all other trades.

1.3.2 Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

1.4 SUBMITTALS

1.4.1 Comply with the provisions of Section 01 33 23.

1.4.2 Submit samples of quartz surfacing.

1.4.3 Submit millwork hardware schedule.

1.4.4 Submit shop drawings showing details, materials, dimensions, and fabrication of millwork.

PART TWO - PRODUCTS

2.1 LUMBER FOR MILLWORK, TRIM AND FINISH

2.1.1 "B" and better, soft textured Southern Yellow Pine or clear West Coast Fir, except where shown otherwise. Provide birch finish trim at all cabinets, lockers, etc.

2.2 INTERIOR GRADE PLYWOOD AND PARTICLE CORE BOARD

2.2.1 All plywood, unless shown otherwise: Interior Grade veneer core birch plywood conforming to the requirements of Product Standard PS-1 of the U.S. Department of Commerce, graded in accordance with the grading rules of the American Plywood Association.

2.2.2 Both surfaces exposed: Use A-A or A-B grade interior fir.

2.2.3 One surface exposed: Use A-D grade fir plywood as shown.

2.2.4 Particle board: Medium density (45 pounds per square foot) conforming to requirements of Commercial Standard CS 236, TIMBLEND by Weyerhaeuser, or approved equal.

2.3 HARDBOARD: 1/4" thick.

2.4 EXTERIOR GRADE PLYWOOD

2.4.1 Concealed use and where otherwise called for DFPA Exterior C-C grade fir plywood.

2.4.2 One face exposed DFPA Exterior A-C grade birch plywood.

2.4.3 All plywood: Conform to Product Standard PS-1 of the U.S. Department of Commerce.

2.5 QUARTZ SURFACING

2.5.1 Non-porous, 3/4" thick HanStone or Architect approved equal.

2.5.2 Color as selected by Architect and Owner price groups 1 through 3.

2.6 PRESSURE TREATED WOOD:

In accordance with Section 06 06 00.

2.6 ROUGH HARDWARE

Provide nails, bolts, screws, brackets, inserts, anchor bolts, buck anchors, and other rough hardware items in types, sizes, and quantities as shown on the Drawings or as required for secure anchorage of item.

2.7 CABINET AND MILLWORK MATERIALS

1. Cabinet doors: 3/4" birch plywood, veneer grade A-B, doors to be flush overlay mounted.
2. Cabinet sides, ends and bottoms (where exposed): 3/4" veneer core birch, grade 1-2 or particleboard as shown.

3. Cabinet back where indicated: 1/4" plywood, fir veneer, grade A-D, or 1/4" hardboard, or as shown.
4. Visible edges of plywood ends shall have a matching solid wood trim edge band full width of plywood edge and mitered at corners. Edge band shall be not less than a 1/4" thick member for plywood up to 1/2" thickness for plywood of and over 5/8" thickness.
5. Trim as indicated on the Drawings.
6. Drawers:
 - a. Facings: 3/4" veneer core birch plywood.
 - b. Bottoms: 1/4" hardboard.
 - c. Sides: 1/2" Y-P C Grade
 - d. Millwork hardware:
 - Pulls: Rockwood 853 or equal, dull chrome finish, holes 4" centers.
 - Hinges: Blum or Architect approved.
 - Catches: Magnetic type heavy duty. Doors over 36" in height shall have catches at top and bottom.
 - Locks: (When required) Hudson #WDL-875. When required, lock can be keyed different and master keyed.
 - Drawer Slides: K.V. #1300 or equal.

2.11 WOOD MILLWORK

- 2.11.1 All millwork shall be of thoroughly dry lumber without imperfections of any kind as to the specified color, finish, or quality of the wood, and free from warps. All glue used for the fabrication of all millwork shall be of the highest grade of waterproof or marine glue. All surfaces shall be machine sanded and where the machine cannot reach surface it shall be hand sanded. Millwork shall be securely fastened in place to walls and/or floors with suitable anchoring devices so that no movement or displacement will result from use.
- 2.11.2 All material shall be thoroughly kiln dried before being milled and shall be protected from moisture or dampness of any nature until completion of the building. No finish material is to be brought to building or installed in building until the building is in a dry and suitable condition to prevent damage to finish.
- 2.11.3 Millwork shall conform to design and details shown. Where practicable, work shall be finished and assembled at mill. All millwork shall be finished smooth and free from machine or tool marks that will show through the finish. All nail heads shall be set to receive putty.

2.12 HARDWARE

- | | |
|---------------------------|------------------------------|
| A. Shelf Standards | K & V #255 - Zinc Plate |
| B. Shelf Rests | K & V #256 - Zinc Plate |
| C. Shelf Standards | K & V #82 - Anochrome |
| D. Shelf Brackets & Rests | K & V #182 & 212 - Anochrome |
| E. Closet Rod (extension) | K & V KV2 |

PART THREE - EXECUTION

3.1 INSPECTION

Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

3.2.1 Fit shelves, partitions, and trim neatly with smooth, sharp cuts, and uniform joints.

3.2.2 Set finish nails below finish surfaces of trim, molding, and other exposed surfaces.

3.2.3 Leave no hammer marks or other defacement in finished surfaces. Torn grain and tool-marked exposed surfaces will not be accepted.

3.2.4 Fill exposed edges of particleboard with rock-hard putty. Leave all exposed surfaces smooth and ready for painting.

3.2.5 Install necessary hardware to provide completely functional facilities.

3.2.6 Verify all measurements at the job before making installation.

3.2.7 Do not store or install millwork in any part of the building until concrete, masonry, and plaster work is dry.

3.2.8 Use bolts to secure wood blocking or nailers to steel.

3.2.9 Where wood furring strips are required, install true to line, level, plumb and well secured in place.

3.2.10 Make all interior finish joints smooth and properly membered or mitered.

3.2.11 Install all lengths of lumber without joints on straight runs where possible but where joints are necessary, make them at an angle of 45 degrees against the light.

3.2.12 Shop-assemble millwork for delivery to the jobsite in sizes easily handled and to ensure passage through building openings, or job fabricate at contractor's option.

3.3 CABINET HARDWARE INSTALLATION

3.3.1 Receive, store and be responsible for cabinet hardware.

1. Properly tag, index and file all keys in a key cabinet.

3.3.2 Apply hardware in accordance with the manufacturer's instructions, fitting accurately, applying securely, and adjusting carefully.

3.3.3 Use care not to injure the Work when applying hardware.

3.3.4 Protect all hardware and leave in good working order, free from defects.

3.4 WORKMANSHIP

All work, including job erection, shall be done by workmen who are skilled in the trade.

3.5 COORDINATION

Carefully coordinate with all other trades to ensure proper and adequate interface of the work of other trades with the work of this Section.

END OF SECTION

WATER REPELLANTS

PART ONE - GENERAL

1.1 DESCRIPTION

1.1.1 Work included: Provide all materials, complete, in place, as shown on the drawings, specified herein or needed for a complete and proper installation.

1.1.2 Related work described elsewhere:

- | | | |
|----|-----------------------|------------------|
| 1. | Masonry Mortaring | Section 04 05 13 |
| 2. | Brick Masonry | Section 04 21 13 |
| 3. | Unit Masonry Cleaning | Section 04 01 20 |

PART TWO - PRODUCTS

2.1 WATER REPELLANTS

Water seal: Prime-A-Pell 200 one coat water repellent by Chemprobe Corp., Garland, Texas, or Siloxane by Prosoco, Kansas City, Kansas or approved equal.

PART THREE - EXECUTION

3.1 CLEANING

In strict accordance with Section 04 01 20 – Unit Masonry Cleaning.

3.2 APPLICATION

3.2.1 Spray on to manufacturer's recommended coverage. Apply evenly until surface is wet without run down.

3.2.2 Application to be made in a dry atmosphere with ambient temperature of product and surface being treated above 40 degrees F.

3.3 FINISHING

All adjacent materials, windows, doors, etc., shall be wiped clean before drying.

3.4 GUARANTEE

Provide a five year manufacturer's written guarantee.

END OF SECTION

THERMAL INSULATION

PART ONE - GENERAL

1.1 DESCRIPTION

1.1.1 Work included: Provide all building insulation required for this work including, but not necessarily limited to:

1. Fiberglass batt insulation above ceilings.
2. Wall cavity insulation.
3. Roof insulation.

1.2 PRODUCT HANDLING

1.2.1 Protection: Use all means necessary to protect the materials of this Section before, during, and after installation and to protect the work and materials of all other trades.

1.2.2 Delivery and storage: Deliver materials to the job site, and store in a safe dry place with all labels intact and legible at time of installation.

1.2.3 Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

PART TWO - PRODUCTS

2.1 INSULATION MATERIALS

2.1.1 6" fiberglass batt insulation: R-19 (unfaced) fiberglass batt insulation as manufactured by Owens-Corning or approved equal installed in walls. Insulation shall be secured and supported as required.

2.1.2 Sound attenuation batts: Shall match thickness of walls where called for on drawings as manufactured by Owens-Corning or approved equal. Provide 4 inch sound attenuation batts above ceilings.

2.2 OTHER MATERIALS

All other materials, not specifically described but required for a complete and proper installation of the Work of this Section, shall be as selected by the Contractor subject to the approval of the Architect.

PART THREE - EXECUTION

3.1 INSPECTION

Examine the areas and conditions under which work of this Section will be installed. Correct Conditions detrimental to proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- 3.2.1 Sound batt insulation: Install in all interior walls to 8" above ceiling and above ceilings 2'0" on each side of all interior walls. Attach sound batts to stud walls either with acoustical sealant applied to gypsum board or by opening flanges of batt insulation and attaching to metal studs with drywall screws.

3.3 VERIFICATION

Upon completion of the installation in each area, visually inspect and verify that all insulation is complete and properly installed.

END OF SECTION

WEATHER BARRIER

PART ONE – GENERAL

1.1 DESCRIPTION

- 1.1.1 Work included: Provide air barrier/weather resistant barrier over exterior of wall sheathing at all locations regardless of whether or not indicated on drawings to protect exterior sheathing and interior walls.

1.2 REFERENCES

A. ASTM International

1. ASTM C920; Standard Specification for Elastomeric Joint Sealants
2. ASTM C1193; Standard Guide for Use of Joint Sealants
3. ASTM D882; Test Method for Tensile Properties of Thin Plastic Sheeting
4. ASTM D1117; Standard Guide for Evaluating Non-woven Fabrics
5. ASTM E84; Test Method for Surface Burning Characteristics of Building Materials
6. ASTM E96; Test Method for Water Vapor Transmission of Materials
7. ASTM E1677; Specification for Air Retarder Material or System for Framed Building Walls

1.3 SUBMITTALS

- A. Refer to Section 01 33 23 – Shop Drawings, Product Data & Samples.
- B. Product Data: Submit manufacturer current technical literature for each component.
- C. Samples: Weather Barrier Membrane, minimum 8-1/2 inches by 11 inch.
- D. Quality Assurance Submittals:
1. Design Data, Test Reports: Provide manufacturer test reports indicating product compliance with indicated requirements.
 2. Manufacturer Instructions: Provide manufacturer's written installation instructions.

1.4 QUALITY ASSURANCE

A. Qualifications

1. Installer shall have experience with installation of commercial weather barrier assemblies under similar conditions.
2. Installation shall be in accordance with weather barrier manufacturer's installation guidelines and recommendations.
3. Source Limitations: Provide commercial weather barrier and accessory materials produced by single manufacturer.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver weather barrier materials and components in manufacturer's original, unopened, undamaged containers with identification labels intact.
- B. Store weather barrier materials as recommended by weather barrier manufacturer.

PART TWO - PRODUCTS

2.1 MANUFACTURER

- A. Tyvek as manufactured by DuPont Building Innovations; Wilmington, Delaware or Architect approved equal.

2.2 MATERIALS

- A. High-performance, spunbonded polyolefin, non-woven, non-perforated, weather barrier and related assembly components.
- B. Performance Characteristics:
 - 1. AATCC-127, Water Penetration Resistance, exceeded at 280.
 - 2. TAPPI T-460, Gurley Hill (sec/100cc) Air infiltration at >1500 seconds.
 - 3. ASTM E 96 Method B(g/m²-24hr.) Water vapor transmission of 200.
 - 4. TAPPI T-41D, Basis weight of 2.7oz/yd.
 - 5. ASTM E96 Method B, Water Vapor Transmission, 28 perms.
 - 6. ASTM E1677, Air Retarder Material Standard Specification, Type I air barrier.

2.3 ACCESSORIES

- A. Seam Tape: 3 inch wide.
- B. Fasteners:
 - 1. For wood frame construction: DuPont™ Tyvek® Wrap Caps, DuPont Weatherization Systems. Nails with large heads or plastic washers.
- C. Sealants
 - 1. Polyurethane or elastomeric sealants.
- D. Adhesives:
 - 1. Provide adhesive recommended by weather barrier manufacturer.

2.4 FLASHING SYSTEMS

2.4.1 Self-adhered flashing systems for use at window and door openings.

- A. DuPont™ Flex Wrap
- B. DuPont™ StraightFlash

C. DuPont™ Thru-Wall Flashing

PART THREE – EXECUTION

3.1 EXAMINATION

- A. Verify substrate and surface conditions are in accordance with weather barrier manufacturer recommended tolerances prior to installation of weather barrier and accessories.

3.2 I INSTALLATION

- A. Install weather barrier over exterior face of exterior wall substrate in accordance with manufacturer recommendations.
- B. Install weather barrier prior to installation of windows and doors.
- C. Start weather barrier installation at a building corner, leaving 6-12 inches of weather barrier extended beyond corner to overlap.
- D. Install weather barrier in a horizontal manner starting at the lower portion of the wall surface with subsequent layers installed in a shingling manner to overlap lower layers. Maintain weather barrier plumb and level.
- E. Sill Plate Interface: Extend lower edge of weather barrier over sill plate interface 3-6 inches. Secure to foundation with elastomeric sealant as recommended by weather barrier manufacturer.
- F. Window and Door Openings: Extend weather barrier completely over openings.
- G. Overlap weather barrier
1. Exterior corners: minimum 12 inches.
 2. Seams: minimum 6 inches.
- H. Weather Barrier Attachment:
1. Attach weather barrier to studs through exterior sheathing. Secure using weather barrier manufacturer recommended fasteners, space 12 -18 inches vertically on center along stud line, and 24 inch on center, maximum horizontally.

3.3 SEAMING

- A. Seal seams of weather barrier with seam tape at all vertical and horizontal overlapping seams.
- B. Seal any tears or cuts as recommended by weather barrier manufacturer.

END OF SECTION

UNDER SLAB VAPOR
BARRIER/RETARDER

PART ONE - GENERAL

1.1 DESCRIPTION

- A. Work included: Provide vapor barrier, seam tape, mastic, pipe boots, and detail strip required for this work including, but not necessarily limited to:

1.2 RELATED WORK DESCRIBED ELSEWHERE

- A. Cast-In-Place Concrete Section 03 31 00

1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM)
1. ASTM E 1745-09 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete slabs.
 2. ASTM E 154-99 (2005) Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.
 3. ASTM E 96-05 Standard Test Methods for Water Vapor Transmission of Materials.
 4. ASTM F 1249-06 Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor.
 5. ASTM E 1643-09 Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
- B. American Concrete Institute (ACI)
1. ACI 302.2R-06 Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials.

1.4 SUBMITTALS

1.4.1 General: Comply with provisions of Section 01 33 23.

1.4.2 Manufacturer's data: Within 30 calendar days after award of the Contract, submit:

- A. Complete materials list of all items proposed to be furnished and installed under this Section.
- B. Manufacturer's specifications and other data required to demonstrate compliance with the specified requirements.
- C. Manufacturer's recommended installation procedures.
- D. Independent laboratory test results showing compliance with ASTM and ACI Standards. The manufacturer's recommended installation procedures, when approved by the Architect, will become the basis for inspecting and accepting or rejecting actual installation procedures used on the Work.

PART TWO - PRODUCTS

2.1 MATERIALS

A. Vapor barrier products:

1. Stego Wrap Vapor Barrier (15-mil) by Stego Industries LLC., (877) 464-7834
2. Acceptable material/manufacturers:
 - a. Yellow Guard, Poly America, Grand Prairie, TX
 - b. Viper Vaporcheck II, Peioria, ILL
3. Architect approved equal.

B. Vapor barrier shall have all the following qualities:

1. Maintain permeance of less than 0.01 Perms [grains/(ft² · hr · inHg)] as tested in accordance with mandatory conditioning tests per ASTM E1745 Section 7.1 (7.1.1-7.1.5).
2. Other performance criteria:
 - a. Strength: ASTM E1745 Class A.
 - b. Thickness: 15 mils minimum
3. Provide third party documentation that all testing was performed on a single production roll per ASTM E1745 Section 8.1
4. Warranty: (a) compliance with the designated ASTM E1745 classification, and (b) no manufacturing defects in the product for, at least, the Life of the Building.

2.2 ACCESSORIES

A. Vapor barrier accessories:

1. All accessories by Stego Industries LLC., (877) 464-7834 or Architect approved equal.
 - a. Seams: Stego tape
 - b. Sealing penetrations of vapor barrier:
 - 1) Stego mastic and tape
 - c. Perimeter/terminated edge seal:
 - 1) Stego Crete Claw (textured tape)
 - 2) Stego Term Bar
 - 3) StegoTack Tape (double-sided sealant tape)
 - 4) One-sided seaming tape is not a recommended method of sealing at the terminated edge.
 - d. Penetration Prevention: Beast Foot
 - e. Vapor Barrier-Safe Hand Screed System: Beast Screed

PART THREE - EXECUTION

3.1 PREPARATION

A. Ensure that subsoil is approved by Architect or Geotechnical Engineer.

1. Level and compact base material.

- B. Contact vapor barrier manufacturer to schedule a pre-construction meeting and to coordinate a review, in-person or digital, of the vapor barrier installation.

3.2 INSTALLATION

- A. Install vapor barrier in accordance ASTM E1643.

1. Unroll vapor barrier with the longest dimension parallel with the direction of the concrete placement and face laps away from the expected direction of the placement whenever possible.
2. Extend vapor barrier to the perimeter of the slab. If practicable, terminate it at the top of the slab, otherwise (a) at a point acceptable to the structural engineer or (b) where obstructed by impediments, such as dowels, water stops, or any other site condition requiring early termination of the vapor barrier. At the point of termination, seal vapor barrier to the foundation wall, grade beam or slab itself.
 - a. Seal vapor barrier to the entire slab perimeter using manufacturer's textured tape with a surface that creates a mechanical seal to freshly-placed concrete, per manufacturer's instructions.
 - OR
 - b. Seal vapor barrier to the entire perimeter wall or footing/grade beam with manufacturer's double-sided tape, or both termination bar and double-sided tape, per manufacturer's instructions. Ensure the concrete is clean and dry prior to adhering tape.
3. Overlap joints 6 inches and seal with manufacturer's seam tape.
4. Apply seam tape/textured tape/double-sided tape to a clean and dry vapor barrier.
5. Seal all penetrations (including pipes) per manufacturer's instructions.
6. Avoid the use of stakes driven through vapor barrier by utilizing screed and forming systems that will not leave punctures in the vapor barrier.
7. Repair damaged areas with vapor barrier material of similar (or better) permeance, puncture and tensile.

END OF SECTION

FIBERGLASS SHINGLES

PART ONE - GENERAL

1.1 DESCRIPTION

- A. Work included: Provide all fiberglass shingles and ice and water shield underlayment as shown on the drawings, specified herein, or needed for a complete and proper installation.

1.2 QUALITY ASSURANCE

- A. Qualifications of manufacturer: Products used in the work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of a minimum of 3 years of successful production acceptable to the Architect.
- B. Qualifications of subcontractor: The subcontractor and his personnel shall be currently approved by the manufacturer of the approved products as qualified to install the materials of this Section.

1.3 SUBMITTALS

- A. General: Within 30 calendar days after award of Contract, submit:
1. Sample copy of manufacturer's warranty.
 2. Manufacturer's specifications and other data required to demonstrate compliance with specified requirements.
 3. Manufacturer's recommended methods of installation.
 4. Two sample boards representing full range of color.

Manufacturer's specifications, when approved by the Architect, will represent the minimum standards required. Additional work shall be as required in PART THREE of this Section.

1.4 DELIVERY AND STORAGE

- A. Deliver all packaged materials to the job site in their original unopened containers with all labels intact and legible at time of inspection.
- B. Store materials between 60 degrees F and 80 degrees F. If exposed to lower temperature, restore to proper temperature before using.
- C. Do not stack bundles of shingles more than 4 ft. high.

1.4.2 Protection: Use all means necessary to protect the materials of this Section before, during, and after installation and to protect the work and materials of all other trades.

1.4.3 Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

1.5 MANUFACTURER'S WARRANTY

- A. Manufacturer shall provide a minimum 20 year material and weather tightness warranty

1.6 INSTALLER'S GUARANTEE

- A. Upon completion of the work of this Section, and as a condition of its acceptance, deliver to the Owner two copies of a written guarantee as approved by the Architect, agreeing to repair any leaks in the roof for a period of two years following acceptance of this work, without additional cost to the Owner.

PART TWO - PRODUCTS

2.1 GENERAL

- A. The following manufacturer's and shingles are approved for this project:

1. Certainteed, Valley Forge, PA.
2. Owens Corning Fiberglass, Toledo, Ohio
3. GAF, Port Arthur, Texas
4. Tamko, Joplin, Missouri

2.2 SUBSTITUTIONS

- A. Proposed substitutions received after bidding will not be accepted. Proposed substitutions will be judged on:
1. Class "A" fire rating.
 2. Wind resistant construction - minimum 70 mph.
 3. "Energy Star" compliant surface treatment.
 4. Manufacturer to have manufactured proposed shingle minimum of five (5) years.

2.3 UNDERLAYMENT

- A. Self-adhered roofing underlayment as manufactured by W.R. Grace & Co. or Architect approved equal.

PART THREE - EXECUTION

3.1 INSPECTION

- A. Assure that surfaces to which shingles are to be applied are uniform, smooth, sound, clean, dry, and free of irregularities.
- B. Verify that installation of metal flashings has been completed.
- C. Verify that work of other trades that penetrate roof deck has been completed.
- D. Do not start work until unsatisfactory conditions are corrected.

3.2 UNDERLAYMENT

- A. Install as per manufacturer's recommendations.

3.3 STEP FLASHING

- A. Nail each flashing piece to the roof at the top edge with two roofing nails. Apply shingles on top of metal set in Black Plastic Cement.
- B. To allow for possible roof movement, do not nail flashing to wall or chimney. Carry a metal cap or the wall siding material down over the step flashing.
- C. Flashing to be sawn into brick as shown on plans.

3.4 PLACEMENT

- A. **Starter Strip:** Use shingles with tabs cut off as a starter strip. Starter strip shingles shall overhang the eaves and rake by 1/2". Nail starter strip using same spacing as for shingles, and locate nails about 3" up from the bottom edge. Avoid nailing where cut-outs will occur on the first course of shingles.
- B. **Chalk Lines:**
 - 1. Snap chalk lines to guide application and maintain level lines parallel with the eaves and ridge.
 - 2. Hip roofs: Strike vertical chalk line. Apply shingles left and right as described in the application instructions.
- C. **Trimming Shingles:**
 - 1. Gable roofs: Cut-off at rakes allowing 1/2" overhang.
 - 2. Hip roofs: Cut-off even with hips.

3.5 NAILING/FASTENERS

- A. Three tab shingles: Place nails 5-5/8" above shingle butt edge 1" from each side edge and 1" to either side of the two cut-outs. Place one spot Shingle Tab cement, 1" diameter, under each shingle tab immediately upon installation. Stapling of shingles will not be accepted.

3.6 SQUARE TAB STRIP SHINGLES

- A. Snap chalk lines parallel to the edge (rake) of roof 5-1/2", 11-1/2", 17-1/2", 23-1/2", 29-1/2" and 35-1/2" in from the edge. Horizontal chalk lines should be snapped every other row 10" apart. Use these guides to keep the shingle cut-outs in alignment during application.
 - 1. **First course:** Start the first "course" (or "row") with a full shingle. Align it to the 35-1/2" chalk line with the butt edge flush with the starter course edge. This will give the required 1/2" overhang on both rake and eaves.
 - 2. **Second course:** Cut 6" off the outside edge of next course and align it to the 29-1/2" chalk line.

3. Third course: Cut 12" off the outside edge of the next course and align it to the 23-1/2" chalkline.
4. Succeeding courses: Repeat this pattern on up the roof cutting six inches off each succeeding row. When the last piece is installed, which is 6" wide, return to eaves and apply full shingles in each row up the roof. Start the 7th row with a full shingle at the rate repeating the above pattern. Caution: A cut-out must never come over a cut-out in the row immediately below.
5. Alternate offsets of 4" and 5" are not acceptable
6. For best distribution of color blend, each row shall be run at least four shingles across the roof before proceeding to the next row.
7. Nailing instructions: Place one nail 1" from each end of shingle and one 12" in from each end, four nails in each shingle. All four nails must be placed on a line 5-5/8" above the butt edge of the shingle and just below the Seal-P-Matic Strip.

3.7 HIPS AND RIDGES

- A. Three tab shingles: Hip and ridge shingles can be cut from shingles used to cover roof. Cut 3 ridge shingles per 3 tab shingle. Bend each shingle equally over the ridge.
- B. If weather is cold, warm shingles until flexible to prevent cracking.
- C. Start on end of ridge opposite prevailing wind. Expose shingles 5", using two nails each, 5-1/2" from the exposed butt end and 1" from the side edges.
- D. Start hips at bottom. Apply ridge after hips are installed. Finish with last ridge cap piece set in black plastic cement. Do not leave any nails exposed.

3.8 ADJUST AND CLEAN

- A. Replace damaged shingles.
- B.. Remove excess shingles not part of extra stock and debris from project site.

END OF SECTION

FLASHING AND SHEET METAL

PART ONE - GENERAL

1.1 DESCRIPTION

1.1.1 Work included: Furnish and install the metal flashing and other sheet metal work as shown and called for on the drawings, as specified herein and as required to prevent penetration of water through the roof or exterior walls of the building and permit the proper control of discharged water.

1.2 QUALITY ASSURANCE

1.2.1 Standards: The "Architectural Sheet Metal Manual", latest revision, of the Sheet Metal and Air Conditioning Contractors National Association, Inc., shall be an applicable standard for method and quality work under this Section where not otherwise shown on the contract drawings or specified.

1.2.2 Qualifications of Manufacturer: Products used in the work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable to the Architect.

1.2.3 Qualification of Installers: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

1.3 SUBMITTALS

1.3.1 General: Comply with the pertinent provisions of Section 01 33 23.

1.3.2 Product data: Submit the following to the Architect for approval:

1. Manufacturer's specifications and other data required to demonstrate compliance with the specified requirements.

1.4 PRODUCT HANDLING

1.4.1 Protection: Use all means necessary to protect materials of this Section before, during, and after installation and to protect installed work and materials of all other trades.

1.4.2 Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

PART TWO - PRODUCTS

2.1 SHEET METAL

2.1.1 All metal edge and drainage components shall be as manufactured by Exceptional Metals, Saginaw, Michigan, or Architect approved equal.

2.1.2 Metal edge components shall be selected from manufacturer's standard details for fascia, coping, edge and termination.

2.1.3 Aluminum gutters and downspouts shall be fabricated as long as practical. Profile for gutters shall be manufacturer's standard. Gutters shall have a closed face. Concealed clips and straps for all gutters and downspouts shall be spaced not to exceed 6'0" o.c. Secure downspouts with straps at the top and bottom and in between as may be required to insure a proper installation. Provide expansion joints in gutters not to exceed 32'0" o.c.

2.1.4 Colors shall be selected from manufacturer's standard Kynar finish colors.

2.2 NAILS, RIVETS AND FASTENERS

2.2.1 Nails, rivets and fasteners shall be same material as metal to secured or shall be of durable compatible materials which are regularly recommended for the intended use. Nails shall be No. 10 gauge (.1019" diameter) or larger, needle point and long enough to penetrate wood 1" or masonry and concrete 2".

2.3 MATERIALS

2.3.1 Solder: Shall conform to ASM specification B32, Composition 50% tin and 50% lead.

2.3.2 Flux: Rosin, muriatic acid neutralized with zinc or an approved brand of soldering paste.

2.3.3 Bituminous Plastic Cement: Shall conform to Federal Specification SS-C-153, Type I. It shall be delivered in the manufacturer's original sealed containers.

PART THREE - EXECUTION

3.1 INSPECTION

3.1.1 Surface Conditions: Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence. Do not proceed with sheet metal installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.2 INSTALLATION

3.2.1 Install the work of this Section in strict accordance with the recommendations of the manufacturer as approved by the Architect.

3.3.1 Securely anchor in place by approved screw fastener.

END OF SECTION

JOINT SEALANTS

PART ONE - GENERAL

1.1 DESCRIPTION

1.1.1 Work included: Throughout the Work, caulk and seal all joints where shown on the Drawings and elsewhere as required to provide a positive barrier against passage of air and passage of moisture.

1.1.2 Related work described elsewhere:

- A. Adhere strictly to the caulking and sealant details shown on the Drawings.

1.2 QUALITY ASSURANCE

1.2.1 Qualifications of Manufacturers: Products used in the work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable to Architect.

1.2.2 Qualifications of installers:

1.2.2.1 Proper caulking and proper installation of sealants require that installers be thoroughly trained and experienced in the necessary skills and thoroughly familiar with the specified requirements.

1.2.2.2 For caulking and installation of sealant throughout the Work, use only personnel who have been specifically trained in such procedures and who are completely familiar with the joint details shown on the Drawings and the installation requirements called for in this Section.

1.3 SUBMITTALS

1.3.1 General: Comply with provisions of Section 01 33 23.

1.3.2 Manufacturers data: Within 30 calendar days after award of the Contract, submit:

- A. A complete materials list showing all items proposed to be furnished and installed under this Section.
- B. Sufficient data to demonstrate that all such materials meet or exceed the specified requirements.
- C. Specifications, installation instructions, and general recommendations from the materials manufacturer showing procedures under which it is proposed that the materials will be installed.

Upon approval by the Architect, the proposed installation procedures will become the basis for inspecting and accepting or rejecting actual installation procedures used on the Work.

1.4 PRODUCT HANDLING

1.4.1 Deliver and storage: Deliver all materials of this Section to the job site in the original unopened containers with all labels intact and legible at time of use. Store only under conditions recommended by the manufacturers. Do not retain on the job site any material which has exceeded the shelf life recommended by its manufacturer.

1.4.2 Protection: Use all means necessary to protect the materials of this Section before, during, and after installation and to protect the work and materials of all other trades.

1.4.3 Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

PART TWO - PRODUCTS

2.1 EXTERIOR VERTICAL APPLICATIONS

2.1.1 Metal to masonry: MasterSeal NP 1 as manufactured by BASF, Shakope, MN or approved equal. Color shall be as selected by the Architect from manufacturer's standard colors.

Masonry to masonry, precast to masonry and E.I.F.S. to masonry: MasterSeal NP 2 as manufactured by BASF, Shakope, MN or approved equal. Color shall be as selected by the Architect from manufacturer's standard colors.

2.2 EXTERIOR HORIZONTAL APPLICATIONS

2.2.1 MasterSeal SL 2 as manufactured by BASF, Shakope, MN or approved equal. Color shall be as selected by the Architect from manufacturer's standard colors.

2.3 INTERIOR VERTICAL APPLICATIONS

2.3.1 MasterSeal NP 1 as manufactured by BASF, Shakope, MN or approved equal. Color shall be as selected by the Architect from manufacturer's standard colors.

2.4 INTERIOR HORIZONTAL APPLICATIONS

2.4.1 At all interior floor joints MasterSeal SL1 as manufactured by BASF, Shakope, MN or approved equal. Color shall be as selected by the Architect from manufacturer's standard colors.

2.5 JOINT BACKING

Furnish " Backer-Rod" by BASF Products or approved equal.

2.6 OTHER MATERIALS

All other materials, not specifically described but required for complete and proper caulking and installation of sealants, shall be first quality of their respective kinds, new, and as selected by the Contractor subject to the approval of the Architect.

PART THREE - EXECUTION

3.1 INSPECTION

Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 PREPARATION

3.2.1 Steel surfaces:

3.2.1.1 Steel surfaces in contact with sealant shall be sandblasted or, if sandblasting would not be practical or would damage adjacent finish, the metal shall be scraped or wire-brushed to remove mill scale.

3.2.1.2 Use solvent to remove oil and grease, wiping the surfaces with clean rags.

3.2.1.3 Remove protective coatings on steel by sandblasting or by a solvent that leaves no residue.

3.3 INSTALLATION OF BACKUP MATERIAL

Use only the backup material recommended by the manufacturer of the sealant and approved by the Architect for the particular installation, compressing the backup material 25% to 50% to secure a positive and secure fit. When using backup of tube or rod stock, avoid lengthwise stretching of the material. Do not twist or braid hose or rod backup stock.

3.4 PRIMING

Use only the primer recommended by the manufacturer of the sealant and approved by the Architect for the particular installation. Apply the primer in strict accordance with the manufacturer's recommendations as approved by the Architect.

3.5 BOND-BREAKER INSTALLATION

Install an approved bond-breaker where recommended by the manufacturer of the sealant and where directed by the Architect, adhering strictly to the installation recommendations as approved by the Architect.

3.6 INSTALLATION OF SEALANTS

3.6.1 General: Prior to start of installation in each joint, verify the joint type according to the details in the Drawings, and verify that the required proportion of width of joint to depth of joint has been secured.

3.6.2 Equipment: Apply sealant under pressure with hand or power-actuated gun or other appropriate means. Guns shall have nozzle of proper size and shall provide sufficient pressure to completely fill joints as designed.

3.6.3 Masking: Thoroughly and completely mask all joints where the appearance of sealant on adjacent surfaces would be objectionable.

3.6.4 Installation of sealant: Install the sealant in strict accordance with the manufacturer's recommendations as approved by the Architect, thoroughly filling all joints to the recommended depth.

3.6.5 Tooling: Tool all joints to the profile shown on the Details in the Drawings.

3.6.6 Cleaning up:

3.6.6.1 Remove masking tape immediately after joints have been tooled.

3.6.6.2 Clean adjacent surfaces free from sealant as the installation progresses. Use solvent or cleaning agent as recommended by the sealant manufacturer.

END OF SECTION

SECTIONAL DOORS

PART ONE - GENERAL

1.1 DESCRIPTION

1.1.1 Work included: Provide overhead sectional doors, complete, in place, as shown on the Drawings, specified herein, and needed for a complete and proper installation.

1.2 QUALITY ASSURANCE

1.2.1 Qualifications of manufacturer: Products used in the work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable to the Architect.

1.2.2 Qualifications of installers: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 SUBMITTALS

1.3.1 General: Comply with provisions of Section 01 33 23.

1.3.2 Manufacturer's data: Within 30 calendar days after award of the Contract, submit:

1. Complete materials list of all items proposed to be furnished and installed under this Section.
2. Manufacturer's specifications and other data required to demonstrate compliance with the specified requirements.
3. Shop Drawings showing precise dimensions of the work of this Section, and all other data needed to ensure proper and adequate provision to accommodate the work of this Section.
4. Manufacturer's recommended installation procedures.

The manufacturer's recommended installation procedures, when approved by the Architect, will become the basis for inspecting and accepting or rejecting actual installation procedures used on the work.

1.4 PRODUCT HANDLING

1.4.1 Protection: Use all means necessary to protect materials of this Section before, during, and after installation and to protect installed work and materials of all other trades.

1.4.2 Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

1.4.3 Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the Architect.

PART TWO - PRODUCTS

2.1 INSULATED SECTIONAL DOOR

Furnish and install Model 1500 steel garage doors as manufactured by Overhead Door Corporation, Dallas, Texas or Architect approved equal. Doors shall have a variety of window options.

2.1.3 Operation: Powered.

2.2 OTHER MATERIALS

All other materials, including but not necessarily limited to anchorage devices for the work of this Section, shall be only as recommended by the manufacturer and as approved by the Architect.

PART THREE - EXECUTION

3.1 INSPECTION

Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 COORDINATION

Use all means necessary to coordinate with other trades and to ensure that proper and adequate provision is made in the work of other Sections to accommodate installation of the work of this Section.

3.3 INSTALLATION

Install the work of this Section in strict accordance with the recommendations of the manufacturers as approved by the Architect, anchoring all components firmly into position for long life under hard use.

END OF SECTION

DOOR HARDWARE

PART ONE - GENERAL

1.1 DESCRIPTION

1.1.1 Work included: Furnish and deliver to the job site all finish hardware required to complete the Work as indicated on the Drawings and specified herein. Provide all trim attachments, and fastenings specified or required for proper complete installation.

1.2 QUALITY ASSURANCE

1.2.1 Qualifications of manufacturers: Products used in the work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable to the Architect.

1.2.2 Fire rated openings: Comply with the requirements of Underwriters' Laboratories, Inc.

1.2.3 Supplier Qualifications: A recognized architectural door finish hardware supplier, with warehouse facilities in the project's vicinity and that employs an Architectural Hardware Consultant (AHC).

1.3 SUBMITTALS

1.3.1 General: Comply with the provisions of Section 01 33 23.

1.3.2 Product data: If proposed products are other than as specified, within 35 calendar days after award of the Contract, submit:

- A. Complete materials list of all items proposed to be furnished and delivered under this Section.
 - 1. Identify each hardware item by manufacturer, the manufacturer's catalog number, and the location of the item in the Work.
 - 2. Submit a detailed, vertical type hardware schedule conforming to DHI format organized into "hardware sets".
- B. Manufacturer's specifications, catalog cuts, and other data required to demonstrate compliance with specified hardware.

Approval of the hardware list by the Architect shall not relieve the Contractor from the responsibility for furnishing all required finish hardware.

1.3.3 Templates: In a timely manner to ensure orderly progress of the Work, deliver templates or physical samples of the approved finish hardware items to pertinent manufacturers of interfacing items such as doors and frames.

1.4 PRODUCT HANDLING

1.4.1 Packing and marking: Individually package each unit of finish hardware, complete with proper fastenings and appurtenances, clearly marked on the outside to indicate the contents and specific location in the Work.

1.4.2 Protection: Use all means necessary to protect materials of this Section before, during and after delivery to the job site and to protect the Work and materials of all other trades.

1.4.3 Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

PART TWO - PRODUCTS

2.1 Hardware shall be as manufactured by EMTEK or Architect approved equal.

PART THREE – EXECUTION

Not Used.

END OF SECTION

GYPSUM BOARD ASSEMBLIES

PART ONE - GENERAL

1.1 DESCRIPTION

1.1.1 Work included: Provide all gypsum drywall, gypsum ceiling, gypsum furr downs and accessories, complete, in place, as shown on the Drawings, specified herein, and needed for a complete and proper installation.

1.2 QUALITY ASSURANCE

1.2.1 Qualifications of manufacturer: Products used in the work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable by the Architect.

1.2.2 Qualifications of installers: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 SUBMITTALS

1.3.1 General: Comply with provisions of Section 01 33 23.

1.3.2 Manufacturer's data: Within 30 calendar days after award of the Contract, submit:

- A. Complete materials list of all items proposed to be furnished and installed under this Section.
- B. Manufacturer's specifications and other data required to demonstrate compliance with the specified requirements.
- C. Manufacturer's recommended installation procedures.

The manufacturer's recommended installation procedures, when approved by the Architect, will become the basis for inspecting and accepting or rejecting actual installation procedures used on the Work.

1.4 PRODUCT HANDLING

1.4.1 Protection: Use all means necessary to protect materials of this section before, during, and after installation and to protect installed work and materials of all other trades.

1.4.2 Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

1.4.3 Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the Architect.

PART TWO - PRODUCTS

2.1 GENERAL

A. Faceboards:

1. 5/8" thick Fire Code "Type X" Gypsum Panels (Provide 5/8" thick Dens-Shield tile backer board at all ceramic tile locations, 5/8" thick MR board at all other wet locations, except use 1/2" Dens-Shield on partitions between water closets).
2. 1/2" DensGlass Gold Exterior Guard on exterior face of all outside walls.
3. 5/8" Fiberock wall board panels (fire resistant) by US Gyp. (where noted on drawings).
4. High Impact Gyp: USG sheetrock brand Mold Tough VHI Firecode X Core Panels.

B. Trim No. 200-A.

C. Corner bead No. 104 Dur-A-Bead.

D. Control joint No. 093

PART THREE - EXECUTION

3.1 GYPSUM PANEL INSTALLATION

3.1.1 Gypsum panel erection: For walls 12'-0" tall or less, apply gypsum panels parallel to studs (vertically). Position edges over studs for attachment. Use maximum practical lengths to eliminate end joints. Fit edges closely, but not forced together. Stagger joints on opposite sides of partitions.

For walls over 12'-0" tall, apply gypsum panels perpendicular to studs. Position ends over studs for perpendicular application. Use maximum practical lengths to minimize end joints. Fit ends and edges closely, but not forced together. Stagger joints on opposite sides of partition.

For single-layer parallel application of gypsum panels, space screws 12" o.c. in field of panels and along vertical abutting edges. For perpendicular panel application, space screws 16" o.c. in field and 8" o.c. staggered along abutting end joints.

For double-layer screw attachment, space screws 24" o.c. in base layer and 8" o.c. at edges and 12" o.c. in field in face layer. Apply both layers of gypsum panels vertically with joints in face layer offset from base layer joints. For 1/2" and 5/8" panels, use 1" screws for base layer and 1-5/8" screws for face layer.

3.5 ACCESSORY APPLICATION

A. Joint system: Finishing of all face panel joints and internal angles by painting contractor.

B. Laminating adhesive: Spread to provide 1/2" adhesive beads 4-1/2" o.c. for full sheet lamination. For strip lamination, apply adhesive in vertical strips of four 1/2" beads 1-1/2" to 2" o.c. Space strips 24" o.c.

C. Corner bead: Reinforce all vertical and horizontal exterior corners with corner bead fastened with 1-1/8" drywall screws 9" o.c. on both flanges along entire length of bead.

- D. Metal trim: Where assembly terminates against masonry or other dissimilar material, apply metal trim over panel edge and fasten with 1-1/8" drywall screws 9" o.c.
- E. P-1 vinyl trim: Slip trim over panel with long flange behind panel. Install panel with trim firmly abutting surface.
- F. Screws: Power-driven at least 3/8" from edges or ends of panel to provide uniform dimple 1/32" deep.
- G. Control joints: Break panel behind joint and back by double framing members (and 2" wide gypsum panel strip). Attach control joint to face layer with 1-1/8" drywall screws spaced 6" o.c. on both flanges along entire length of joint. Locate control joints where shown on plans or a maximum of 30 feet in continuous unbroken expanses of walls and furredowns. Locate control joints a minimum of 30' o.c. of continuous gypsum ceiling.
- H. Reveal molding: Extruded aluminum as manufactured by Fry Reglet Corp. or approved equal. Sizes as shown on drawings.
- I. Aluminum breakaway clip (AB): 2" x 2" x 2 1/2" designed to melt and break away when exposed to fire.

3.6 TEXTURE COAT

By Painting Contractor; see Section 09 91 00.

3.7 CLEANING UP

Use all necessary care during execution of this portion of the work to prevent scattering of gypsum wallboard scraps and dust and to prevent tracking of joint and finishing compound onto floor surfaces. At completion of each segment of installation in a room or space, promptly pick up and remove from the working area all scraps, debris, and surplus material of this Section.

END OF SECTION

PAINTING

PART ONE - GENERAL

1.1 DESCRIPTION

1.1.1 Work included: Paint, caulk all joints of dissimilar materials, and finish all exterior and interior exposed surfaces listed on the Painting Schedule in Part Three of this Section, in accordance with the type of finish shown on the Finish Schedules in the Drawings and as specified herein. Tape and float all interior gypsum board surfaces. Provide firetaping as required.

1.1.2 Related work described elsewhere: Priming or priming and finishing of certain surfaces are specified to be factory performed or install performed under pertinent other sections.

1. Gypsum Board Assemblies Section 09 21 00

1.1.3 Work not included:

1.1.3.1 Do not include painting which is specified under other Section.

1.1.3.2 Unless otherwise indicated, painting is not required on surfaces in concealed areas and inaccessible areas such as furred spaces, foundation spaces, utility tunnels, pipe spaces and duct shafts.

1.1.3.3 Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze, and similar finished materials will not require painting under this Section except as may be specified herein.

1.1.3.4 Do not paint any moving parts of operating units; mechanical or electrical parts such as valve operators, linkages, sinkages, sensing devices, and motor shafts, unless otherwise indicated.

1.1.3.5 Do not paint over any required labels or equipment identification, performance rating, name, or nomenclature plates.

1.1.4 Definitions: The term "paint" as used herein, means all coating systems materials including primers, emulsions, epoxy, enamels, sealers, fillers, and other applied materials whether used as prime, intermediate, or finish coats.

1.2 QUALITY ASSURANCE

1.2.1 Qualification of manufacturer: Products used in the work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable to the Architect.

1.2.2 Qualifications of workmen:

1.2.2.1 Provide at least one person who shall be present at all times during execution of the work of this Section who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this Section.

1.2.2.2 Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the methods and materials to be used.

1.2.2.3 In acceptance or rejection of the work of this Section, the Architect will make no allowance for lack of skill on the part of workmen.

1.2.3 Paint coordination:

1.2.3.1 Provide finish coats which are compatible with the prime coats used.

1.2.3.2 Review other Section of these Specifications as required, verifying the prime coats to be used and assuring compatibility of the total coating system for the various substrata.

1.2.3.3 Upon request, furnish information on the characteristics of the specific finish materials to ensure that compatible prime coats are used.

1.2.3.4 Provide barrier coats over noncompatible primers, or remove the primer and reprime as required at no additional cost to the owner.

1.2.3.5 Notify the Architect in writing of anticipated problems in using the specified coating systems over prime coating supplied under other Sections.

1.3 SUBMITTALS

1.3.1 General: Comply with provisions of Section 01 33 23.

1.3.2 Material Safety Data Sheets (MSDS) shall not be submitted as part of the submittal package. They are not a requirement of the Contract Documents and will be returned to the Contractor.

1.3.3 Manufacturers' data: Within 30 calendar days after award of the Contract, submit:

1. Complete materials list of all items proposed to be furnished and installed under this Section.
2. Manufacturer's specifications and other data required to demonstrate compliance with the specified requirements.
3. For information only, submit two copies of manufacturer's specifications, including paint analysis and application instructions for each materials. Indicate by transmittal that copy of each manufacturer's instructions has been distributed to the applicator.

Upon receipt of review comments, make all revisions and corrections, and resubmit if so required.

1.4 PRODUCT HANDLING

1.4.1 Delivery of materials: Deliver all materials to the job site in original, new, and unopened containers bearing the manufacturer's name and label showing at least the following information:

1. Name or title of the material,
2. Fed. Spec. number, if applicable,
3. Manufacturer's stock number,
4. Manufacturer's name,
5. Contents by volume for major constituents,
6. Thinning instructions,

7. Application instructions.

1.4.2 Storage of materials: Provide proper storage to prevent damage to, and deterioration of, paint materials.

1.4.3 Protection: Use all means necessary to protect the materials of this Section before, during, and after installation and to protect the work materials of all other trades.

1.4.4 Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

1.5 JOB CONDITIONS

1.5.1 Surface and Air Temperatures: Do not apply any paint materials when the temperature of surfaces to be painted and the surrounding air temperature are below 55 degrees F, unless otherwise permitted by the manufacturer's printed instructions as approved by the Architect. HVAC equipment shall be functioning minimum 48 hours before painting shall begin.

1.5.2 Weather Conditions: Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceed 85%; or to damp or wet surfaces; unless otherwise permitted by the manufacturer's printed instructions as approved by the Architect. Applications may be continued during inclement weather within the temperature limits specified by the paint manufacturer during application and drying period.

1.6 EXTRA STOCK

1.6.1 Amount: Upon completion of the work of this Section, deliver to the Owner an extra stock equaling 3% of each color, type, and gloss of paint used on the Work.

1.6.2 Packaging: Tightly seal each container and clearly label with the contents and location used.

PART TWO - PRODUCTS

2.1 PAINT MATERIALS

2.1.1 Design is based on use of paint products manufactured by Sherwin-Williams Company. Equal products by Benjamin Moore, Farrell Calhoun and Pittsburg Paints will be acceptable when approved by the Architect.

2.1.2 General: Provide the best quality grade of the various types of coatings as regularly manufactured by paint materials manufacturers approved by the Architect. Materials not displaying the manufacturer's identification as a standard best-grade product will not be acceptable.

2.1.3 Durability: Provide paints of durable and washable quality. Do not use paint materials which will not withstand normal washing as required to remove pencil marks, ink, ordinary soil, and similar material without showing discoloration, loss of gloss, staining, or other damage.

2.1.4 Colors and Glosses: The Architect will select colors to be used in the various types of paint specified and will be the sole judge of acceptability of the various glosses obtained from the materials proposed to be used in the Work.

2.1.5 Color Selection: The Architect shall select a basic color to be used on 70% of painted surfaces, The remaining 30% of the painted surfaces shall receive any of twelve colors selected from any of the manufacturer's standard colors. Refer to the finish schedule for any additional painting requirements.

2.1.6 Undercoats and thinners: Provide undercoat paint produced by the same manufacturer as the finish coat. Use only the thinners recommended by the paint manufacturer, and use only to the recommended limits. Insofar as practicable, use undercoat, finish coat, and thinner material as parts of a unified system of paint finish.

2.1.7 Standards: Provide paint materials which meet or exceed the standard listed for each application in the Painting Schedule in PART THREE of this Section.

2.2 APPLICATION EQUIPMENT

2.2.1 General: For application of the approved paint, use only such equipment as is recommended for application of the particular paint by the manufacturer of the particular paint, and as approved by the Architect.

2.2.2 Compatibility: Prior to actual use of application equipment, use all means necessary to verify that the proposed equipment is actually compatible with the material to be applied and that the integrity of the finish will not be jeopardized by the use of the proposed application equipment.

2.3 OTHER MATERIALS

All other materials, not specifically described but required for a complete and proper installation of the work of this Section, shall be new, first-quality of their respective kinds, and as selected by the Contractor subject to the approval of the Architect.

PART THREE - EXECUTION

3.1 SURFACE CONDITIONS

3.1.1 Inspection: Prior to installation of the work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence. Verify that painting may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the Architect.

3.1.2 Discrepancies: Do not proceed in areas of discrepancy until all such discrepancies have been fully resolved.

3.2 MATERIALS PREPARATION

3.2.1 General:

3.2.1.1 Mix and prepare painting materials in strict accordance with the manufacturer's recommendations as approved by the Architect.

3.2.1.2 Store materials not in actual use in tightly covered containers.

3.2.1.3 Maintain containers used in storage, mixing, and application of paint in a clean condition, free from foreign materials and residue.

3.2.2 Stirring: Stir all materials before application to produce a mixture of uniform density, and as required during the application of materials. Do not stir into the material any film which may form on the surface. Remove the film and, if necessary, strain the material before using.

3.3 SURFACE PREPARATION

3.3.1 General:

3.3.1.1 Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's recommendations as approved by the Architect.

3.3.1.2 Remove all removable items which are in place and are not scheduled to receive paint finish, or provide surface-applied protection prior to surface preparation and painting operations.

3.3.1.3 Following completion of painting in each space or area, reinstall the removed items by using workmen skilled in the necessary trades.

3.3.1.4 Clean each surface to be painted prior to applying paint or surface treatment.

3.3.1.5 Remove oil and grease with clean cloths and cleaning solvents of low toxicity and a flash point in excess of 38 degrees C (100 degrees F), prior to start of mechanical cleaning.

3.3.1.6 Schedule the cleaning and painting so that dust and other contaminants from the cleaning process will not fall onto wet newly painted surfaces.

3.3.2 Preparation of metal surfaces:

3.3.2.1 Thoroughly clean all surfaces until they are completely free from dirt, oil, and grease.

3.3.2.2 On galvanized surfaces, use solvent for the initial cleaning and then treat the surface thoroughly with phosphoric acid etch. Remove all etching solution before proceeding.

3.3.2.3 Allow to dry thoroughly before application of paint.

3.3.3 Preparation of gypsum board surfaces:

3.3.3.1 Apply joint treatment as follows:

1. First and Second Coat: Sheetrock® All-Purpose Joint Compound.
2. Third Coat: Sheetrock® Plus 3 Lightweight Joint Compound.

3.3.3.2 Clean all gypsum board surfaces until they are free from dirt, oil, and all other foreign substance.

3.3.3.3 Gypsum Panel Joints: Finish all face layer joints and internal angles with a U.S. Gypsum Joint System installed according to manufacturer's directions. Spot exposed fasteners on face layers and finish corner bead, control joints and trim as required, with at least three coats of joint compound, feathered out onto panel faces and sanded smooth.

3.3.3.4 Gypsum Base Joints: Apply Imperial Tape over full length of all gypsum base joints; do not overlap at intersections. Firmly press Type P Tape along entire length with steel trowel to insure firm wrinkle-free attachment. When rapid drying conditions exist, use Durabond Joint System installed according to manufacturer's directions.

3.4 PAINT APPLICATION

3.4.1 General:

3.4.1.1 Slightly vary the color of succeeding coats. Do not apply additional coats until the complete coat has been inspected and approved. Only the inspected and approved coats of paint will be considered in determining the number of coats applied.

3.4.1.2 Sand and dust between enamel coats to remove all defects visible to the unaided eye from a distance of five feet.

3.4.1.3 On all removable panels and all hinged panels, paint the back sides to match the exposed sides.

3.4.2 Drying:

3.4.2.1 Allow sufficient drying time between coats. Modify the period as recommended by the material manufacturer to suit adverse weather conditions.

3.4.2.2 Oil-base and oleo-resinous solvent-type paints shall be considered dry for recoating when the paint feels firm, does not deform or feel sticky under moderate pressure of the thumb, and the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

3.4.3 Brush application: Brush out and work all brush coats onto the surfaces in an even film. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, and other surface imperfections will not be acceptable.

3.4.4 Spray application:

3.4.4.1 Confine spray application to metal framework, hollow metal doors and frames, and similar surfaces where hand brush work would be inferior.

3.4.4.2 Wherever spray application is used, apply each coat to provide the equivalent hiding of brush-applied coats. Do not double back with spray equipment for the purpose of building up film thickness of two coats in one pass.

3.5 PAINTING SCHEDULE

All products listed below are manufactured by Sherwin Williams. Other manufacturers, when equal in quality and performance, will be considered for substitution.

3.5.1 Interior Gypsum Board:

Semi-gloss Enamel (Total DFT 5.3 mils.)

1. Surface preparation: Set and spackle all nail & screw heads. Tape and cover all joints with compound, sand smooth and remove all dust prior to paint application.
2. First Coat: Textured sheetrock mud mixed with S-W PrepRite High Build Interior Latex Primer/Surfacer, B28W8601, thinned to painting consistency and applied with roller covered with lambs wool.
3. Second and Third Coat: S-W ProMar 200 HP Zero VOC Interior Latex Semi-Gloss Enamel, B31-1950 Series. (2.5 mils DFT/coat.)

3.5.2 Interior Gypsum Board:
Eggshell

1. Surface preparation: Set and spackle all nail and screw heads, tape and cover all joints with compound, sand smooth and remove all dust prior to paint application.
2. First Coat: Textured sheetrock mud mixed with S-W PrepRite High Build Interior Latex Primer/Surfacer, B28W8601, thinned to painting consistency and applied with roller covered with lambs wool.
3. Second and Third Coat: S-W ProMar 200 HP Zero VOC Latex Eggshell, B20W1900 Series. 1.8 mild DFT/coat.)

3.5.4 Interior Gypsum Board:
Epoxy paint (Total DFT = 9.3 mils).

1. Surface preparation: Set and spackle all nail and screw heads, tape and cover all joints with compound, sand smooth and remove all dust prior to paint application.
2. First Coat: Textured sheetrock mud mixed with S-W PrepRite High Build Interior Latex Primer/Surfacer, B28W8601, thinned to painting consistency and applied with roller covered with lambs wool.
3. Second and Third Coat: S-W Pro Industrial Water Based Catalyzed Epoxy, B73Series .

3.5.5 Interior Ferrous Metal:
Semi-gloss Enamel (Total DFT = 6.0 mils).

1. Surface preparation: Sand smooth and remove all dust prior to paint application
2. First Coat: S-W Kem Kromik Universal Metal Primer, B50Z Series. (DFT 3 mils).
3. Second and Third Coat: S-W ProMar 200 Alkyd Semi-Gloss Enamel, B34W200 Series. (1.5 mils DFT/coat).

3.5.6 Exterior Ferrous Metal:
Gloss (Total DFT - 9 mils).

1. Surface preparation: Sand smooth and remove all dust prior to paint application.
2. First coat: S-W Kem Kromik Universal Metal Primer, B50Z Series. (DFT 3 mils).
3. Second and Third Coat: S-W Pro Industrial Urethane Enamel B54-150 Series (3 mils DFT/coat).

3.5.7 Interior Wood (painted):
Satin Finish.

1. Surface preparation: Store all wood in dry, warm rooms. All surfaces shall be sanded smooth with the grain and never across it. Clean off all dust. Lightly sand between coats.
2. First Coat: S-W Premium Wall and Wood Primer, B28W8111.
3. Second Coat: S-W ProClassic Interior Alkyd Satin Enamel, B33-1150 Series.
4. Third Coat: S-W ProClassic Interior Alkyd SatinEnamel, B33-1150 Series.

3.5.8 Interior Wood (painted):
Semi-Gloss Finish.

1. Surface preparation: Store all wood in dry, warm rooms. All surfaces shall be sanded smooth with the grain and never across it. Clean off all dust. Lightly sand between coats.

2. First Coat: S-W Premium Wall and Wood Primer, B28W8111.
3. Second Coat: S-W ProClassic Interior Alkyd Semi-Gloss, B34 Series
4. Third Coat: S-W ProClassic Interior Alkyd Semi-Gloss, B34 Series.

3.6 PROTECTION AND CLEAN UP

3.6.1 Adequately protect other surfaces from paint and damage. Repair damage as a result of inadequate or unsuitable protection.

3.6.2 Furnish sufficient drop cloths, shields and protective equipment to prevent spray or droppings from fouling surfaces not being painted and, in particular, surfaces within storage and preparation area.

3.6.3 Place cotton waste, cloths and material which may constitute a fire hazard in closed metal containers and remove daily from site.

3.6.4 Remove electrical plates, surface hardware, fittings and fastenings, prior to painting operations. These items are to be carefully stored, cleaned and replaced on completion of work in each area. Do not use solvent to clean hardware that may remove permanent lacquer finish.

3.6.5 This Subcontractor shall be responsible for the condition of the building or parts of the building in his charge, as well as the protection of adjacent work. Damage done to the work of other Subcontractors to such an extent that the work and/or materials cannot be restored to their original condition shall be replaced at the expense of this Subcontractor.

END OF SECTION

CLEARING AND GRUBBING

PART ONE - GENERAL

1.1 WORK INCLUDED

1. Removing and disposing of existing trees, vegetation, buildings, fencing, pavements, sidewalks, utilities, storm drains, etc. as shown on the drawings.
2. Preserving trees and vegetation in designated areas.
3. Disposing of removed material.

1.2 RELATED WORK

1. Grading Section 31 22 00

PART TWO - PRODUCTS

No products included.

PART THREE - EXECUTION

3.1 PREPARATION

- A. Protect existing trees from damage by equipment when removing designated trees and during site grading operation.
- B. Mark clearly the areas of preserved vegetation, the clearing limits along the boundary of the site, and the individual trees to be saved as designated by the Architects and/or Drawings.

3.2 CLEARING

- A. Clear the site within the limits of proposed improvements as shown on the Drawings, of trees, saplings, brush, shrubs, roots, undergrowth, buildings, fencing, pavements, sidewalks, utilities, storm drains, and other debris.
- B. Remove stumps from building, paving, and embankment areas.
 1. Remove all stumps in building and paving areas.
 2. Cut stumps in other areas flush with or below existing ground elevations.
 3. Backfill and compact stump holes and foundation holes except in areas to be excavated.
- C. Backfill holes within the building area using suitable fill materials as defined in Paragraph 2.1 of Section 31 22 00. Fill shall be compacted according to the requirements of Paragraph 3.3 of Section 31 22 00.
- D. Do not park or service equipment under the branches of trees designated to remain.

- E. Restrict movement and operation of equipment so that trunks, branches and roots of trees and shrubs designated to remain will not be broken, scarred, or otherwise damaged.
- F. Apply an approved tree wound paint to any lightly damaged trees.

3.3 DISPOSAL

- A. Dispose of cleared materials at an offsite location secured by the Contractor.

3.4 PROTECTION

- A. Erect temporary barricades, and other protection required to protect all persons and property from preparation and construction operations.

3.5 UTILITIES

- A. Protect and preserve in operating condition, all active utility services that traverse or border the site, and repair any damages that may occur to these services due to work performed the site preparation, demolition and construction operations. Utility lines that are to be abandoned shall be completely removed from the site and plugged at the street as required by the serving utility.

END OF SECTION

GRADING

PART ONE - GENERAL

1.1 WORK INCLUDED

- A. Stripping and stockpiling surface layer of topsoil and organic matter in building and traffic areas and in all cut and fill areas.
- B. Removing and disposing of boulders, fractured rock, and other material unsuitable for use in fill under structures (controlled fill).
- C. Excavating site to required subgrade for controlled fill and traffic areas and grading site to required slopes.
- D. Placing and compacting excavated material to required density and at required subgrade and slope for structures, pavement areas, and fill slopes.

1.2 RELATED WORK

A. Testing Laboratory Services Section 01 45 29

1.3 QUALITY ASSURANCE

A. Testing agency:

- 1. Soil classification tests on material for controlled fill to be performed by testing laboratory selected by the Architect.
- 2. In-place soil compaction tests to be performed by testing laboratory at locations selected by the Architect.
- 3. Refer to section 01 45 29 - Testing Laboratory Services for details of testing procedures.

B. Reference Standards:

- 1. American Society for Testing and Materials (ASTM):
 - a. ASTM D2487-69 (175), Classification of Soils for Engineering Purposes.
 - b. ASTM D-1557 Modified Compaction Procedures.
 - c. ASTM D 1556-64 (1974) Method of Test for Density of Soil in Place by the Sand-cone Method.
 - d. ASTM D 2167-66 (1977), Method of Test for Density of Soil in Place by the Rubber Balloon Method.
 - e. ASTM D 2922-71, Methods for Determining the Density of Soil and Soil-aggregate by Nuclear Methods (shallow depth).

1.4 SUBMITTALS

- A. Have the testing laboratory submit reports that material for controlled fill meets the requirements of this Section:
 - 1. On site excavated material.
 - 2. Borrow material.
- B. Have testing laboratory submit reports of density tests of controlled fill.

1.5 SITE CONDITIONS

- A. Establish positive surface drainage during and following clearing and site grading by proper ditching or sloping.
- B. Provide measures to prevent mud and silt from flowing onto adjacent property.
- C. Erect sheeting, shoring, and bracing as necessary for protection of persons, improvements, and excavation.

PART TWO - PRODUCTS

2.1 SUITABLE MATERIAL FOR CONTROLLED FILL

- A. On site excavated soils:
 - 1. Sandy or gravelly clays having a liquid limit less than 40.
 - 2. Unified Soils Classification System Soils:
 - a. Class SC, SW, SM
 - b. Class GC, GW, GM
 - c. Class CL (when approved by Soils Engineer).
 - 3. Overburden soils with low plasticity.
- B. Borrow Material:
 - 1. Material meeting the requirements of selected material as described in Section 210 of the Arkansas State Highway Department's Standard Specifications for Highway Construction, Edition of 2003.
 - 2. All borrow material shall be approved by the soils engineer prior to placement.

2.2 UNSUITABLE MATERIAL FOR CONTROLLED FILL

- A. All areas: Organic top soils and soils containing roots, vegetable matter, or trash.
- B. Building area:
 - 1. Cobbles, boulders, and fractured rock more than 6 inches in greatest dimension anywhere in the fill.
 - 2. Cobbles and fractured rock more than 3 inches in greatest dimension within 12 inches of the finished subgrade.

C. Paving area:

1. Cobbles, boulders, and fractured rock more than 8 inches in greatest dimension anywhere under the paving area.
2. Cobbles and fractured rock more than 4 inches in greatest dimension within 12 inches of the finished subgrade.

2.3 SUITABLE MATERIAL FOR CLEAN SAND OR GRAVEL UNDER SLABS (DRAINAGE FILL)

A. All materials clean free of shale, clay, friable materials and debris.

1. Gravel: Clean natural stone, free of organic material. Maximum size 1/2".
2. Sand: Clean natural river or bank sand, free of organic material.

PART THREE - EXECUTION

3.1 PREPARATION

A. Complete clearing work:

1. Remove unsuitable materials from the site before beginning site grading.

B. Stake the work: By the Contractor.

C. Notify Architect 24 hours before controlled fill is to begin.

3.2 EXCAVATION

A. Excavation procedures:

1. Strip surface layer of top soil, organic matter, and any remaining trash in cut and fill areas of the site and stockpile for later use in landscaping operations.
 - a. Removed material containing unacceptable quantities of trash or rock in the mixture shall be disposed of off the site or may be spread in thin layers in the outerpart of fill slopes outside of controlled fill areas.
2. Remove soft or spongy material at the exposed subgrade of cut and fill areas and replace with approved material and compact.
3. Remove rock and boulders in cut areas to a minimum depth of 8 inches below sub-grade and replace with approved material and compact.
4. Use all suitable excavated material, as far as practicable, in the formation of controlled fills and fill slopes.
5. Material determined by the Soils Engineer to be unsuitable for proper compaction may be placed in the fill slopes outside controlled fill areas.
6. Excavated boulders and rock determined by the Soils Engineer to be too large for use in fill slopes shall be disposed of off the site.
7. Do not leave undrained pockets where boulders or rocks have been removed.
8. Keep all excavation dry by pumping or draining water from the Work.
9. In cut areas where fill is not required, scarify exposed subgrade soils to a depth of at least 8 inches, adjust the soil moisture, and recompact to the same density as required for each layer of controlled fill; or, proof-roll the areas with a loaded tandem axle dump truck or similar equipment to aid in identifying soft areas.

10. Grade excavated slopes to a neat, smooth condition with no loose material or scars left on the surface.
11. Refer to the geotechnical investigation for further information regarding excavation, site preparation, fill placement, etc.

3.3 CONTROLLED FILL

- A. Scarify cleared surfaces in fill areas to a depth of at least 8 inches, adjust the soil moisture, and re-compact to the same density as required for each layer of controlled fill; or proof-roll as described in sub-paragraph 9 of Article 3.2.1.
- B. Fill placed on hillsides:
 1. Bench continuously as the work is brought up in layers.
 2. Begin each horizontal cut at the intersection of the original ground and the vertical sides of the previous cuts.
 3. Re-compact the cut-out material along with the new fill material.
- C. Place fill material in lifts no greater than 8 inch loose-lift uniform thickness and compact to a minimum of 95% of maximum dry density at or near optimum moisture content as determined by the Modified Compaction Procedures, ASTM D-1557.
 1. Compact lifts containing low plasticity clay soils at 2% to 4% above optimum moisture content.
 2. Add water when the soil is too dry and mix with the material before compacting.
 3. Aerate material when too wet by manipulation with suitable equipment before compacting.
- D. Each fill lift will be tested and approved for adequate density and proper moisture content before additional lifts shall be placed.
- E. Grade fill slopes to a neat, smooth condition with no loose material, protruding rock, or scars left on the surface.

3.4 FIELD QUALITY CONTROL

- A. In-place tests of density and moisture content of controlled fill in accordance with either ASTM D1556-64 (1974), ASTM D2167-66 (1977), or ASTM D2922-71 (1976) by testing laboratory.
- B. Soil Classification of fill material and placement location of each type to be determined by Soils Engineer.
- C. Provide a minimum of 2 tests of density and moisture content per lift.

END OF SECTION

EXCAVATION AND FILL

PART ONE - GENERAL

1.1 WORK INCLUDED

- A. Excavate for the following structures and stockpile subsoil on site or, if suitable, use fill material on the site.
 - 1. Footings, for building and other structures.
 - 2. Sidewalks and steps.
- B. Shore and brace excavations as required.
- C. Place and compact fills to rough grade elevations.
- D. Dewater excavations.

1.2 RELATED WORK

- A. Testing Laboratory Services Section 01 45 29
- B. Clearing and Grubbing Section 31 11 00
- C. Grading Section 31 22 00
- D. Seeding Section 32 92 19
- E. Concrete Division Three

1.3 BACKFILL COMPACTION TESTING

- A. Testing of compacted backfill materials will be performed by an independent testing laboratory employed and paid for by the Owner. Testing will be performed so as to least encumber the performance of Work. Refer to Section 01 45 29.
- B. When work of this Section or portions of work are completed, notify the testing laboratory to perform density tests. Do not proceed with additional backfill work until results have been verified.
- C. If, during progress of work, tests indicate that compacted materials do not meet specified requirements, remove defective work, replace, and retest at no cost to Owner, as directed by the Architect.
- D. Ensure compacted fills are tested before proceeding with placement of surface materials.

1.4 SUBMITTALS

- A. Submit minimum 10 pounds samples of each type of excavated backfill material to be used. Forward samples to appointed testing laboratory, packed tightly in containers to prevent contamination.
1. Protect trees, shrubs, and lawns, areas to receive planting, rock outcropping, and other features remaining as part of final landscaping.
 2. Protect bench marks and existing structures, roads, sidewalks, paving, and curbs against damage from equipment and vehicular or foot traffic.
 3. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods, as required to prevent cave-ins or loose dirt from falling into excavations.
 4. Underpin adjacent structures, which may be damaged by excavation work, including service lines and pipe chases.
 5. Notify Architect of unexpected sub-surface conditions and discontinue work in areas until Architect provides notification to resume work.
 6. Protect bottom of excavations and soil around and beneath foundations from frost or freezing.
 7. Grade around excavations to prevent surface water run-off into excavated areas.

PART TWO - PRODUCTS

2.1 SUITABLE BACKFILL MATERIALS

- A. Gravel: Angular crushed natural stone free from shale, clay, friable materials, and debris.
- B. Pea gravel: Clean natural stone free from clay, shale, and organic matter.
- C. Sand: Clean natural river or bank sand free from silt, clay, loam, friable or soluble materials, and organic matter.
- D. Under areas not to be paved: Sub-soil free from roots, rock larger than 3 inches in size, and building debris.
- E. Under structures or areas to be paved: Material meeting requirements for controlled fill as specified in Section 31 22 00, Article 2.1.
- F. Fill under landscaped areas: Free from alkali, salt, petroleum products. Use sub-soil excavated from site only if conforming to specified requirements in Paragraphs 4 or 5 above.

PART THREE - EXECUTION

3.1 PREPARATION AND LAYOUT

- A. Establish extent of excavation by area and elevation; designate and identify datum elevation.
- B. Set required lines and levels.
- C. Maintain bench marks, monuments and other reference points.

3.2 UTILITIES

- A. Before starting excavation, establish location and extent of underground utilities occurring in work area.
- B. Notify utility companies to remove and relocate lines which are in the way of excavation.
- C. Maintain, re-route, or extend as required existing utility lines to remain which pass through work area.
- D. Pay costs for this work except those covered by utility companies.
- E. Protect utility services uncovered by excavation.

3.3 EXCAVATION

- A. Excavate sub-soil in accordance with lines and levels required for construction of the work, including space for forms, bracing and shoring, foundation drainage system, and to permit inspection.
- B. Do additional excavation only by written authorization of Architect.
- C. Machine-slope banks.
- D. Hand trim excavations and leave free from loose or organic matter.
- E. Footings shall always be poured the same day that excavations are made, and water shall never be allowed to stand in excavated footing trench.
- F. When complete, verify soil bearing capacities, depths and dimensions.
- G. Correct unauthorized excavation as directed, at no cost to Owner.
- H. Fill over-excavated areas under structure bearing surfaces with concrete as specified for foundations.
- I. Excavations are not to interfere with normal 45 degree bearing splay of any foundation.
- J. Stockpile excavated sub-soil for reuse where directed. Remove excess or unsuitable excavated sub-soil from site.
- K. Do not disturb soil within branch spread of existing trees or shrubs that are to remain.

3.4 BACKFILLING

- A. Stockpile fill material in area(s) designated by Architect.
- B. Ensure areas to be backfilled are free from debris, snow, ice and water, and that ground surfaces are not in a frozen condition.
- C. Do not backfill over existing sub-grade surfaces which are porous, wet, or spongy.

- D. Compact existing sub-grade surfaces if densities are not equal to that required for backfill materials.
- E. Cut out soft areas of existing sub-grade. Backfill with sand and compact to required density.
- F. Backfill areas to grades, contours, levels and elevations.
- G. Backfill systematically and as early as possible to allow maximum time for natural settlement and compaction.
- H. Place and compact back fill materials in continuous layers not exceeding 6 inches loose depth.
- I. Maintain optimum moisture content of backfill materials to attain required compaction density.
- J. Where temporary unbalanced pressures are liable to develop on walls, erect necessary shoring to counteract imbalance. Leave in place until their removal is approved by Architect.

3.5 FILL TYPES AND COMPACTION

- A. Within building area: Restore controlled fill to underside of stabilizing base course for floor slabs to density requirements specified in Section 31 22 00, Article 3.3.
- B. Backfill under areas not to be paved: Compact with mechanical tampers until material is as firm and unyielding as the surrounding material undisturbed by excavation.
- C. Fill under structures and backfill under paving areas: Compact to top of subgrade to density requirements specified in Section 31 22 00, Article 3.3.
- D. Fill under landscaped areas: Sub-soil to within 12 inches of finish grade elevation.

3.6 FIELD QUALITY CONTROL

- A. In-place tests of density and moisture content of backfill specified to be compacted to specific density requirements shall be performed by the testing laboratory in accordance with either ASTM D1556-64 (1974), ASTM D2167-66 (1977), or ASTM D2922-71 (1976).

END OF SECTION

EROSION AND
SEDIMENTATION CONTROL

PART ONE – GENERAL

1.1 DESCRIPTION

- A. All new slopes and disturbed areas shall be treated for erosion control in accordance with these specifications including silt fencing and placement of hay bales. Contractor will provide a Storm Water Pollution Prevention Plan (SWPPP) and permit complying with all Arkansas Department of Environmental Quality Standards.

1.2 RELATED SECTIONS

- A. Clearing and Grubbing Section 31 11 00
- B. Grading Section 31 22 00

1.3 REFERENCES

- A. United States Environmental Protection Agency (EPA):
 - 1. NPDES – National Pollutant Discharge Elimination System
- B. Arkansas Highway & Transportation Department (AHTD):
 - 1. AHTD – Arkansas Highway & Transportation Department Standard Specifications for Highway Construction.
- C. Arkansas Department of Environmental Quality (ADEQ):
 - 1. ADEQ – Arkansas Department of Environmental Quality requirements.

1.4 QUALITY ASSURANCE

- A. Perform work in accordance with the following ADEQ standards:
 - 1. Section 220 – Temporary Erosion, Sedimentation and Stormwater Pollution Prevention and Control.
 - 2. Section 223 – Temporary Silt Fence.
 - 3. Section 224 – Temporary Sediment Control Filters.
 - 4. Section 226 – Temporary Sediment Removal.
- B. Regulatory Requirements: Conform to requirements of local authority having jurisdiction for prevention of erosion and sediment control.
 - 1. Conform to NPDES requirements where required.

1.5 PROJECT CONDITIONS

- A. Protect adjacent properties and water resources from erosion and sediment damage throughout work. Take all necessary measures to prevent sedimentation from construction operations to enter adjacent property. Offsite discharge of sedimentation is not permitted.

PART TWO – PRODUCTS

2.1 MATERIALS

- A. Seeding: Bermuda Grass, common, unhulled, (March 1st through September 1st) broadcast at a rate of 30 pounds per acre. All other times, seed shall be Rye applied at the rate of 20 pounds per acre and unhulled Bermuda at 20 pounds per acre.
- B. Fertilizer: 10-20-10 spread at the rate of 400 pounds per acre.
- C. Fencing for Siltation Control: UV resistant geotextile fabric.
- D. Temporary Mulches: Loose straw, netting, wood cellulose, or agricultural silage free of seed. Mulch material with asphalt tack shall be spread as required to hold grass during establishment of turf.
- E. Bale Stakes:
 - 1. Minimum 3 feet length.
 - 2. (2) No. 4 steel reinforcing bars or
 - 3. (2) steel pickets or
 - 4. (2) 2 x 2 inch hardwood stakes driven 18 inches to 24 inches into ground.

PART THREE – EXECUTION

- 3.1 The Contractor shall produce a Storm Water Pollution Prevention Plan (SWPP) that meets the requirements set forth by the Arkansas Department of Environmental Quality.
- 3.2 The Contractor shall fill out inspection reports and log rainfall data as required by the SWPP.
- 3.3 The Contractor shall install all erosion control measures prior to commencing dirtwork activities on this site.
- 3.4 The Contractor shall immediately clean up any sediment that leaves this site.
- 3.5 The Contractor shall re-establish all disturbed areas in accordance with the SWPP.
- 3.6 The Contractor shall removal all erosion control measures once the site has been re-established.

END OF SECTION

TERMITE CONTROL

PART ONE - GENERAL

1.1 WORK INCLUDED

- A. Soil treatment under slabs for termite control.
- B. Soil treatment at concrete foundation for termite control.
- C. Termite damage guarantee with annually renewable termite inspection control contract.

1.2 RELATED WORK

- A. Excavation and Fill Section 31 23 00
- B. Concrete Work Division Three

1.3 QUALITY ASSURANCE

- A. The applicator shall be licensed by the State of Arkansas to perform the Work of this Section.
- B. The applicator shall be bonded and insured by an insurance company authorized to practice business in the State of Arkansas.

1.4 REGULATORY REQUIREMENTS

- A. Local Laws: All Work performed under this Section shall conform with the Arkansas Pest Control Law, Act III of 1965.

1.5 GUARANTEE

- A. Submit a five year written guarantee, without monetary limits, stating that all additional treatment of areas where termites appear, and any damages caused by the termite appearance, will be performed at no cost to the Owner.
- B. Provide the Owner an annually renewable termite inspection control contract, effective five years from date of the original soil treatment, to assure necessary re-treatment and liability for termite damage.
- C. Draw the guarantee in favor of the Owner, with copies of the guarantee of the renewable inspection control contract provided for the Owner, the Contractor, and the Architect.
- D. No payment will be made for termite control work until the above guarantee has been submitted in satisfactory form.

PART TWO - PRODUCTS

2.1 MATERIALS

A. Chemicals:

1. Use chemicals formulated as an emulsible concentrate for subsequent dilution with water.
2. Fuel oil will not be permitted as a diluent.
3. Use chemicals of a type currently known to give insurable protection for the soil and fill at the foundation and under the new addition.

PART THREE - EXECUTION

3.1 PREPARATION

- A. The applicator shall visit the job site to determine the soil texture or otherwise obtain the information from the County Agent, the U.S. Soil Conservation Service, or other approved authorities.
- B. The Contractor shall remove all wood and other cellulose containing materials from the area within the building walls before the solution is applied.
- C. The Contractor shall set tentative dates with the applicator for initial treatment services and schedule subsequent service as deemed necessary for completion of the termite control work.
- D. The Contractor shall give the applicator 24 hour notice prior to installing the moisture barrier in preparation for placement of the floor slabs.

3.2 APPLICATION

A. Soil Conditions:

1. Do not apply the working solution when soil is frozen, excessively wet, or immediately after heavy rains.
 2. Do not disturb treated areas during subsequent construction operations.
- B. Apply the working solution to the soil over the entire surface under slabs and at the concrete foundations at the rate of application recommended by the chemicals manufacturers and in accordance with regulatory requirements to provide the required guarantee.
 - C. If after an area has been treated and before the General Contractor can pour the concrete slab, it should rain, the entire area shall be retreated, without additional cost to the Owner. No more area than will be covered with slab shall be treated at one time.

END OF SECTION

- B. Fertilizer: FS 0-F-241, commercial type.
 - 1. Proportions: 10N-20P-10K, unless soil test analysis indicated different proportions are required.
- C. Seed: Common hulled bermuda.

PART THREE - EXECUTION

3.1 PREPARATION OF SUB-GRADE

- A. Fine grade sub-grade, eliminating uneven areas and low spots. Maintain lines, levels, profiles, spot elevations, and contours shown on the drawings. Make changes in grade gradual. Blend slopes into level areas.
- B. Remove foreign materials, undesirable plants and their roots, stones, and debris subject to termite attack, rot or corrosion. Do not bury foreign material beneath areas to be seeded or sodded. Remove sub-soil which has been contaminated with petroleum products.
- C. Cultivate sub-soil to a depth of 3" where topsoil is to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted sub-soil. Depressions where water will stand or inequalities in the grade shall be corrected before topsoil is spread.

3.2 PLACING TOPSOIL

- A. Furnish, place, and spread topsoil to a minimum depth of three inches over entire areas to be sodded or seeded.
- B. Place topsoil during dry weather and on dry unfrozen sub-grade.
- C. Grade to eliminate rough and low areas, ensuring positive drainage. Maintain levels, profiles, spot elevations, and contours of sub-grade. For seeding areas, rake until surface is smooth. Provide positive surface drainage away from the building walls in all directions.
- D. Remove stones, roots, grass, weeds, debris and other foreign non-organic material while spreading.

3.3 FERTILIZING SEEDED AREAS

- A. After fine grading apply fertilizer at a rate recommended by the manufacturer.
- B. Mix thoroughly into upper two inches of topsoil.
- C. Lightly water to aid breakdown of fertilizer and to provide moist soil for seed.
- D. Apply fertilizer within 48 hours before seeding.

3.4 SEEDING

- A. Apply seed at rate of one to two pounds per 1000 square feet.
- B. Roll seeded area with rollers not exceeding 112 pounds.
- C. Apply water with fine spray immediately after sowing.
- D. Water shall be applied on all seeded areas in quantities and at intervals to provide optimum growing conditions for the establishment of a healthy, uniform stand and cover of grass. Maintain seeded areas until end of project.

END OF SECTION

