PROJECT MANUAL
INCLUDING SPECIFICATIONS
FOR CONSTRUCTION

CONCORD BATTING CAGES
Concord School District
Concord, Arkansas

ARCHITECT PROJECT NO. 24055
DATE: September 20, 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

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NOTICE TO BIDDERS

CONCORD BATTING CAGES
CONCORD SCHOOL DISTRICT
CONCORD, ARKANSAS

Sealed proposals will be received on General Contract for CONCORD BATTING CAGES, CONCORD SCHOOL DISTRICT, CONCORD, ARKANSAS. The Owner will receive sealed proposals until 2:00 p.m., December 19, 2024, at the office of the Superintendent of Schools, Concord School District, 10920 Heber Springs Road, Concord, 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
Concord School District
10920 Heber Springs Road
Concord, AR 72523

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 Concord School District, Concord, 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.

Concord School District
Travis Fletcher, Superintendent
10920 Heber Springs Road
Concord, AR 72523

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 Concord 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 Concord 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 of condition of acquired immune deficiency syndrome (AIDS) or AIDS-related complex in carrying out is 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 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 Concord 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

CONCORD BATTING CAGES
CONCORD SCHOOL DISTRICT
CONCORD, ARKANSAS

Proposal of_____

License No._____of_____
City State

Date_____

To the
Board of Education
CONCORD School District
CONCORD, Arkansas

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

CONCORD BATTING CAGES
CONCORD SCHOOL DISTRICT
CONCORD, 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. 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 ($_____)

C. SITE UNDERCUT: Remove unsuitable soil and replace with compacted select fill as directed by the Architect's Representative.

Base Bid to include an allowance of 500 cubic yards undercut and backfill soils at _____/per cubic yard. Undercut shall be paid at the unit price quoted. Measurement for payment will be based on cross sectional measure established by soil removed below a stripping depth of 8 inches in fill areas and below planned subgrade in cut areas. Payment shall be made at the unit price for quantities less than or greater than the allowance quantity given herein.

D. ROCK EXCAVATION ALLOWANCE

Quantities for rock excavation shall be based upon the cross sectional area removed from the field that are within the tolerance limit set under each type of excavation. Over excavation and subsequent backfill shall not be charged to the Owner. Refer to section 31 23 16 for material that qualifies for rock excavation. Areas for rock removal shall be identified by contractor and sent to the Architect for approval prior to beginning of excavation.

Mass Rock Excavation:

Mass rock excavation shall be conducted in areas not suitable for trenching. Areas warranted for mass excavation shall be for the installation of multiple plumbing lines, floor slabs, bleacher seating and parking areas. Tolerance for rock removal shall not exceed 1 foot over the plan dimension and 6 inches in depth as agreed upon by Architect. The Base Bid is to include an allowance of 10 cubic yards for mass rock excavation at _____/per cubic yard. Payment shall be made for the quoted unit price for quantities less than or greater than the allowance quantities given herein.

Trench Rock Excavation:

Trench rock excavation shall be warranted for the installation of footings, utility lines, and drainage lines. Tolerances for excavation shall not exceed 3 inches each side of required plan dimension and 6 inches in required depth as agreed upon by the Architect. The Base Bid is to include an allowance of 10 cubic yards for trench excavation and backfill at _____/per cubic yard. Payment shall be made for the quoted unit price for quantities less than or greater than the allowance quantities given herein.

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

	SUBCONTRACTOR	LICENSE NO.
Painting:		
Electrical:		
Metal Building Installer:		

MATERIAL SUPPLIER (NAME ONLY)

Metal Building
Manufacturer: _____

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 Concord 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

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 12/11/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Agency Contact Person	
ABC Insurance Agency	PHONE (A/C, No, Ext): (111) 111-1111	FAX (A/C, No): (111) 111-1111
Mailing Address	E-MAIL ADDRESS: agent@email.com	
City ST Zip Code	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A : Insurance Company	11111
INSURED	INSURER B : Insurance Company	11111
ABC Construction Company	INSURER C : Insurance Company	11111
Mailing Address	INSURER D : Insurance Company	11111
	INSURER E : Insurance Company	11111
City ST Zip Code	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** 2023 Sub Sample Cert **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	[X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC [ ] OTHER:	Y	Y	Policy Number	12/10/2023	12/10/2024	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG [ ]	$ 1,000,000 $ 100,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $
B	AUTOMOBILE LIABILITY [X] ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [X] HIRED AUTOS ONLY [X] NON-OWNED AUTOS ONLY			Policy Number	12/10/2023	12/10/2024	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) [ ]	$ 1,000,000 $ $ $ $
C	[X] UMBRELLA LIAB [X] OCCUR [ ] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [X] RETENTION $ 10,000	Y	Y	Policy Number	12/10/2023	12/10/2024	EACH OCCURRENCE AGGREGATE [ ]	$ 1,000,000 $ 1,000,000 $
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? [Y] (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A	Y	Policy Number	12/10/2023	12/10/2024	[X] PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
E	Builders Risk Property Insurance			Policy Number	12/10/2023	12/10/2024		

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Project Name

CERTIFICATE HOLDER

SAMPLE CERTIFICATE

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

AGENCY CUSTOMER ID: _____

LOC #: _____

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
ABC Insurance Agency	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

"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 $l,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

MONTH	AVERAGE NO. OF DAYS .01" OR MORE
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

Section 01 11 00

SUMMARY OF WORK

PART ONE - GENERAL

1.1 WORK COVERED BY THE CONTRACT DOCUMENTS

A. The work generally consists of:

1. A new pre-fabricated metal building with two (2) overhead coiling doors and three (3) walk doors. Building shall include interior batting cages installed on sports turf and tongue and groove plywood on interior walls.

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.

1.4 COORDINATION OF WORK

A. At no time shall the construction under this contract interfere with the normal operation of school activities nor in any way shall materials or equipment used in this work be allowed to block or interfere with school traffic at any exit or entrance doors to classrooms. If necessary, work shall be interrupted when children are nearby, so that there is no hazard to any of the occupants of the building.

B. Debris shall be removed at the end of each working day.

1.5 CONTINGENCY ALLOWANCE

A. The Contractor shall include in the bid a contingency amount of $30,000. This contingency shall be used only upon written approval from the Architect. Any difference in cost above or below this amount shall be adjusted by change order. Overhead and profit shall not be allowed if use of the contingency is necessary.

PART TWO – PRODUCTS

Not Used

PART THREE – EXECUTION

Not Used

END OF SECTION

GARNER ENGINEERING P.A.

Soil and Foundation Investigation
Batting Cage
Concord School District
Concord, Arkansas

Report
To

CONCORD SCHOOL DISTRICT
C/O LEWIS ARCHITECTS ENGINEERS
ATTN: BETHANY ALLEN
11225 HURON LANE – SUITE 104
LITTLE ROCK, ARKANSAS 72211

Little Rock, Arkansas
September 15, 2024

Garner Engineering PA
9300 Professor Drive Little Rock, Arkansas 72227 Phone: 501-225-8181
Mobile: 501-681-1491
501-681-1492

September 15, 2024

To: Concord School District
c/o Lewis Architects Engineers
Attn: Bethany Allen
11225 Huron Lane – Suite 104
Little Rock, Arkansas 72211

From: Carl W Garner P.E.

Re: Soil and Foundation Investigation
New Batting Cage
Concord School District
Concord, Arkansas

This is the report of the soil and foundation investigation performed in the area of the new Batting Cage. This study was performed in accordance with our discussions. The Lewis Architects Engineers Site Plan A0.1 dated 9 August 2024 was used for the field study and report.

The Batting Cage will be an approximately 6200 sq ft structure with new parking. The facility will be single story of steel frame design with turf and partial slab on grade. It is understood that Finish Floor will be near El 102.5. Structural loading data is not presently available. Foundation loads will be light with uplift controlling.

Based on existing site topography provided, the site slopes from southeast to northwest. Existing grades vary from about El 102 to El 99. Consequently, site grading for the building is expected to require fills of about 1 to 3 ft.

The primary purposes of this investigation were to establish basic soil and rock stratigraphy underlying the site and prepare engineering recommendations to aid in selection and final design of the foundation and development of site grading plans and procedures. To accomplish the intended purposes, a multiphase program consisting of the following elements was planned and performed.

- Investigation of site and subsurface conditions by observation and sample borings;
- Development of basic engineering properties of foundation units through laboratory examination and limited testing;
- Preparation of an engineering report to include results of the field and laboratory studies and recommendations to aid in design and construction of safe and economical foundation, and site grading planning and performance.

General Site Features

The Batting Cage building, as illustrated on Plate 1, is located in an undeveloped grass covered area north of the existing Softball Field. Existing stone surfaced drives and parking area are located east of the site with Sunset Drive on the north.

Present surface drainage is to the northwest. Surface drainage is considered to be generally fair to good although locally poor in the northwest corner.

Field and Laboratory Investigation

The soil and rock stratigraphy was investigated by two (2) sample borings drilled to "Practical Auger Refusal" at depths of 5 ft. The approximate locations of the borings are shown on the Plan of Borings, Plate 1. Descriptions of soil and rock stratigraphy and results of field and laboratory testing are presented on the Log of Boring, Plate 2. A Key to Terms and Symbols used on the logs is included as Plate 3.

The borings were performed with a track mounted rotary drill rig and hollow stem augers. At the time of investigation (August 26, 2024), the site was accessible to the tracked rig. Representative samples of the foundation soil and rock were recovered from the borings via the Standard Penetration Test (SPT) procedure. N-values established from the automatic hammer assisted SPT are tabulated in the Blows Per Ft (BPF) column of the log forms. Estimated cohesion values in tons per square foot (TSF) were obtained for cohesive soils with a calibrated hand penetrometer. Cohesion estimates in TSF are plotted at appropriate depths on the boring logs as small circles filled with an "x" ⊗.

All samples were visually classified by the field technician and placed in appropriate containers for transfer to the laboratory for further evaluation. The foundation soils encountered in Borings 1 and 2 above the bedrock are comprised primarily of residual sandy soils of low plasticity. Laboratory testing consisted of verification of field classification and evaluation of soil volumetric stability by Atterberg Limits. In addition, natural water contents were performed to develop soil water content data. The results of laboratory tests are plotted and/or tabulated at appropriate depths on the logs in accordance with the legend shown on the upper right portion of the log form.

General Site and Subsurface Conditions

Geologically, the site is underlain by bedrock units comprised of sandstone with shale interbedding of the Pennsylvanian Bloyd-Hale Formation of the Ozark Mountain Region. The overburden soils typically consist of thin sandy residuum derived from weathering of the underlying sandstone rock.

Multipurpose Addition

The stratigraphy encountered in Borings 1 and 2 may be generalized as follows:

Stratum I: The surface veneer in Boring 1 consisted erratically of less than 4 ins. to near 1 ft of brown silt. These soils contained minor organic matter

and rootlets. An N-value of 10 BPF was obtained in this seasonally desiccated, moisture sensitive stratum.

Stratum II: Below Stratum I in Boring 1 and from the surface in Boring 2, very stiff brown and reddish brown/reddish tan sandy clay and clayey sand, CL SC, with trace gravel was found to depths of near 2.5 to 4 ft. These residual soils exhibited moderate shear strength, low plasticity and low moisture sensitivity. N-values ranged from about 9 to 14 BPF. Cohesion estimates varied from near 1.0 to 1.4 TSF.

Stratum III: The basal stratum found in the borings below depths of near 2.5 to 4 ft consisted of soft tan with some brown weakly cemented weathered sandstone with some weakly cemented silty sand lenses i.e., decomposed sandstone. The weathered rock exhibited variable weathering becoming less weathered, moderately hard with depth. N-values of 38 BPF and 50 Blows for 5 ins. were obtained. "Practical Auger Refusal" was reached in both borings at a depth of about 5 ft reflecting the increased competence with depth.

Groundwater was not encountered during the August 2024 study. Observations are shown in the lower right corner of each log form. Although the rainfall was significantly below normal, moist soil conditions were encountered in Stratum II.

The significant properties and conditions of the site and foundation strata considered pertinent to design and construction of the proposed facility are:

a) The presence of grass/weed vegetation and thin sandy silt soils over most of the surface. The relatively good surface drainage to the northwest;
b) The moderate shear strength of the very stiff sandy clay and clayey sand with sandstone fragments, Stratum II, and low plasticity and shrink-swell potential;
c) The reduced weathering with depth inherent to the soft weakly cemented sandstone encountered below 2.5 and 4 ft and extending to "Practical Auger Refusal" near 5 ft; and
d) The absence of permanent groundwater and the generally low potential for development of minor wet season saturation or perched groundwater in the residual sandy soils, Stratum II. As noted, moist conditions were found in Stratum II.

The relationship of these factors to design and construction of the new facility has been considered in subsequent sections of this report.

ANALYSIS AND RECOMMENDATIONS

Foundation Design - General

The foundation must satisfy two (2) basic and independent design criteria. The foundation system must have an acceptable factor of safety against bearing failure under the

maximum combination of loads. Furthermore, movement of the foundation due to consolidation of the supporting strata should not exceed tolerable limits for the structure.

Construction factors such as schedule, installation of foundation units, excavation depth and procedures, and surface and/or groundwater conditions must also be considered. These factors and the aforementioned subsurface soil and rock conditions were influential in development of the following recommendations.

Foundation Design

Finish Floor grade for the single-story facility has not been provided but is understood to be near El 102.5±. As a consequence of existing sloping topography, site grading will involve new fill depths of less than 1 ft to near 3 ft. The fill section will extend beyond the building line and perimeter retaining stem walls would not be required.

In view of the moderate but locally variable strength and low compressibility of the clayey sand and sandy clay soils, Stratum II, and shallow depth of weathered sandstone, Stratum III, it is concluded that the wall, column, and roof loads may appropriately be supported on a shallow individual and continuous spread footing foundation. In addition, a slab on grade integral with the foundation elements may be utilized, subject to recommendations included herein.

Spread Footings

Individual and continuous footings or turned down slab should be founded in the very stiff sandy clay/clayey sand, Stratum II encountered at depths of 1 ft or less or soft to moderately soft weathered sandstone encountered at depths of near 2.5 to 4 ft below existing grade. Individual and continuous footing should be founded nominally 6 ins. into Stratum II.

Footings founded on Stratum II or Select Fill, may be sized for a conservative net allowable bearing pressure of up to 2500 PSF under the maximum DL, LL, WL and Seismic condition. A minimum footing dimension of 2 ft, is however, recommended.

Individual and continuous footings or a turned down slab edge bearing on Stratum III, weathered sandstone may be sized for an allowable soil bearing pressure of up to 4500 PSF for maximum DL, LL, WL and Seismic loading. A minimum footing dimension of 2 ft is recommended.

The net allowable soil bearing pressures should provide a factor of safety on the order of 3.0 or greater with respect to encountered soil/rock conditions and Select Fill strengths. Total or differential movement should be less than 0.5 ins.

Lateral loads may be resisted by base sliding. Design may be based on an allowable coefficient of sliding of 0.35 for Strata II and III and 0.30 For Select Fill.

Floor System

A partial slab-on-grade floor system is considered appropriate for the new building subject to preparation of the Select Fill and existing Strata I and II soils in accordance with Site Grading. For control of moisture migration, the floor slab should be underlain by at least 4 ins. of free draining crushed stone or approved alternative as a capillary barrier. An impervious moisture barrier, such as taped Visqueen or more positive waterproofing, should be provided between the slab and crushed stone layer. If moisture control is not critical, the slab and turf may be underlain by 4 ins. of ArDOT Class 7 or similar granular material.

The slab on grade may be designed for a Modulus of Subgrade Reaction value of 120 pci for the compacted Select Fill/granular subgrade condition. Slab control joints should be provided in accordance with suggested practices of ACI.

Seismic Design

Under Arkansas Act 1100 Cleburne County is located within Seismic Zone 2 "area of moderate anticipated seismic damage." Based on conditions encountered on the site and other geotechnical criteria available, it is concluded that the structure may be designed using Soil Profile Type S 1 – "stiff soil conditions where soil depth is less than 200 ft and the soil types overlying rock are stable deposits on sand, silt and stiff clays." This profile type corresponds to the Site Coefficient (S) of 1.0. Liquefaction potential is considered to be insignificant for the residual clayey sand/sandy clay soils. As outlined in Act 1100 1991, structural design may be based on an Effective Peak Velocity-Related Acceleration (A_V) of 0.10 or specific values $A_v = 0.12$ and $A_a = 0.09$.

Seismic design under current IBC criteria may be based on Site Class B.

Pavement Design

As presently planned, new traffic areas are not provided for the Batting Cage building.

Site Grading

All soft compressible or unstable soils, existing fill and/or localized organic-containing soils should be removed from the area of new structure. The location and extent of weak soil zones may be established by proofrolling the subgrade with a minimum 20,000 lb. pneumatic-tired roller, loaded dump truck, or similar equipment.

Based on conditions encountered in the borings, the required stripping/undercut depth is anticipated to be less than 6 ins. during drier seasons. On the other hand, if sitework is performed during wetter seasons, deeper localized undercut of the silty Stratum I soil could be required. While significant undercut is not anticipated, consideration should be given to including an undercut allowance in the bid documents primarily to accommodate uncertainty around weather conditions and potential wet season undercut. An allowance of approximately 500 cu. yds. cross section basis may be utilized. Undercut, if required, should extend at least 5 ft outside the foundation line.

As noted, shallow soil conditions may change due to seasonal weather conditions. Consequently, on-site evaluation of actual conditions should be preformed by the Soils Engineer prior to and/or during initial stages of site work. Final decisions on undercutting should be reached on the basis of this evaluation.

Fill required for undercut backfill or to raise existing grade should consist of select clayey sand, SC, sandy clay, CL, or blends of shale/sandstone fragments/silty clay, having a Liquid Limit less than 40 and Plasticity Index less than 18. The low plasticity soils of Stratum II are considered suitable for use as Select Fill. Rock fragment blends should have a maximum particle size of 3 ins. after compaction breakdown.

Select Fill within the building area should be compacted to at least 95 percent of maximum Modified Proctor dry density (ASTM D-1557). Control of placement and compaction water content within a range of minus 1 to plus 3 percent of Optimum Water Content is essential. Lift thickness should typically be less that 8 ins or as dictated by compaction equipment type and size.

CONSTRUCTION PROCEDURES

The residual very stiff/medium dense soils, Stratum II, encountered to depths of near 2.5 to 4 ft, possess low moisture sensitivity. Nevertheless, care should be exercised during site grading to avoid excessive disturbance and to place compacted Select Fill promptly in excavations. We recommend that site grading and excavation be conducted during drier seasons of the year, if possible. Positive surface drainage should be established and maintained at the site to reduce potential difficulties.

Excavations for shallow footings in Strata I and II should be accomplished with medium duty equipment and tools. Saturation or minor seepage could be encountered in the residual soil during wetter seasons although of low volume and recharge. Footing excavations in soils should be performed with a smooth bucket excavator.

Soft weathered sandstone with some cemented sand, Stratum III, was encountered at depths of about 2.5 and 4 ft. This stratum exhibits variable weathering with reduced weathering at depth i.e., Practical Auger Refusal near 5 ft. The probability exists for encountering harder rock units in deeper trenches and footing excavations. Accordingly, it is recommended that the Bid Documents include unit pricing for Trench Rock removal. Trench Rock may be defined as rock larger than one-half cubic yard that cannot be removed with a Cat 300 excavator with rock bucket or equivalent equipment. An allowance quantity estimate can be developed from review of the Site Plan, Foundation and Utility drawings, when available. It should be noted that if hard excavation is reached in footings, additional penetration requiring Trench Rock removal would not be required for obtaining design bearing.

Prolonged exposure or inundation could result in changes in strength and compressibility characteristics of the Stratum I soils. Therefore, footing excavation cleaning, and steel and concrete placement should be completed promptly to reduce the possibility of change in condition. Foundation strata disturbed due to inundation should be removed to

undisturbed bearing stratum. In fill of required footing over excavation should consist of Flowable Fill or lean concrete.

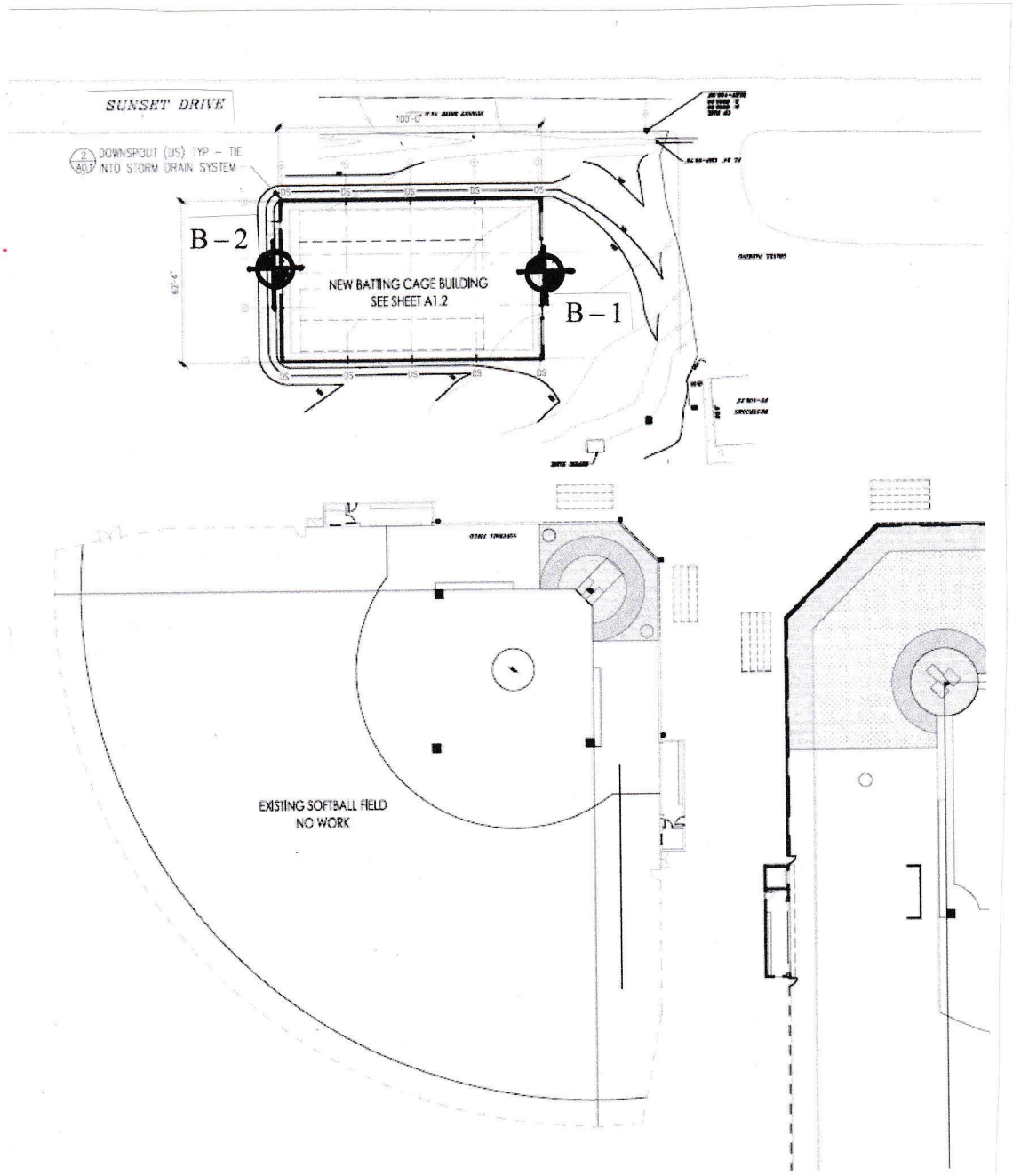
Site grading work and foundation installation should be monitored by the Architect, Soils Engineer or representative thereof. Subsurface conditions significantly at variance with those encountered in the borings should be brought to the attention of the Soils Engineer and work delayed pending evaluation and/or preparation of additional recommendations, if warranted.

The following illustrations are attached and complete this report:

Plate 1	Plan of Borings
Plate 2	Log of Boring
Plate 3	Key to Terms and Symbols

We have appreciated the opportunity to be of service to you on this project. If we may be of additional assistance during final design or construction, please contact us.

Cc: Lewis Architect Engineers
Attn: Bethany Allen / Melinda Jester
Greeson-Gatlin- Gangluff
Attn: Rob Gatlin P.E.



NORTH
N.T.S.

PLAN OF BORINGS
NEW BATTING CAGE
CONCORD SCHOOL DISTRICT
CONCORD, ARKANSAS

LOG OF BORING NO. 1

NEW BATTING CAGE
CONCORD SCHOOL DISTRICT
CONCORD, ARKANSAS

TYPE: AUGER/SPT — LOCATION: SEE PLATE 1

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL (SURF. EL: 101 ±)	BLOWS PER FT	UNIT DRY WT. LB/CU FT.	COHESION, TON/SQ FT (0.2 0.4 0.6 0.8 1.0 1.2 1.4) PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70)	- No. 200, %
			VERY STIFF BROWN SILT, ML, TRACE ORGANICS, DESICCATED	10			
			VERY STIFF REDDISH TAN SANDY CLAY, CL SC, MOIST	9			
5			STIFF WEAKLY CEMENTED TAN AND BROWN WEATHERED SANDSTONE	50 – 5 INS			
			PRACTICAL AUGER REFUSAL AT 5.0 FT				
10							

COMPLETION DEPTH: 5 FT — DEPTH TO WATER
DATE: 8-26-2024 — IN BORING: DRY AT DRILLING — DATE: 8-26-2024

LOG OF BORING NO. 2

NEW BATTING CAGE
CONCORD SCHOOL DISTRICT
CONCORD, ARKANSAS

TYPE: AUGER/SPT — LOCATION: SEE PLATE 1

DEPTH, FT	SYMBOL	SAMPLE	DESCRIPTION OF MATERIAL (SURF. EL: 99.5 ±)	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT (0.2 0.4 0.6 0.8 1.0 1.2 1.4) PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70)	- No. 200, %
			VERY STIFF REDDISH BROWN CLAYEY SAND, SC, DESICCATED	14			
			SOFT TAN WEAKLY CEMENTED WEATHERED SANDSTONE, MOIST	38			
5			MODERATELY HARD TAN WEATHERED SANDSTONE	50 – 2 INS			
			PRACTICAL AUGER REFUSAL AT 5.0 FT				
10							

COMPLETION DEPTH: 5 FT — DEPTH TO WATER
DATE: 8-26-2024 — IN BORING: DRY AT DRILLING — DATE: 8-26-2024

SYMBOLS AND TERMS USED ON BORING LOGS

SOIL TYPES
(SHOWN IN SYMBOL COLUMN)

Gravel | Sand | Silt | Clay

Predominant type shown heavy

SAMPLER TYPES
(SHOWN ON SAMPLES COLUMN)

Shelby Tube | Rock Core | Split Spoon | No Recovery

TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE GRAINED SOILS (major portion retained on No. 200 sieve): Includes (1) clean gravels and sands, and (2) silty or clayey gravels and sands. Condition is rated according to relative density, as determined by laboratory tests.

DESCRIPTIVE TERM	N-VALUE	RELATIVE DENSITY
VERY LOOSE	0-4	0-15%
LOOSE	4-10	15-35%
MEDIUM DENSE	10-30	35-65%
DENSE	30-50	65-85%
VERY DENSE	50 And above	85-100%

FINE GRAINED SOILS (major portion passing No. 200 sieve): Includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings or by unconfined compression tests.

DESCRIPTIVE TERM	UNCONFINED COMPRESSIVE STRENGTH TON/SQ. FT.
VERY SOFT	Less than 0.25
SOFT	0.25 - 0.50
FIRM	0.50 - 1.00
STIFF	1.00 - 2.00
VERY STIFF	2.00 - 4.00
HARD	4.00 and higher

NOTE: Slickensided and fissured clays may have lower unconfined compressive strengths than shown above, because of planes of weakness or cracks in the soil. The consistency ratings of such soils are based on penetrometer readings.

TERMS CHARACTERIZING SOIL STRUCTURE

SLICKENSIDED — having inclined planes of weakness that are slick and glossy in appearance.

FISSURED — containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical.

LAMINATED — composed of thin layers of varying color and texture.

INTERBEDDED — composed of alternate layers of different soil types.

CALCAREOUS — containing appreciable quantities of calcium carbonate.

WELL GRADED — having wide range in grain sizes and substantial amounts of all intermediate particle sizes.

POORLY GRADED — predominantly of one grain size, or having a range of sizes with some intermediate sizes missing.

Terms used in this report for describing soils according to their texture or grain size distribution are in accordance with the UNIFIED SOIL CLASSIFICATION SYSTEM, as described in Technical Memorandum No. 3-357, Waterways Experiment Station, March 1953.

PLATE

GARNER ENGINEERING, P.A.

Section 01 31 19

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), pre-fabricated steel building contractor, 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

Section 01 33 23

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

Section 01 45 29

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

Section 01 45 33

CODE-REQUIRED SPECIAL
INSPECTIONS AND PROCEDURES

PART ONE - GENERAL

1.1 WORK INCLUDED

A. The Owner will pay for all inspections and testing as required by the 2012 Arkansas Fire Prevention Code referred to as "Special Inspections". (Refer to the attached schedule for required inspections and testing for the project.)

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 Special Inspector shall meet one of the minimum qualifications as listed for the applicable Category of Testing and Inspection in accordance with the attached "Minimum Qualifications for Special Inspectors" (E1, E2 and E3).

PART TWO - PRODUCTS

Not used.

PART THREE - EXECUTION

3.1 SPECIAL INSPECTORS RESPONSIBILITIES

A. The Special Inspectors shall:

1. Schedule and manage a pre-construction meeting for special inspections.
   a. The roles and responsibilities of the parties shall be discussed (see Arkansas Special Inspection Guidelines – Special Inspection Responsibilities).
2. Notify the contractor of their presence and responsibilities at the job site.
3. Observe assigned work for which they are responsible for conformance with the plans and specifications.

4. Report nonconforming items to the immediate attention of the contractor and the Registered Design Professional in Responsible Charge (RDPRC). After the RDPRC's review, the contractor shall make corrections.
5. Write a discrepancy notice (page D2) about each nonconforming item containing:
    a. Description and exact location.
    b. Reference to applicable drawings and specifications.
    c. Resolution or corrective action taken and the date.
6. Provide timely reports (page D1) and furnish these reports directly to the Design Professional and the contractor. The reports should:
    a. Describe the special inspection and tests made, with locations.
    b. Indicate nonconforming items and their resolution.
    c. List unresolved items and parties notified.
    d. Itemize any changes authorized by the Design Professional.
7. Furnish interim reports to the Building Official and Design Professional at the frequency indicated on the *Statement of Special Inspections*.
8. Initial and date the "Date Completed" box in the *Schedule of Special Inspection Services* as the inspection and testing activities are completed.
9. Submit a signed *Final Report of Special Inspections* (page A4) stating that all required special inspections and testing were fulfilled and reported and that any outstanding discrepancies have been corrected.
10. Refer to drawings and specifications for all other required inspection/testing.

END OF SECTION

STATEMENT OF SPECIAL INSPECTIONS

(Completed by the Registered Design Professional in Responsible Charge)

PROJECT: Concord Batting Cages

LOCATION: Concord School District

PERMIT APPLICANT: Concord School District

APPLICANT'S ADDRESS: 10920 Heber Springs Road, Concord, AR 72523

ARCHITECT OF RECORD: Clayton Vaden, AIA

STRUCTURAL ENGINEER OF RECORD: Robert E. Gatlin, P.E.

MECHANICAL ENGINEER OF RECORD:

ELECTRICAL ENGINEER OF RECORD: Scott Woodward, P.E.

REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE: Clayton Vaden, AIA

This Statement of Special Inspections is submitted in accordance with Section 1704.3 of the 2021 Arkansas Fire Prevention Code. It includes a *Schedule of Special Inspection Services* applicable to the above-referenced Project as well as the identity of the individuals, agencies, or firms intended to be retained for conducting these inspections. If applicable, it includes *Requirements for Seismic Resistance* and/or *Requirements for Tornado Resistance*.

Are *Requirements for Seismic Resistance* included in the *Statement of Special Inspections*?	☐ Yes	X No
Are *Requirements for Tornado Resistance* included in the *Statement of Special Inspections*?	☐ Yes	X No

The Special Inspector(s) shall keep records of all inspections and shall furnish interim inspection reports to the Building Official and to the Registered Design Professional in Responsible Charge at a frequency agreed upon by the Design Professional and the Building Official prior to the start of work. Discrepancies shall be brought to the immediate attention of the Contractor for correction. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Registered Design Professional in Responsible Charge prior to completion of that phase of work. A *Final Report of Special Inspections* documenting required special inspections and corrections of any discrepancies noted in the inspections shall be submitted to the Building Official and the Registered Design Professional in Responsible Charge at the conclusion of the project.

Frequency of interim report submittals to the Registered Design Professional in Responsible Charge:

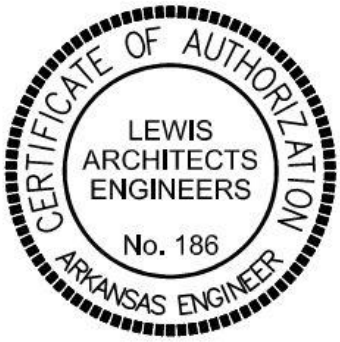
__Weekly __Bi-Weekly __Monthly Other; specify:_____

The Special Inspection program does not relieve the Contractor of the responsibility to comply with the Contract Documents. Jobsite safety and means and methods of construction are solely the responsibility of the Contractor.

Statement of Special Inspections Prepared by:

Clayton Vaden, AIA
Type or print name

August 9, 2024
Signature Date



Building Official's Acceptance:

Signature Date

Permit Number:

Frequency of interim report submittals to the Building Official:

__Monthly __Bi- Monthly __Upon Completion Other; specify:_____

FINAL REPORT OF SPECIAL INSPECTIONS

(Completed by each Special Inspector)

PROJECT: _____

LOCATION: _____

PERMIT APPLICANT: _____

APPLICANT'S ADDRESS: _____

_____

ARCHITECT OF RECORD: _____

STRUCTURAL ENGINEER OF RECORD: _____

MECHANICAL ENGINEER OF RECORD: _____

ELECTRICAL ENGINEER OF RECORD: _____

REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE: _____

To the best of my information, knowledge, and belief, which are based upon observations or diligent supervision of our inspection services for the above-referenced Project, I hereby state that the special inspections or testing required for this Project, and designated for this Agent in the *Schedule of Special Inspection Services*, have been completed in accordance with the Contract Documents and approved design revisions.

The Special Inspection program does not relieve the Contractor of the responsibility to comply with the Contract Documents. Jobsite safety and means and methods of construction are solely the responsibility of the Contractor.

Interim reports submitted prior to this final report and numbered___to___form a basis for, and are to be considered an integral part of this final report. The following discrepancies that were outstanding since the last interim report dated _____ have been corrected:

_____

_____

_____

_____

_____

(Attach 8 ½"x11" continuation sheet(s) if required to complete the description of corrections)

Prepared By:

_____

Special Inspection Agent/Firm

_____

Type or print name of Special Inspector

_____

Signature Date

Contractor's Statement of Responsibility

Each contractor responsible for the construction or fabrication of a main wind- or seismic force-resisting system, designated seismic system or a wind- or seismic-resisting component listed in the Statement of Special Inspections (Requirements for Seismic or Tornado Resistance) must submit a Statement of Responsibility, in accordance with the Building Code, Section 1704.4.

Project:_____

Contractor's Name:_____

Address:_____

License No.:_____

Description of building systems and components included in Statement of Responsibility:

_____
_____
_____
_____
_____
_____
_____

Contractor's Acknowledgement of Special Requirements

I hereby acknowledge that I have received, read, and understand the Statement of Special Inspections and Special Inspection program:

I hereby acknowledge that control will be exercised to achieve conformance with the approved construction documents.

_____
Name and Title (type or print)

_____ _____
Signature Date

Contractor's Provisions for Quality Control

Procedures for exercising control within the contractor's organization, the method and frequency of reporting and distribution of reports is attached to this Statement.

Identification and qualifications of the person(s) exercising such control and their position(s) in the organization are attached to this Statement

Fabricator's Certificate of Compliance

Each approved fabricator that is exempt from Special Inspection of shop fabrication and implementation procedures per section 1704.2.5.1 of the Building Code must submit *Fabricator's Certificate of Compliance* at the completion of fabrication.

Project:_____

Fabricator's Name:_____

Address:_____

Certification or Approval Agency:_____

Certification Number:_____

Date of Last Audit or Approval:_____

Description of structural members and assemblies that have been fabricated:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

I hereby certify that items described above were fabricated in strict accordance with the approved construction documents.

_____
Name and Title (type or print)

_____ _____
Signature Date

Attach copies of fabricator's certification or building code evaluation service report and fabricator's quality control manual.

SPECIAL INSPECTION REPORT

(Completed by Special Inspector)

PROJECT NAME / ADDRESS:	
DATE OF INSPECTION:	
INSPECTION TYPE(S) COVERAGE ☐ CONTINUOUS ☐ PERIODIC TIME BEGINNING INSPECTION: TIME ENDING INSPECTION:	
DESCRIBE INSPECTIONS MADE, INCLUDING LOCATIONS:	
LIST TESTS MADE:	
LIST ITEMS REQUIRING CORRECTIONS, CORRECTIONS OF PREVIOUSLY LISTED ITEMS AND PREVIOUSLY LISTED UNCORRECTED ITEMS: PROVIDE COPIES OF DISCREPANCY NOTICES:	
COMMENTS:	
TO THE BEST OF MY KNOWLEDGE, WORK INSPECTED WAS IN ACCORDANCE WITH THE APPROVED DESIGN DRAWINGS, AND SPECIFICATIONS, EXCEPT AS NOTED ABOVE.	
PRINTED FULL NAME	
NOTE BY "SPECIAL INSPECTOR" OR PROVIDE NAME OF TESTING AGENCY	
SIGNED:	DATE:
CERTIFICATION:	NUMBER:

One copy of this report to remain at job site with the contractor for review upon request.

DISCREPANCY NOTICE No. _____

SPECIAL INSPECTION DISCREPANCY NOTICE

(Completed by Special Inspector)

PROJECT NAME / ADDRESS:		
INSPECTION TYPE(S) COVERAGE ☐ CONTINUOUS ☐ PERIODIC		
AREA INSPECTED	TYPE OF INSPECTION	
APPLICABLE DRAWING SHEET NUMBER(S) AND/OR SPECIFICATION SECTION:		
NOTICE DELIVERED TO: O CONTRACTOR O ENGINEER/ARCHITECT O OWNER	DATE:	TIME:
MAKE THE FOLLOWING CORRECTIONS AND SECURE INSPECTION APPROVAL PRIOR TO PROCEEDING WITH THIS PHASE OF THE WORK.		
PRINTED FULL NAME		
NOTE BY "SPECIAL INSPECTOR" OR PROVIDE NAME OF TESTING AGENCY		
SIGNED:	DATE:	
CERTIFICATION:	NUMBER:	
DATE RE-INSPECTED AND APPROVED AND SIGNATURE OF SPECIAL INSPECTOR:		

One copy of this report to remain at job site with the contractor for review upon request.

MINIMUM SPECIAL INSPECTOR QUALIFICATIONS

Category of Testing and Inspection	Minimum Qualifications (refer to key at end of Table)			
	Shop Inspection	**Field Testing /Inspection**	**Review Submittals**	**Review Testing, Certification, & Lab Reports**
1704.2.5 Inspection of Fabricators				
Pre-cast concrete	A, C, E			
Structural steel construction	C, F, G			
Wood construction	A, N			
Cold formed metal construction	A, N			
1705.2 Steel Construction				
Welding	C, F, G	C, F, G	A	A
High strength bolting, inspection of steel frame joint details		A, C	A	A
1705.2.2, 1705.2.3 and 1705.2.4 Steel Construction other than Structural Steel				
Welding	C, F, G	C, F, G	A	A
Cold-formed Steel Deck		C, F, G	A	A
Open-Web Steel Joist and Joist Girders		C, F, G	A	A
Cold-formed Steel Trusses spanning ≥ 60ft		A, C	A	A
1705.3 Concrete Construction				
Reinforcing placement, cast-in-place bolts, concrete and shotcrete placement and curing operations		A, C, H		
Pre-stressing steel installation		A, C, D, E		
Erection of pre-cast concrete members		A, C, H, Q		
Concrete field testing		A, C, H, I, J		
Review certified mill reports and design mixes			A	
Verify use of required design mix		A, C, H, I, J		
Pre-stressed (pre-tensioned) concrete force application	A, C, E			
Post-tensioned concrete force application		A, C, D, H		
Review of in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs		A, C, D		
Reinforcing steel weldability, reinforcing welding, weld filler material		C, F, G		
Inspection of post-installed anchors in hardened concrete		A, C, S		
1705.4 Masonry				
Review f'_m prior to construction			A	
Mortar joint construction, grout protection and placement, materials proportion, type/size/location of reinforcement, structural elements, anchorage, and connectors		A, C		
Sampling/testing of grout/mortar specimens		A, C, K		
Observe preparation of masonry prisms for testing of compressive strength of masonry, f'_m		A, C, K		
Inspection of welding of reinforcing steel		C, F, G		
1705.5 Wood Construction				
Observe structural panel sheathing, size of framing members, fastener diameter and length, number of fastener lines, and spacing of fastener lines and fasteners for compliance with approved construction documents for the project		A, N		
Metal-plate-connected wood trusses: verify temporary and permanent truss bracing is installed per approved truss submittal package		A, N		

(Table continued on next page)

MINIMUM SPECIAL INSPECTOR QUALIFICATIONS *(continued)*

Category of Testing and Inspection	Minimum Qualifications (refer to key at end of Table)			
	Shop Inspection	**Field Testing /Inspection**	**Review Submittals**	**Review Testing, Certification, & Lab Reports**
1705.6 Soils				
Observe site preparation, fill placement and testing of compaction for compliance with the construction documents for the project		A, C, I, R		
Observe and test bearing materials below shallow foundations for ability to achieve design bearing capacity		A, L		
Review compaction testing for compliance with the construction documents for the project				A
1705.7, 1705.8 & 1705.9, 1705.10 Driven Deep, Cast-in-place Deep, and Helical Pile Foundations				
Observe installation		A, L, I		
Observe load tests		A, I		
1705.12 Special Inspection for Wind Resistance				
Structural wood		A, N		
Cold-Formed steel light-frame construction		A, N		
Inspect roof cladding		A, B, N		
Inspect wall cladding		A, B, N		
1705.13 Special Inspection for Seismic Resistance				
1705.13.1 Structural Steel				
Inspection of structural steel in the seismic force-resisting systems		A, C		
1705.13.2 Structural Wood				
Inspection of structural wood in the seismic force-resisting systems		A, N		
1705.13.3 Cold-Formed Steel Light-Frame Construction				
Inspection of cold-formed steel light-frame construction in the seismic force-resisting systems		A, N		
1705.13.4 Designated Seismic Systems				
Examine designated seismic systems requiring seismic qualification and verify that the label, anchorage or mounting conform to the certificate of compliance		A	A	A
1705.13.5 Architectural Components				
Inspection of exterior cladding, non-load bearing walls, veneer, and access floors		A, B	A, B	A, B
1705.13.6 Plumbing, Mechanical and Electrical Components				
Inspection of installation and anchorage of mechanical and electrical components		A	A	A
1705.13.7 Storage Racks				
Inspection of anchorage of storage racks 8 feet or taller		A		
1705.13.8 Seismic Isolation Systems				
Inspection of seismic isolation systems in seismically isolated structures	A	A		
1705.13.9 Cold-Formed Steel Special Bolted Moment Frames				
Inspection of cold-formed steel special bolted moment frames		A, N		
1705.14 Testing for Seismic Resistance				
Testing designated seismic systems requiring seismic qualification and verify that the label, anchorage or mounting conform to the certificate of compliance		A		
1705.15 Sprayed Fire-Resistant Materials				
Observe surface conditions, application, average thickness and density of applied material, and cohesive/adhesive bond		A, C		

(Table continued on next page)

MINIMUM SPECIAL INSPECTOR QUALIFICATIONS *(continued)*				
Category of Testing and Inspection	**Minimum Qualifications (refer to key at end of Table)**			
	Shop Inspection	**Field Testing /Inspection**	**Review Submittals**	**Review Testing, Certification, & Lab Reports**
1705.16 Mastic and intumescent fire-resistant coatings				
Observe application compliance with AWCI 12-B		A, C		
1705.17 Exterior Insulation and Finish Systems				
Inspect EIFS systems		A, B, C, M		
1705.18 Fire-resistant penetrations and joints				
Inspection of Penetration firestops		A, C, P		
Inspection of Fire-resistant joint systems		A, C, P		
1705.19 Testing for Smoke Control	*See Requirements of Building Code Section 1705.19.2.*			
1705.20 Sealing of Mass Timber		A, C, P		
(Table continued on next page)				

MINIMUM SPECIAL INSPECTOR QUALIFICATIONS *(continued)*

KEY:

A. Arkansas Professional Engineer (AR PE) competent in the specific task area or graduate of accredited engineering/engineering technology program under the direct supervision of an AR PE.
B. Arkansas Registered Architect (AR RA) competent in the specific task area or graduate of accredited architecture/architecture technology program under the direction of an AR RA.
C. International Code Council (ICC) Special Inspector Certification specific to the particular material and testing methodology applicable to each Category of Testing and Inspection listed in the table.
D. Post-tensioning Institute (PTI) Certification, Level 2.
E. Pre-stressed Concrete Institute (PCI) Plant Quality Personnel Certification – Level III.
F. American Welding Society (AWS) Certified Welding Inspector (CWI) or AWS Certified Associate Welding Inspector working under the direct on-site supervision of a CWI.
G. American Society for Nondestructive Testing (ASNT) Level II certification, or a Level III certification if previously certified as a Level II in the particular material and testing methodology applicable to each Category of Testing and Inspection listed in the table.
H. American Concrete Institute (ACI) Concrete Construction Special Inspector.
I. National Institute for Certification in Engineering Technologies (NICET) Level II or higher certification specific to the particular material and testing methodology applicable to each Category of Testing and Inspection listed in the table.
J. ACI Concrete Field Testing Technician with Grade 1 certification or Center for Training Transportation Professionals (CTTP) Certified Concrete Field Testing Technician.
K. American Concrete Institute (ACI) Masonry Field Testing Technician
L. NICET Certified Engineering Technologist (CT) competent in the specific task area.
M. Association of the Wall and Ceiling Industry (AWCI) EIFS Inspector Certification.
N. International Code Council (ICC) Commercial Building Inspector Certification.
O. International Code Council (ICC) Mechanical Inspector Certification.
P. Inspector has passed either the Underwriters Laboratory (UL) Firestop Contractor Program Examination or the Factory Mutual (FM) Firestop Examination.
Q. Pre-stressed Concrete Institute (PCI) Certified Field Auditor
R. Center for Training Transportation Professionals (CTTP) Certified Soil Testing Technician.
S. American Concrete Institute (ACI) Post-Installed Concrete Anchor Installation Inspector

Notes:

1. *The Special Inspector shall meet one of the minimum qualifications listed for the applicable Category of Testing and Inspection.*
2. *Materials testing shall be done by an Approved Testing Agency meeting the requirements of the Building Code Section 1703 and ASTM E 329*.

Section 01 50 00

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.

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

Section 01 74 23

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 FINAL CLEANING

A. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.

B. Rake clean surfaces of the grounds disturbed during construction.

END OF SECTION

Section 01 77 19

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. If the Architect determines that the state of preparedness is as represented, the punch list will promptly be started.

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.

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

Section 01 78 39

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 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. Field changes of dimension and detail.

4. Changes made by Field Order or by Change Order.
5. 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

Section 02 30 00

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

PART ONE - GENERAL

1.1 GENERAL

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

1.2 REFERENCE STANDARDS

A. ACI 318 "Building Code Requirements for Reinforced Concrete".

B. 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 01 33 23, 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 01 33 23 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/II, or ASTM C-595, Type IL.

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 VAPOR BARRIER: See specification section 07 26 16.

2.4 FLOOR SEALER: MasterKure CC 180 WB as manufactured by BASF.

2.5 CURING COMPOUND: 1100-Clear by W.R. Meadows.

2.6 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.

2.7 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. Moisture Cure: 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.

B. Curing Compound: Provide curing compound as recommended by manufacturer.

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 curing compound to interior and exterior concrete. Curing compound shall not be applied to slabs to receive floor hardener.

B. Apply floor hardener to interior slabs in accordance with manufacturer's recommendations. Cure floors as per 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

Section 05 12 00

STRUCTURAL STEEL

PART ONE - GENERAL

1.1 GENERAL CONDITIONS

All work under this section is subject to the General Conditions and Supplementary General Conditions and shall be governed by the requirements therein.

1.2 SCOPE

This section shall include the furnishing and erection of all structural steel. No structural steel members shall be cut or altered by any of the trades, without written permission from the Architect.

1.3 DISCRETIONARY STEEL ALLOWANCE

This contractor shall provide a cash allowance of $3,000 for fabrication, re-fabrication and erection of steel. This is to be used at the discretion of the Architect and only with the Architect's written approval. This steel is not for Miscellaneous or Structural Steel detailed on plans. If any portion of this allowance is not used, the cost of which will be refunded to the Owner.

1.4 VERIFY DIMENSIONS

General Contractor shall field verify existing dimensions prior to fabrication of structural steel.

1.5 SHOP DRAWINGS

Steel fabricator shall submit one hard copy (not to be returned) and one electronic copy in PDF format as per Section 01 33 23 of detailed and checked shop drawings for approval by the Architect. All drawings shall clearly show location and sizes of all material, all building dimensions and elevations pertinent to the structure, and any other miscellaneous technical and erection data required for approval and construction. These shop drawings must be approved by the Architect before fabrication and shipment. PARTIAL SUBMITTALS WILL NOT BE ACCEPTED UNLESS APPROVED IN ADVANCE WITH THE ARCHITECT.

PART TWO - MATERIALS

2.1 STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING:

A. Wide flange shapes and WT sections: High-Strength, Low-alloy, Columbium-Vanadium Steels of Structural Quality, ASTM A 992 Fy=50 ksi.

B. Angles, round bars, and channels: Specifications for Structural Steel, ASTM A36, Fy=36 ksi.

C. Plates less than ½" thick: ASTM A36, Fy=36 ksi.

D. Bars and Plates ½" Thick and Greater: ASTM A-572, Fy=50 ksi.

E. Steel pipe: Specification for Electric Resistance Welded Pipe ASTM A53, Grade B (Fy=35 ksi) or Specification for Hot-Formed Welded Seamless Carbon Steel Structural Tubing, ASTM A501 (Fy = 36ksi).

F. Steel tubing: Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes ASTM A500 Grade C (Fy = 50 ksi).

2.2 FASTENERS SHALL CONFORM TO THE FOLLOWING:

A. Arc-welding electrodes: American Welding Society "Specifications for Iron and Steel Arc-Welding Electrodes", latest addition, Type E70XX

B. Bolts

1. Bolts for wood blocking: Specification for Carbon Steel Externally and Internally Threaded Standard Fasteners, ASTM A307.
2. Bolts for main structural connections or bolts not otherwise specified:
   a. Specification for High Strength Bolts for Structural Steel Joints Including Suitable Nuts and Plain Hardened Washers, ASTM A325 Type N. Include suitable nuts and plain hardened washers, or
   b. Standard Specification Twist Off Type Tension Control Structural Bolt/Nut/Washer Assembly ASTM F-1852-08. 120/105 Min. tensile strength.

D. Expansion Anchors in Concrete:

1. In concrete: ICC-ES AC193. Acceptable anchors are Hilti KWIK Bolt-TZ2 (ICC-ESR-4266), Simpson Strong-Bolt 2 (ICC-ES ESR-3037), Powers Power-Stud+SD2 (ICC-ES-ESR 2502), or Powers Power Stud+SD1 (ICC-ES-ESR 2818)

E. Screw Anchors in Concrete:

1. In concrete: ICC-ES AC193. Acceptable anchors are Hilti KWIK HUS-EZ and KWIK HUS-EZ I (ICC-ESR-3027), Hilti KWIK-X Dual Action Anchor (ICC-ESR-5065), Simpson Titen HD and Titen HD Rod hanger (ICC-ESR-2713), or DEWALT SCREW BOLT+ (ICC-ES-ESR 3889)

F. Adhesive Anchors:

1. In concrete: ICC-ES AC308. Acceptable anchors are Hilti HIT-HY 200 V3 fast cure (ICC-ESR-4868), Hilti HIT-RE 500 V3 slow cure (ICC-ESR-3814), Simpson SET-3G (ICC-ESR-4057), Simpson AT-XP (IAPMO UES-ER263), DEWALT Pure 220+, EPOXY SYSTEM Standard Cure – (ICC-ES-ESR 5144), DEWALT AC 200+, ACRYLIC SYSTEM fast cure – ICC-ES ESR 4027) (Use with DEWALT Dust X system with Hollow drill bit for OSHA compliance), or approved equal. Steel anchor element shall be Hilti HAS-V-36, ASTM F1554 Grade 36, or ASTM A193, Grade B6, B8, or B8M continuously threaded rod. Store all anchoring products in strict accordance with manufacturer’s recommendations.

G. Undercut Anchors:

1. In Concrete: ICC-ES AC193. Acceptable anchors are Hilti HDA (ICC-ESR-1546), Simpson Torq-cut (ICC-ESR-2705), or DEWALT CCU+ Undercut anchor (ICC-ES-ESR 4810).

2.3 FABRICATION

A. Workmanship and fabrication shall be in accordance with AISC "Specification, Design, Fabrication and Erection of Structural Steel for Buildings" and with the following outline.

B. Welding shall be in accordance with the "Standard Code for Arc Welding in Building Construction" of the American Welding Society.

C. All structural steel shall be kept free of mud and dirt. Any dirty or muddy steel shall be washed clean.

D. Bearing surfaces shall be planed to true beds. Abutting surfaces shall be closely fitted.

E. All columns and bearing stiffeners shall be milled to give full bearing over the cross section. Column base plates 2" or less in thickness may be used without planing. It will not be necessary to plane bottom surfaces of plates or grout beds.

F. There shall be no splices (shop or field, bolted or welded) along structural steel members other than at locations shown on plans.

G. This Contractor shall be responsible for design and fabrication of all "simple framed" member connections unless detailed on plans. "Rigid framed" connections shall be fabricated as detailed on plans. Design and fabrication of connections shall meet the requirements of AISC Specifications.

H. Bolted connections shall meet AISC Specification for Structural Joints using ASTM A325 Type N; UNO on plans.

I. Fascia girders and other steel requiring accurate alignment shall be provided with slotted holes and/or washers for aligning the steel accurately.

2.4 PAINTING

A. Deliver paint to shop and job in original sealed containers clearly marked with the manufacturer's name and identifying brand number or name. Use paint as prepared by the manufacturer without thinning or other admixture.

B. All structural steel shall be shop painted as follows:

1. Apply one coat of standard oxide primer (DFT = 3mil) to all surfaces of steel work.
2. Do not apply shop paint within 2" of surfaces to be field welded.
3. Do not apply shop paint to steel to be fire-proofed.
4. Exposed steel shall not have piece marks applied with bleed through type markers.

PART THREE - EXECUTION

3.1 ERECTION

A. Erection shall include the setting of all columns and bases and erection of all structural steel as called for under the contract for furnishing and delivery of structural steel, but shall not include the setting of loose lintels (to be set by mason).

B. Set column bases and beam plates 12” x 12” and larger to accurate elevations approximately 1” clear of masonry on steel wedges and/or bolts as indicated on drawings. These will be grouted by the mason who will also set small beam plates. Wooden wedges shall not be used. Set anchor bolts to be concreted in by the mason.

C. See the drawings and general notes for field connections.

D. Field errors shall not be corrected by burning except with the permission of the Architect.

E. Brace and guy all structural members until all connections are made.

F. After erection, touch up all injuries to priming coat and all others where field welding is done. Bolt heads and nuts shall be touched up in field. Use same material as specified for shop coat.

3.2 WELDING

A. Welding in shop and field shall be done by operators who have been previously qualified by tests as prescribed in the American Welding Society, "Standard Qualification Procedure." All operators must have successfully passed the welding qualification tests within a 24-month period preceding erection. The Architect shall be provided a copy of the welding qualification test for each operator at no additional cost to the Owner.

B. Equipment to be of a type which will produce proper current so that operator may produce satisfactory welds. Welding machine shall be of 200-400 ampere, 25-40 volt capacity.

C. Electrodes shall be suitable for positions and other conditions of intended use in accordance with the instructions with each container.

D. Field welding shall be done by direct current.

E. Technique of welding employed, the appearance and quality of welds made and methods of correcting defective work shall conform to American Welding Society "Code for Arc Welding in Building Construction", Section 4, "Workmanship".

F. Surfaces to be welded shall be free from loose scale, rust, grease, paint and other foreign material except that mill scale withstanding vigorous wire brushing may remain. A light film of linseed oil may likewise be disregarded. Joint surfaces shall be free from fins and tears.

G. No welding shall be performed when temperature of the base metal is lower than 0 degrees F. At temperatures between 32 degrees F. and 0 degrees F., the surfaces of all areas within 3” of a point where a weld is started shall be heated until they are too hot to touch before welding is started.

H. Finished members shall be true to line and free from twists, bends, and open joints.

3.3 TESTS

A. Laboratory tests. Methods of testing shall be according to the following:
STRUCTURAL STEEL – ASTM A-36, ASTM A992 or ASTM A572. Two tension tests from each melt. Two bend tests from each melt.

STEEL ELECTRODES – ASTM A-223, As directed.

B. Field Tests. All field and shop welders shall be tested and certified by an approved testing laboratory. The American Welding Society Operator Qualification test shall be used as a basis of qualification.

All field and shop operators shall qualify for the following:

Type of Weld	Position of Welding
Groove	Horizontal
Groove	Vertical
Groove	Overhead
Fillet	Vertical
Fillet	Overhead

C. The Architect's Representative may require strap cuts from welds in any supporting member to withstand nick-break test. If strap fails to meet requirements, Contractor shall replace strap cut from member at no charge to Owner. If strap does meet requirements, the Architect shall pay expenses of having metal replaced. In event strap fails, the welder shall be discharged.

3.4 OBSERVATION

The work shall be observed in the shop and the field. The Contractor shall give proper notice and allow full facilities for this observation. Notify Architect 48 hours prior to shipping structural steel.

END OF SECTION

Section 05 50 00

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.

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

Section 06 06 00

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:

Item:	Description:
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	T&G, A-B with one side sanded.
Pressure-treated wood	Wolman CCA preservative by the Koppers Co. Pressure impregnated in accordance with AWPA Standard C-2 (or approved equal)
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)

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

Section 06 20 00

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. Installing all finish hardware.

1.1.2 Related work described elsewhere:

1. Furnishing Finish Hardware Section 08 71 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 material's manufacturers.

1.2.1.3 Qualifications of finish hardware adjuster: Provide the services of an AHC member of Door and Window Institute, or an equally qualified individual approved in advance by the Architect.

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 PROTECTION

2.1.1 All work and materials shall be protected from weather, grease, stain, abuse, etc., after erection by temporary shielding or covering.

2.1.2 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 HARDWARE

3.2.1 Location: Using only the specified finish hardware, and the proper equipment for the purpose, install all other finish hardware in the following locations throught the Work:

1. Door pulls or plates: Centered 40 5/16" above the finish floor.
2. Door closing devices: Install and adjust in strict accordance with the templates and printed instructions supplied by the manufacturer of the devices. Insofar as practicable, doors opening to or from halls or corridors shall have the closer mounted on the room side of the door.
3. Extension lever flush bolts: In the edge of the door. Center to bolt fronts 12" from bottom and 12" from top edge of the door.
4. Kick plates: On single-acting doors with kick plate on push side. On double-acting doors with kick plate on both sides.
5. Mortise dead-lock strike: Center 60" above the finish floor.
6. Knob lock and knob latch strikes: Center 40 5/16" above the finish floor.
7. Panic bolt cross bars: Align in horizontal position with top and bottom bolts and rods aligned vertically. Install the centerline of strike 40 5/16" above finish floor.
8. Push plates: Centered 48" above the finish floor.
9. Other hardware items: Install as directed not described above.

3.2.2 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

Section 07 92 00

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

Section 08 11 00

METAL DOORS AND FRAMES

PART ONE - GENERAL

1.1 DESCRIPTION

1.1 Work included: Provide all standard and non-standard steel doors and steel door and window frames, complete in place, not specifically described in other Sections of these Specifications but indicated on the Drawings or otherwise required for a complete and operable facility.

1.1.2 Related work described elsewhere:

1.	Door Hardware	Section 08 71 00
2.	Painting	Section 09 91 00

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.

1.2.3 Single source: All work of this Section shall be produced by a single manufacturer unless otherwise approved by the Architect.

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 details of each frame type, elevations of each door design type, details of all openings, and all details of construction, installation, and anchorage.
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.

PART TWO - PRODUCTS

2.1 STEEL DOORS (NON-LABELED)

Steel doors to be manufactured by Curries Manufacturing, Inc., Mason City, Iowa, or approved equal.

2.1.1 Model: Curries 707 Series Doors. Core materials for doors to be expanded polystyrene for insulated doors, permanently bonded to the inside of each face sheet.

2.1.2 Facesheets: Full flush 18 gauge cold rolled steel, stretcher-levelled quality of flatness.

2.1.3 Vertical edges of doors to have an exposed center seam.

2.1.4 Hinge and lock rail reinforcements: Hinge and lock rail shall be reinforced with a one piece full height 14 gauge channel. Both hinge and lock channels to be welded to each face sheet of the door.

2.1.5 Doors shall have a beveled (1/8” in 2”) lock edge and square hinge edge.

2.1.6 Finish to be phosphatized inside and out and factory coat of prime paint.

2.1.7 Top and bottom channels: 16 gauge top and bottom channels welded to door skins at 4" centers.

2.1.8 Closer reinforcement: Box type factory installed, 14 gauge.

2.1.9 Other reinforcement: All hardware shall have factory installed reinforcement as required for hardware specified and as approved by the Architect.

2.1.10 Glazing system: GBST steel in factory primed finish.

2.1.11 Channel fillers: Screw applied steel tap cap in toilet stall and exterior doors only.

2.1.12 Astragal: Overlapping, 14 gauge material.

2.2 STEEL FRAMES

Steel frames to be as manufactured by Curries Manufacturing, Inc., Mason City, Iowa, or approved equal.

2.2.1 Construction: 16 gauge in frame depths as detailed. Frames to be mitered, face welded and ground smooth. Plaster guards to be provided at all hinge and strike locations.

2.2.2 Hinge reinforcement: 7 gauge with a minimum of 4 projection welds per reinforcement.

2.2.3 Strike reinforcement: 14 gauge with tubulated screw holes.

2.2.4 Surface mounted hardware reinforcement: Min. 14 gauge.

2.2.5 Frame to be prepared for 4-1/2" x 4-1/2" standard weight or heavy weight hinges and strike plate as required for hardware specified.

2.2.6 Anchors: Masonry or stud anchors at max. 24 inches o.c., suitable to specified wall conditions and as approved by the Architect.

2.2.7 Silencers: Three per strike jamb and two per head on double swing frames. Punch frames to receive silencers.

2.2.8 Finish: Factory installed one coat of rust inhibitive primer.

2.3 FIRE RATED DOOR ASSEMBLIES

2.3.1 All labeled fire door assemblies to be of a type which have been classified and listed in accordance with the latest edition of NFPA80 and tested in compliance with NFPA-252, UL-10B, and UBC-7-2. A physical label to be affixed to the fire door at an authorized facility. Embossed labels are acceptable on standard three sided door frames.

2.3.2 For openings required to be fire rated exceeding limitations of labeled assemblies, submit manufacturer's certification that each door and frame assembly has been constructed to conform to design, materials, and construction equivalent to requirements for labeled construction.

2.4 FABRICATION

2.4.1 General:

2.4.1.1 Fabricate steel door and frame units to rigid, neat in appearance and free from defects, warp or buckle. Accurately form metal to required sizes and profiles.

2.4.1.2 Wherever practicable, fit and assemble units in the manufacturer's plant. Clearly identify work that cannot be permanently factory-assembled before shipment, to assure proper assembly at the site.

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

3.2.1 General: Install hollow metal units and accessories in accordance with manufacturer's data, and as specified herein.

3.2.2 Placing frames:

3.2.2.1 Comply with the provisions of Standard 100 of the Steel Door Institute, unless otherwise indicated.

3.2.2.2 Except for frames located at in-place concrete or masonry openings, place frames prior to construction of enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged.

3.2.2.3 In masonry construction, locate wall anchors at 24" o.c. at hinge and strike levels. Building-in of anchors and grouting of frames will be performed under provisions of Division 4 of these Specifications.

3.2.2.4 At in-place concrete or masonry construction, set frames and secure to adjacent construction with machine screws and masonry anchorage devices. If attached with screws, provide "Z" fillers at each screw location to prevent collapse or distortion of frame when screws are tightened.

3.2.2.5 When installed in prepared openings in concrete or masonry construction, install sealant between frame and concrete or masonry in compliance with the requirements of Section 07 92 00.

3.2.2.6 Place 5/8" glazing stops where required and screw at 12" o.c. maximum.

3.2.3 Door installation:

3.2.3.1 Fit doors accurately in their respective frames, within clearances specified in S.D.I. 100.

3.3 ADJUST AND CLEAN

3.3.1 Final adjustments: Check and readjust operating finish hardware items in hollow metal work just prior to final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including doors or frames which are warped, bowed or otherwise damaged.

3.3.2 Prime coat touch-up: Immediately after erection, sand smooth all rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.

END OF SECTION

Section 08 33 23

OVERHEAD COILING DOORS

PART ONE - GENERAL

1.1 DESCRIPTION

1.1.1 Work included: Provide overhead coiling 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 OVERHEAD COILING DOOR

Furnish and install overhead coiling doors as manufactured by Overhead Door Corporation, Dallas, Texas.

2.1.1 Series 625 (Insulated): Door section shall be interlocking roll-formed galvanized steel, 20 gauge, flat profile type F-2651 slats. Weather seals bottom, exterior guide, and interior hood. Finish to be baked on polyester (powder coated) top coat. Color selected by Architect from manufacturer's full range of RAL colors. Provide standard locks, interior and exterior where shown on drawings. Provide for all mounting requirements of horizontal track to structure.

2.1.2 Operation: Motorzied. Refer to electrical drawings.

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

Section 08 71 00

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 SUBSTITUTIONS

2.1.1 Hinges: Stanley BB179, BB168 and 179, Hager BB1279, BB1168 and 1279 or McKinney as specified. No other substitutions.

2.1.2 Locksets and Cylinders: Schlage ND Series or Sargent 10-line. No other substitutions.

2.1.3 Exit Devices: Von Duprin as specified or Sargent 80 Series. No other substitutions.

2.1.4 Closers: Norton as specified or Sargent 1431 series. No other substitutions.

2.1.5 Fasteners:

2.1.5.1 Furnish all finish hardware with all necessary screws, bolts, and other fasteners of suitable size and type to anchor the hardware in position for long life under hard use.

2.1.5.2 Furnish fastenings where necessary with expansion shields, toggle bolts, hex bolts, and other anchors approved by the Architect, according to the material to which the hardware is to be applied and the recommendations of the hardware manufacturer.

2.1.5.3 All fastenings shall harmonize with the hardware as to material and finish.

2.1.6 Finishes of all hardware shall match the finish of the locksets. Take special care to coordinate all the various manufactured items furnished under this Section, to ensure acceptably uniform finish.

2.2 MISCELLANEOUS

2.2.1 All hardware meets criteria for Handicap Accessibility Requirements of ADA.

2.2.2 All other items, not specifically described but required for a complete and proper installation of finish hardware, shall be as selected by the Contractor subject to the approval of the Architect.

2.3 KEYING

All locksets shall be keyed to the existing Schlage Grand Master Key System. All locksets shall be keyed to a new building master key. Furnish six master keys. All locksets shall be keyed alike in groups or keyed different as directed. Furnish four keys for each keyed alike set and two keys each keyed different lock. Stamp key bows with key set symbol.

It will be the responsibility of the hardware supplier to call or meet with the Owner to obtain keying requirements for this project.

2.4 MANUFACTURERS INDEX

Mc-McKinney Mfg. Co.
Sc-Schlage Lock Co.
V-Von Duprin, Inc.
E-EPCO
R-Rockwood Mfg. Co.
N-Norton Door Closers
NG-National Guard Products

2.5 HARDWARE GROUPS

The following is a general listing of the minimum hardware requirements. Any item of hardware normally required by good practice as to meet state or local codes shall be furnished even though it may not be specifically mentioned.

HARDWARE GROUP NO. 105

FOR USE ON DOOR #(S):
002

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	CORRIDOR LOCK	L9456L 06A 09-544	626	SCH
1	EA	CYLINDER / CORE	KEYWAY AS REQ TO MATCH EXISTING	626	FAL
1	EA	SURFACE CLOSER	4111 EDA X MTG BRKT, SPCR & PLATE AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	GASKETING	188S	BK	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	655A-223	A	ZER

HARDWARE GROUP NO. 114S

FOR USE ON DOOR #(S):
001

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
2	EA	MANUAL FLUSH BOLT	FB458-12"	626	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	CORRIDOR LOCK	L9456L 06A	626	SCH
1	EA	CYLINDER / CORE	KEYWAY AS REQ TO MATCH EXISTING	626	FAL
1	EA	OH STOP	90S SIZE AS REQ (INACTIVE LEAF)	630	GLY
1	EA	SURFACE CLOSER	4040XP SCUSH X MTG BRKT, SPCR & PLATE AS REQ (ACTIVE LEAF)	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
1	EA	GASKETING	188S	BK	ZER
1	SET	ASTRAGAL	ACTIVE LEAF Z TYPE BY HMD MANUFACTURER.	AA	ZER
2	EA	DOOR SWEEP	39A	AA	ZER
1	EA	THRESHOLD	655A-223	A	ZER

PART THREE – EXECUTION

Not Used.

END OF SECTION

Section 09 91 00

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 Work not included:

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

1.1.2.2 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.

1.1.2.3 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.

1.1.2.4 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.

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

1.1.3 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 wood surfaces:

3.3.2.1 Clean all wood surfaces until they are free from dirt, oil, and all other foreign substance.

3.3.2.2 Smooth all finished wood surfaces exposed to view, using wood filler (if required) and the proper sandpaper. Where so required, use varying degrees of coarseness in sandpaper to produce a uniformly smooth and unmarred wood surface.

3.3.2.3 Unless specifically approved by the Architect, do not proceed with painting of wood surfaces until the moisture content of the wood is 12% or less as measured by a moisture-meter approved by the Architect.

3.3.3 Preparation of metal surfaces:

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

3.3.3.2 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.

3.3.3.3 Allow to dry thoroughly before application of paint.

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.l.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 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).

3.5.2 Interior Ferrous Metal:
Flat Finish

1. Surface preparation: Remove all oil, dust, grese, dirt, loose rust, and other foreign material.
2. First Coat: S-W Pro Industrial Pro-Cryl Universal Acrylic Primer, B66-310 Series.
3. Second and Third Coat: S-W Pro Industrial Waterborne Acrylic Dryfall, B42W181.

3.5.3 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).

3.5.4 Interior Wood (painted):
Epoxy 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 Pro Industrial Water Based Catalyzed Epoxy, B73 Series.
4. Third Coat: S-W Pro Industrial Water Based Catalyzed Epoxy, B73 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

Section 10 44 16

FIRE EXTINGUISHERS

PART ONE - GENERAL

1.1 DESCRIPTION

Provide all fire extinguishers and brackets, 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 Qualification of manufacturer: Use products in the work of this Section 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 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 Manufacturers data: Within 30 calendar days after award of 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.

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 GENERAL

2.1.1 This specification is written around J.L. Industries, Bloomington, MN. The following manufacturer is accepted as equal, subject to the requirements of the specifications and drawings.

Larsen’s Manufacturing, Minneapolis, MN

2.2 FIRE EXTINGUISHERS

2.2.1 General: Provide Cosmic 10E Multi-purpose Dry Chemical extinguisher and bracket as manufactured by J.L. Industries of Bloomington, MN.

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 to approval of the Architect. Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

Install cabinets in locations and at mounting heights as shown on the Drawings, and in accordance with the manufacturer's instructions. Provide all grounds, brackets, anchors, trim, and accessories for a complete installation.

END OF SECTION

Section 11 66 00

ATHLETIC EQUIPMENT

PART ONE - GENERAL

1.1 DESCRIPTION

1.1.1 Work included: Provide batting cages and wall padding, complete, in place, as shown on the Drawings, specified here in, and needed for a complete and proper installation.

1.2 QUALITY ASSURANCE

1.2.1 Qualifications of manufacturer: Use products in the work of this Section 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 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 60 calendar days after award of Contract, submit:

1. Manufacturer's specifications and other data required to demonstrate compliance with the specified requirements.
2. Shop drawings showing goal design, structural components and all supplementary steel required for support of goals. (Note: Supplementary steel required to be supplied by this subcontractor).
3. Manufacturer's recommended installation procedures.

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 PROTECTIVE WALL PADDING

A. Design is based on the use of products as manufactured by Gared Sports, Noblesville, Indiana. Catalog numbers of that manufacturer are given as an indication of the quality and style required.

1. Model 4510 Column Padding: Column padding shall be constructed as a wood backed u-shaped pad with 1" nailing lip on top and bottom of each panel for square columns or a wrap-around pad for round columns, using hook and loop fastener straps for attachment to the column. Size must be specified. Pads shall be constructed using 2" thick 3.5-lbs. density polyurethane foam cemented to 7/16" oriented strand board. Cover material shall be 14-ounce polyester laminated vinyl stapled to backing every two inches. Vinyl to be flame retardant material, which meets NFPA 701 +6and ASTM E84. Vinyl color shall be as selected by the Architect from manufacturer's standard colors.

2.2 BATTING CAGES

A. Manufacturer: Subject to compliance with requirements, provide products from the following: C&H Baseball, Inc. 2215 60th Dr. East Bradenton, FL 34203 (800) 248-5192; (941) 727-0588 fax; info@chbaseball.com or Architect approved equal.

1. Batting Cages: Provide Model 4081 batting cages, standard black netting, in lengths as shown on drawings. Cages shall be electrically operated by a PSS 4002BC curtain hoist.

2.3 OTHER MATERIALS

All other materials, including but not necessarily limited to anchorage devices or 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.

END OF SECTION

Section 11 66 00

BATTING CAGES

PART ONE - GENERAL

1.1 DESCRIPTION

1.1.1 Work included: Provide batting cages for baseball and softball, complete, in place, as shown on the Drawings, specified here in, and needed for a complete and proper installation.

1.2 QUALITY ASSURANCE

1.2.1 Qualifications of manufacturer: Use products in the work of this Section 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 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.

1.2.3 Qualifications of Engineers: Engineers responsible for the design of the backstop system included in this section shall be registered in the state of Arkansas and shall be competent in the design of products included in this section.

1.3 SUBMITTALS

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

1.3.2 Manufacturer's data: Within 60 calendar days after award of Contract, submit:

1. Manufacturer's specifications and other data required to demonstrate compliance with the specified requirements.
2. Manufacturer's recommended installation procedures.
3. Engineer’s stamped and signed calculations and drawings for cable, netting, poles, foundations, connections, etc. include detailed drawings for proper installation of the backstop system.

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 MANUFACTURERS

2.1.1 Manufacturer: Subject to compliance with requirements, provide products from the following: C&H Baseball, Inc. 2215 60th Dr. East Bradenton, FL 34203 (800) 248-5192; (941) 727-0588 fax; info@chbaseball.com or Architect approved equal.

A. Batting Cages

1. Provide Model 4081 batting cages, standard black netting, in lengths as shown on drawings. Cages shall be electrically operated by a PSS 4002BC curtain hoist.

2.7 OTHER MATERIALS

All other materials, including but not necessarily limited to anchorage devices or 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

3.1.1 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.

3.1.2 Install in accordance with manufacturer's recommendations and approved shop drawings.

END OF SECTION

Section 13 34 19

METAL BUILDING SYSTEMS

PART ONE - GENERAL

1.1 GENERAL CONDITIONS

All work under this section is subject to General Conditions and Supplementary General Conditions and shall be governed by the requirements therein.

1.2 BUILDING DESCRIPTION

1.2.1 The building size will be defined as building line to building line. Clear height under primary frames and roof purlins will be as noted on the architectural building sections. Interior and exterior column locations will be as noted on the structural plans.

1.2.2 Primary Structural: Frames will consist of welded up plate section columns and roof beams complete with necessary splice plates for bolted field assembly. All bolts for field assembly of primary frames will be high strength bolts. End wall structure shall consist of rigid frame with interior bearing columns. Exterior columns and interior columns will be welded "H" sections. Connection of all major structural members will be made with A 325 high-tensile bolts through prepunched or predrilled holes for exact alignment. All structurals will be painted with manufacturer's standard primer with manufacturer's standard surface preparation per structural painting in framing system specifications.

1.2.3 Secondary structurals shall be purlins or girts with a red primer finish applied by coil coater.

1.2.4 The roof system shall be equal to MR-24 panels by Butler Manufacturing Co. Color shall be Butler-Cote 500 FP and shall be selected from manufacturers standard colors - "6 minimum choices". The roof system shall also be in compliance with ENERGY STAR rating.

All roof penetrations (plumbing, mechanical, electrical, etc.) shall be performed by, and therefore the responsibility of, the roofing contractor.

1.2.5 Wall System: The metal faces shall be of 24 gage zinc coated steel and shall be supplied with a factory applied color coating selected from manufacturers standard colors. Panel profile shall be equal to Butlerib II as manufactured by Butler Manufacturing Co.

1.3 QUALITY ASSURANCE

1.3.1 Contractor shall submit contract drawings and specifications to manufacturer. Contractor is ultimately responsible that manufacturer complies with drawings and specifications.

1.3.2 Submit written Letter of Certification prepared and signed by a Professional Engineer, registered to practice in the State of Arkansas verifying that the building system design and metal roof system design (including panels, clips, and support system components) meet indicated loading requirements and codes of authorities having jurisdiction. The certification must reference specific dead loads, live loads, snow loads, wind loads/speeds, tributary area load reductions (if applicable), concentrated loads, collateral loads, seismic loads, end use categories, governing code bodies including year, load applications and deflections. The Letter of Certification must be approved before shop drawings are submitted. Letter of Certification referring to the building order will not be accepted.

1.3.3 In addition to mill certifications of structural steel, the manufacturer shall provide, upon request, evidence of compliance with specifications through testing independent of the manufacturer's suppliers. This quality assurance testing to include structural bolts, nuts, screw fasteners, mastics, and metal coatings (primers, metallic coated products, and painted coil products).

1.3.4 Design Loads:

a. Structural design criteria for the building structural system will be the - 2021 International Building Code.

b. Risk Category per ASCE 7-16 = II

c. Roof live loads are loads produced during the life of the structure by moveable objects. Wind, snow, seismic or dead loads are not live loads. Roof live loads are applied based on the Tributary Area as follows:

1) 20 PSF Max. Reduction (frames only) 4#/Ft.^{2}

d. The roof snow load used for designing the structure may not be reduced and shall be the product of the following items as per ASCE- 7, 2016:

Snow Load Coefficient (Ce)	1.0
Importance Factor (I) 1.0	
Ground Snow Load (Pg)	10 PSF
Thermal Factor (Ct)	1.0

Roof Snow Load (Pf) = Calculate per (EQ. 7.3-1, ASCE 7) Minimum Pm = Is x Pg
The Snow Load (Pf) shall be used for design if it exceeds minimum live load. Rain or Snow additional load-governing codes may require an additional 5 psf be added to the roof snow loads if the roof slope is < 1/2:12.

e. Ultimate wind speed is 106 mph as per ASCE-7, 2016.
Importance factor = 1.0
Exposure = C
Internal Pressure Wind Pressure Coefficient = $\pm$ .18. Coefficients and the design pressures shall be applied per governing code.

f. Seismic design shall be per ASCE 7, 2016 and based on:
Seismic Risk Category = II
Ss = .517
S_1 = .196
Sds = .31
Sd_1 = .104
Site Class = B
Seismic Design Category = B
Seismic Importance Factor; Ie = 1.0

g. Dead Load is the weight of building system construction, such as roof, framing and covering members.

h. Collateral Load - Additional imposed loads required by the contract documents other than the weight of the metal building system. These added loads could include such items mechanical, electrical and ceiling systems.

1. <u>UNIFORM ROOF LOADS</u>
All roof framing – 6 psf.
2. <u>CONCENTRATED ROOF LOADS</u>
Loads and locations as shown on framing plans. (Floor loads, mechanical, etc.).

i. Load Combinations: Load combinations used to design primary and secondary structural members shall be according to the governing code.

1.3.5 Calculations for deflections shall be done using only the bare frame method. Reductions based on engineering judgment using the assumed composite stiffness of the building envelope shall not be allowed. When maximum deflections are specified, calculations shall be included in the design data. Deformation calculations for wind shall use 50-year mean recurrence allowable wind loading. Frame deformations used for seismic drift criteria is based upon the amplified deflection as determined by EQ. 12.8-15 of ASCE 7-16. All other seismic deflection criteria is based upon elastic deflections. Refer to the table in the specifications for deflection limits.

MEMBER	SPECIFIED DEFORMATION	MAXIMUM	LOADING
Metal Wall Panels	Perpendicular to girts	L/120	Wind Load
Roof Purlins	Vertical deflection	L/180	DL+LL+Collateral Load
Roof Purlins	Vertical deflection	L/240	LL
Roof Beams & Frames	Vertical deflection	L/240	DL+LL+Collateral Load
Frame Drift at eave	Horizontal deflection	H/120	Wind Load
Frame Drift at eave	Horizontal deflection	H/66	Seismic
Wall Girts for Metal Panel	Horizontal deflection	L/180	Wind or Seismic Load

1.4 WARRANTIES

1.4.1 Weathertightness: Weathertightness of roof against leaks and perforations due to workmanship and/or materials shall be guaranteed for 20 years by metal building manufacturer. The Contractor shall furnish a two (2) year guarantee on material and workmanship.

1.4.2 Color: The exterior color finish for the wall and roof panels shall be guaranteed by the building manufacturer for twenty (20) years against blistering, peeling, cracking, flaking, checking and chipping. Excessive color change and chalking shall be guaranteed for twenty (20) years. Chalking shall not exceed #8 – ASTM D4214 and color change shall not exceed 5 N.B.S. units (ASTM D-2244).

1.4.3 Provide signed warranty of above guarantees at completion of work.

1.5 SHOP DRAWINGS

1.5.1 Shop Drawings: Steel fabricator shall submit one hard copy (not to be returned) and one electronic copy in PDF format as per Section 01 33 23 of detailed and checked shop drawings for approval by the Architect. All drawings shall clearly show location and sizes of all material, all building dimensions and elevations pertinent to the structure, and any other miscellaneous technical and erection data required for approval and construction. These shop drawings must be approved by the Architect before fabrication and shipment. PARTIAL SUBMITTALS WILL NOT BE ACCEPTED UNLESS APPROVED IN ADVANCE WITH THE ARCHITECT.

1.5.2 Calculations: Three (3) copies of calculations shall be submitted with the shop drawings. Calculations shall be stamped and signed by a professional engineer registered to practice in the state of Arkansas.

1.5.3 Column Reactions: Column reactions for each column shall be submitted for approval. This submittal shall include reactions for each load case and maximum and minimum reactions for each load combination. Reactions shall not include amplified seismic loads or seismic overstrength factors.

1.6 SYSTEM DESCRIPTION

1.6.1 The pre-engineered metal building covered by this specification is to be a beam-and-column structure or steel frames and columns, complete with purlins, girts, wall panels, roof panels, braces and miscellaneous framing required.

1.6.2 The roof slope shall be as noted on plans.

1.6.3 Column spacing shall be as shown on the foundation plan.

1.6.4 Provide frames with eaves heights and clearances shown on plans.

1.6.5 Vertical diagonal bracing shall be permitted only in the sidewall or roof planes where they will not obstruct openings. Horizontal plane bracing shall be permitted providing it is above the building's required interior clear height. Cables for bracing are not allowed. Portal frames shall be located as shown on the drawings.

1.6.6 All roof accessories (roof curbs, snowguards, roof walkways, roof hatches, etc.) shall be provided by a manufacturer approved by the metal building manufacturer and shall be included in the weathertightness warranty.

1.6.7 All column base plates will be pinned connections to foundation.

PART TWO - MATERIALS

2.1 MANUFACTURERS

2.1.1 Manufacturers shall meet the requirements of the International Accreditation Service, Inc. document AC472, “Accredation Criteria for Inpsection Programs for Manufacturers of Metal Building Systems.” Manufactures are not required to be certified by the International Accreditation Service (IAS), but must meet the technical criteria. Upon successful bidding, the manufacture shall submit documentation depicting how it meets the requirements of the IAS. This documentation shall be submitted to the Architect/Engineer and approved prior to contracts being signed. Manufacturers meeting this criteria shall be considered approved fabricators and not subject to Special Inspections of the IBC 2021. However, approved fabricators shall submit a certification of compliance found in Section 01450 - Special Inspections to the building official at the completion of fabrication.

2.2 STRUCTURAL STEEL

2.2.1 The design of the structure system shall be a clear or multi span frame system with tapered or straight legged columns and roof beams with a gable roof as noted on the drawings.

2.2.2 Field modifications of parts shall be in accordance with the best standard procedures, require the approval of the manufacturer, and shall be the responsibility of the building erector.

2.2.3 Anchor bolt diameter and length shall be as specified by the building manufacturing company's standard anchor bolt layout drawings. Anchor bolts shall be supplied by the contractor, not the building manufacturer. Design of anchor bolts shall be by the building manufacturer.

2.2.4 All structural mill sections or welded-up plate sections shall be designed in accordance with the ANSI/AISC 360-16 “Specification for Structural Steel Buildings," and all cold-formed steel structural members shall be designed in accordance with the AISI S100-16 “North American Specification for the Design of Cold-Formed Steel Structural Members”.

2.2.5 The structural system will be designed in accordance with a specified building code. (Refer to Design Loads and Building Codes).

2.2.6 Frames shall consist of welded-up plate section columns and roof beams complete with necessary splice plates for bolted field assembly.

a. All base plates, cap plates, compression splice plates and stiffener plates shall be factory welded into place and have the connection holes shop fabricated.
b. Columns and roof beams shall be fabricated complete with holes in webs and flanges for the attachment of secondary structural members and bracing except for field work as noted on manufacturer's erection drawings.

2.2.7 All bolts for field assembly of frame members shall be high strength bolts as indicated on erection drawings.

2.2.8 The endwall structurals shall be cold-formed channel members designed in accordance with the latest AISI Specification or welded-up plate sections designed in accordance with the latest AISC Specification.

2.2.9 The endwall frames shall consist of endwall multi-span frames with endwall bearing posts as required by design criteria.

a. All splice plates and base clips shall be shop fabricated, complete with bolt connection holes. All base plates, cap plates, compression splice plates and stiffener plates shall be factory welded into place and have the connection holes shop fabricated.
b. Beams and posts shall be shop fabricated, complete with holes for the attachment of secondary structural members except of field work as noted on manufacturer's erection drawings.

2.3 SECONDARY STRUCTURAL MEMBERS

2.3.1 Purlin and girts:

a. Purlin and girts precision roll formed.
b. Girts backing metal wall panel shall be “Z” shaped sections.
c. Girts above stud or block walls shall be “C” shaped sections.
d. Purlins shall be "Z" shaped sections.

2.3.2 Eave struts shall be factory pre-punched "C" sections.

2.3.3 Bracing shall be located as required. Diagonal bracing shall be hot-rolled rods and attached to columns and roof beams. Flange braces, purlin braces, etc., when required, shall be cold formed and installed as required.

2.4 WELDING

2.4.1 Welding procedure and operator qualifications and welding quality standards shall be in accordance with the American Welding Society Structural Welding Code. Inspection other than visual inspection as defined by AWS paragraph 8.15.1, shall be identified and negotiated prior to bidding. Certification of welder qualification shall be supplied when requested.

2.5 STRUCTURAL PAINTING

2.5.1 General:

a. All structural steel shall be prime painted as temporary protection against ordinary atmospheric conditions. Subsequent finish, painting, if required, shall be performed in the field by others.
b. Prior to painting all steel shall be cleaned of loose rust, loose mill scale, dirt and other foreign material. Unless otherwise specified, the fabricator shall not sand blast, flame clean or pickle prior to painting.
c. Factory cover all steel with one coat of red oxide primer paint formulated to equal or exceed the performance requirements of Federal Specifications TT-P-636D, TT-P-664C and SSPC Paint-25.

2.5.2 Primary frames:

a. Clean all steel per SSPC-SP2.
b. Apply one coat of water reducible alkyd primer by spray or dip method to a minimum coating thickness of 1.0 mil.

2.5.3 Secondary structurals:

a. Clean all steel per SSPC-SP8.
b. Apply one coat of coil applied polyester primer to a minimum coating thickness of 0.5 mil. (purlin and girts).

2.6 ROOF PANEL

2.6.1 The exposed metal roof covering shall be 24-gage minimum commercially pure G-90 galvanized steel or galvalume coated steel, with factory applied color coating. The color finish applied to the exterior (exposed) surface of the panel shall be of such composition as to provide twenty (20) years of film and color life. Panel configuration to provide the specified load carrying capabilities and deflection requirements of this specification. Roof panels shall be of "standing-seam interlocking" design, Butler MR24 or equal, and secured to the purlins with a concealed structural fastening system. The concealed system shall provide minimal through penetration of the exposed roofing surface and allow the roof covering to move independently of any differential thermal movement by the structural framing system. Except at the concealed fastener, there shall be no thermal contact of the roof panels with the supporting purlin. The standing seams shall have a factory-applied non-hardening sealant, and the seams shall have a continuously locked or crimped together by mechanical means during erection. Roof panels shall be "seamed" same day as installation. Roof panels with lap-type side longitudinal joints and exposed structural fasteners shall not be considered acceptable. Clips shall be compatible with roof covering and have a protective metallic coating. Panel assembly shall have UL90 wind uplift rating. Manufacturer's logo will not be allowed on gable ends.

2.6.2 Roof panel finish: Provide manufacturer's standard shop applied fluoropolymer finish to roof panels.

a. Clean galvanized steel with an alkaline compound, then treat with a zinc phosphate conversion coating and seal with a chromic acid rinse.
b. Apply to exterior surfaces of pretreated galvanized steel a fluoropolymer coating system supplied to provide a total dry film thickness of 0.90 mils minimum. Color shall be Butler-Cote 500FP or approved equal.
c. Interior finish of roof panels shall be same as exterior finish or may be polyester color coat at manufacturer's option.

2.6.4 Physical characteristics of exterior coating:

a. The physical characteristics of the exterior coating shall provide resistance to failure through cracking, checking, crazing, spotting or loss of adhesion.
b. The physical characteristics of the exterior coating shall be measured by laboratory weather simulating tests to obtain test results justifying the manufacturer's 10 year warranty.

2.7 ROOF CURBS

2.7.1 For equipment less than a 1000 pounds, metal roof curbs shall be single piece 14 gage metal (galvalume or aluminum) with all joints welded. Curbs shall be built as per manufacturers suggested size and height. Insulated walls shall be manufactured by a factory authorized fabricator and shall have damper tray, and a cricket/water diverter which shall match roof panel configuration with ribbed edges. Curb shall be supplied and installed by metal building supplier. (Coordinate number and exact location with Mechanical). Curb finish shall match roof.

2.7.2 Metal roof curbs for mechanical equipment in excess of 1000 pounds shall be structural double curb with acoustic style inner curb (20 gauge insulated floor), 14 gauge galvalume as manufactured by Thybar Corporation. All other metal of curbs shall be single piece 14 gauge metal (galvalume or aluminum). All joints shall be welded.

2.7.3 Curbs shall be built as per manufacturers suggested size and height. Insulated walls shall be manufactured by a factory authorized fabricator and shall have damper tray. Shall have cricket/water diverter which shall match roof panel configuration. Curb shall be supplied and installed by metal building supplier. (Coordinate size, quantity, and exact location with Mechanical).

2.8 MISCELLANEOUS

2.8.1 Snow retention system shall be ColorGard, pre-punched, as manufactured by S-5!, matching roof panel color. When installing on MR-24 panels, a S-5-E clamp and SnoClip III shall be used. The S-5-U clamp and SnoClip II shall be used with VSR panels.

2.8.2 Roof walkway shall be by a manufacturer recommended by the metal building supplier. Walkways to be located as shown on drawings.

2.9 WALL SYSTEM

2.9.1 The metal faces shall be of 24 gage zinc coated steel and shall be supplied with a factory applied color coating selected from manufacturers standard colors. Panel profile shall be equal to Butlerib II as manufactured by Butler Manufacturing Co.

2.9.2 The top, bottom and intermediate panel closures, flashings, fascias, gutters, downspouts and trim shall be the building manufacturer's standard, compatible with materials furnished as wall panels. Gutters shall be manufacturer's standard except, in no case, shall the back of the gutter extend less than 2" above front of the gutter.

2.9.3 Liner Panels shall be 24 gauge flat panels (without face beads) with concealed fasteners. Siliconized polyester color shall be selected by Architect from manufacturer’s standard colors.

2.9.4 Solid Soffit Panels, 24 guage steel, with concealed fasteners. Shall be supplied with a factory applied fluoropolymer color coating. The color finish applied to the exterior (exposed) surface of the panel shall be of such composition as to provide twenty (20) years of film and color life. Color shall be selected by Architect from manufacturer’s standard colors.

2.10 INSULATION

2.10.1 In all areas where insulation is exposed, provide 6" R-19 fiberglass blanket insulation with facing composed of 0.0015" white metalized polypropylene film laminated to a fiberglass/polyester blend fabric with a fire resistant adhesive. The resulting facing shall have a water vapor transmission rate of 0.02 US perm (ASTM E96, Procedure A), a beach puncture of 650 scale units and a mullen burst of 250 psi. Tensile strength shall be 195# in the machine direction and 150# in the cross-machine direction, Lamtec Gymguard as manufactured by Lamtec Corp., Mount Bethel, PA. In areas where insulation is not exposed, provide 6” R-19 fiberglass blanket insulation with reinforced vinyl facing.

2.10.2 Double layer roof insulation – “Sag n Bag”: Provide two layers of 4” R-13 fiberglass blanket insulation, one layer with reinforced vinyl facing. Faced material is “sagged” to allow for the second layer. Refer to drawings for placement of each layer of insulation.

2.11 MISCELLANEOUS FRAMING

2.11.1 Provide frames for all mechanical openings as required.

2.11.2 Provide support members between purlins and girts to carry mechanical equipment shown on mechanical plans. This contractor is responsible for coordinating the equipment requirements with members supplied.

2.11.3 Provide lintels and jambs for all openings in wall panels.

PART THREE - EXECUTION

3.1 ERECTION

3.1.1 Erection shall include the setting of all columns and bases and erection of all steel as called for under the contract for furnishing and delivery of pre-fabricated steel building.

3.1.2 Field errors shall not be corrected by burning except with the permission of the Architect.

3.1.3 Brace and guy all structural members until all connections are made.

3.1.4 After erection, touch up all injuries to priming coat and all others where field welding is done. Bolt heads and nuts shall be touched up in field. Use same material as specified for shop coat.

3.1.5 Assembled parts shall be brought into close contact and drift pins shall be used only for bringing members into position, not to enlarge or distort holes.

3.2 WELDING

3.2.1 Welding in shop and field shall be done by operators who have been previously qualified by tests as prescribed in the American Welding Society, "Standard Qualification Procedure". All operators must have successfully passed the welding qualification tests within a 24-month period preceding erection. The Architect shall be provided a copy of the welding qualification test for each operator at no additional cost to Owner.

3.2.2 Equipment to be of a type which will produce proper current so that operator may produce satisfactory welds. Welding machine shall be of 200-400 ampere, 25-40 volt capacity.

3.2.3 Electrodes shall be suitable for positions and other conditions of intended use in accordance with the instruction with each container.

3.2.4 Field welding shall be done by direct current.

3.2.5 Technique of welding employed, the appearance and quality of welds made and methods of correcting defective work shall conform to American Welding Society "Code of Arc Welding in Building Construction", Section 4, "Workmanship".

3.2.6 Surfaces to be welded shall be free from loose scale, rust grease, paint and other foreign material except that mill scale withstanding vigorous wire brushing may remain. A light film of linseed oil may likewise be disregarded. Joint surfaces shall be free from fins and tears.

3.2.7 No welding shall be performed when temperature of the base metal is lower than 0 degrees F. At temperatures between 32 degrees F and 0 degrees F., the surfaces of all areas within 3" of a point where a weld is started shall be heated until they are too hot to touch before welding is started.

3.2.8 Finished members shall be true to line and free from twists, bends and open joints.

3.3 TESTS

3.3.1 Field tests: All field and shop welders shall be tested and certified by an approved testing laboratory. The American Welding Society Operator Qualification Test shall be used as a basis of qualification.

All field and shop operators shall qualify for the following:

Type of Weld	Position of Welding
Groove	Horizontal
Groove	Vertical
Groove	Overhead
Fillet	Vertical
Fillet	Overhead

3.3.2 The Architect's Representative may require strap cuts from welds in any supporting member to stand nick-break test. If strap fails to meet requirements, Contractor shall replace strap cut from member at no charge to Owner. If strap does meet requirements, the Architect shall pay expenses of having metal replaced. In event strap fails, the welder shall be discharged.

3.4 ROOF PANELS

3.4.1 Panels shall be positioned and properly aligned by matching the prepunched holes in the panel end with the prepunched holes in the eaves structural member and by aligning the panel with the panel clip.

3.4.2 Panel sidelaps shall be field seamed by a self-propelled and portable electrical lock seaming machine. The machine field forms the final 180 degrees of a 360 degree Pittsburgh double lock standing seam; all sidelaps sealant shall be factory applied.

3.4.3 Panel endlaps, when required, shall be at least 6", sealed with Butler sealants and fastened together by clamping plates. Sealants shall contain hard nylon beads which prevent mastic from flowing out due to clamping action. The panel laps shall be jointed by means of a two piece clamped connection consisting of a bottom reinforcing plate and a top panel strap. The panel endlaps shall be located directly over, but not fastened to, a supporting secondary roof structural member and be staggered, so as to avoid a four panel lap splice condition.

3.5 WALL PANELS

3.5.1 Structural system shall be plumb before wall panels are attached.

3.5.2 Wall panels shall be sealed with a molded foam closure block that fits the panel configuration at the bottom of the wall panel.

3.6 INSPECTION

The work shall be inspected in the shop and the field. The Contractor shall give proper notice and allow full facilities for this inspection. Notify Architect 48 hours prior to shipping structural steel.

END OF SECTION

The Engineer of Record for Concord Batting Cages, Concord School District, Concord, Arkansas Division 26 of the specifications.

August 9, 2024

Section 26 05 10

COMMON WORK RESULTS
FOR ELECTRICAL

PART ONE - GENERAL

1.1 DESCRIPTION

1.1.1 Work included: This specification includes the furnishing of all labor, materials, tools, equipment, drayage, rigging, fees, permits, etc., unless specifically furnished by others, necessary or reasonably required, for the complete installation and operation of all the work as herein specified or as shown on the Drawings. The entire work shall be delivered in a complete and perfect working order to the satisfaction of the Architect.

1.1.1.2 The scope of the work shall include the general listings as shown below in addition to which this contractor shall furnish and install all required conduit, wire, fittings, boxes, connectors, hangers, supports, sleeves, poles, concrete bases and other such equipment, items, and appurtenances as may be required for a complete and operative system or systems, including all parts auxiliary to the system or systems whether or not specifically set forth herein and/or shown on the drawings.

1.2 APPLICABLE GENERAL SPECIFICATIONS AND REGULATIONS

1.2.1 The General Conditions, Supplementary Conditions, and other pertinent documents as issued by the Architect, are a part of these specifications and shall be complied with in every respect.

1.2.2 All electrical work and equipment, in whole or in part, shall conform to the applicable portions of the latest edition of the following ordinances, codes, and regulations in effect on the date of invitation for bids, which shall form a part of this specification.

A. National Electrical Code

B. American Gas Association Recommended Practices

C. National Fire Protection Association Recommended Practice

D. Local, City and State Codes and Ordinances

E. American Society of Mechanical Engineers Plumbing and Air Conditioning Codes

1.2.3 In case of difference between building codes, specifications, state laws, local ordinances, industry standards, and utility company regulations and the contract documents, the most stringent shall govern.

1.2.4 Non-compliance: Should the subcontractor perform any work that does not comply with the requirements of the applicable building codes, state laws, local ordinances, industry standards and utility company regulations, he shall bear all cost arising from correcting the deficiencies.

1.3 FEE, PERMITS, AND INSPECTIONS

1.3.1 All required fees, permits and inspections shall be obtained and paid for by the electrical subcontractor for all electrical work.

1.3.2 This subcontractor shall upon completion of his work, furnish a certificate of final inspection to the Architect from the inspection department having jurisdiction.

1.3.3 Should any part of the drawings or specifications be found to be in conflict with applicable codes or ordinances, the contractor shall notify the Architect before submitting his bid. After entering into the contract, the Contractor shall complete all work necessary to meet the requirements of all codes or ordinances without additional expense to the Owner.

1.4 INSPECTION

1.4.1 The Contractor shall notify the Architect when the work reaches the following stages of construction, so that inspection of the work may be accomplished prior to the covering up of these items:

A. All underground or under slab items in place and tested, but not covered.

B. Interior items prior to being concealed.

C. Tests.

1.4.2 The Contractor shall give to the proper authorities all requisite notices relating to the work under his charge, shall afford all authorized inspectors every facility for inspection and all violations of the law shall be the responsibility of the Contractor.

1.4.3 All materials and each part or detail of the electrical work shall be subject at all times to observation by the Engineer, and the Contractor shall be held strictly to the true intent of the electrical specifications in regard to quality of materials, workmanship, and the diligent execution of the contract. Such observation may include mill, plant, or shop. The engineer shall be allowed access to all parts of the work and shall be furnished with such assistance and information by the Contractor as is required to make a complete and detailed observation.

1.5 SUBMITTALS

1.5.1 Contractor shall provide shop drawings and required field drawings as required or instructed by the Architect. Deviation from the drawings and specifications shall be called to the attention of the Architect in writing at the time of submission of shop drawings. The Engineer's approval of any drawings shall not release the subcontractor from responsibility for such deviations. The subcontractor shall check the work described by the catalog data with the engineer's contract documents for deviation and errors. All shop drawings submitted shall bear signed certification that the Contractor has carefully checked shop drawings and found them to be correct and that they comply with plans and specifications. The Architect will not review any shop drawings which are not accompanied by this certification.

1.5.2 The Contractor shall furnish electronic shop drawings using the submittal procedure as detailed in Section 01 33 23. Shop drawings are required even though the equipment is as specified.

1.5.3 All submittals shall give complete catalog data for every manufactured item of equipment and all components to be used.

1.5.4 Where equipment requiring different arrangement of connections from those shown is approved, it shall be the responsibility of the subcontractor to install the equipment to operate properly and in harmony with the intent of the contract documents, and to make all change in the work required by the different arrangement of connections.

1.5.5 Submittals shall be submitted not later than thirty (30) days after awarding of the contract and before beginning the fabrication of any material or the installation of any equipment. Failure to submit in this period shall constitute grounds for rejecting the substitution. The Contractor may be requested to install proposed substitution adjacent to item specified for review by the Architect or the Owner.

1.5.6 The subcontractor shall correct the shop drawings, to conform to any corrections and/or changes requested by the Engineer.

1.5.7 Electrical submittals must be typewritten and factory approved. Long hand submittals and field sketches will not be accepted. Submittals shall indicate proper numbering sequence of all circuit breakers. Submittals not reflecting the sequence will be returned without further consideration.

1.5.8 Should a substitution be approved for use in lieu of that specified and should the substitute material prove defective or otherwise unsatisfactory, in judgement of the engineer, for the service required within the guaranty period, the contractor shall replace the material or equipment as originally specified without additional cost to the Owner.

1.5.9 If submittals are "not approved" or marked "revise and resubmit", the complete package must be corrected and returned for review. Partial submittals, including only the items not approved, are not acceptable.

1.5.10 The contractor shall provide shop drawings on, but not limited to, the following:

A. Distribution/Gear/Disconnects

B. Lighting Fixtures

C. Wiring Devices/Coverplates

D. Wire/Cable

E. Auxiliary Systems

1.6 INTENT

1.6.1 The intent of the electrical drawings and specifications is that the subcontractor shall furnish all labor and materials, equipment and transportation necessary for the proper execution of the work unless specifically noted otherwise. The work of this subcontractor as related to the other trades is shown in its majority on the drawings, but this subcontractor shall thoroughly examine the drawings and specifications relating to other trades in order to include all necessary work in his bid. No additional payments shall be considered for failure to properly interpret the responsibility to other trades. The subcontractor shall do all the work shown on the drawings and described in the specifications and all incidental work considered necessary to complete the work ready for use, occupancy, and operation by the Owner. The Architect reserves the right to make any reasonable changes in the locations indicated without cost to the Owner.

1.6.2 If there be conflicting variance between the drawings and specifications, the provisions of the most stringent shall control. In case of conflict between the General Conditions of the Contract or any modifications thereof and the electrical specification, the electrical specification shall control.

1.7 SITE INSPECTION

1.7.1 This contractor shall visit the site before submitting a bid on the work and shall thoroughly acquaint himself with conditions to be met and the work to be accomplished. Failure to comply with this shall not constitute grounds for any additional payment in connection with removing or modifying any part of the existing installation or installing any new work.

1.8 CONSTRUCTION DRAWINGS

1.8.1 At the completion of this project the Contractor shall provide the Owner two (2) sets of plans showing all piping systems, control systems, fixtures and equipment installed by this Contractor. These Drawings shall be correct in every detail and shall incorporate all changes made in the course of the conduct of the construction. These drawings shall be prepared in such a manner as to enable the Owner to properly operate, maintain and repair both exposed and concealed work.

1.9 UTILITIES, LOCATIONS, AND ELEVATIONS

1.9.1 Locations and elevations of the various utilities, included within the scope of this work, have been obtained from utility maps and/or other substantially reliable sources and are offered separate from the contract documents as a general guide only, without guarantees as to accuracy. This Contractor shall examine the site and shall verify to his own satisfaction the location and elevation of all utilities and shall adequately inform himself of their relation to the work before entering into a contract.

1.10 SOIL CONDITIONS

1.10.1 This specification and the drawings in no way imply as to the conditions of the soil to be encountered. When excavating may be required in execution of the work, this contractor agrees that he has informed himself regarding conditions affecting the work and labor and materials required, without recourse to any representation as to soil conditions that may appear, or seem to be implied, in any portion of the contract documents.

1.11 CUTTING AND PATCHING

1.11.1 This Contractor shall do all cutting and patching made necessary by his work, but in no case shall he cut through or into any structural member without written permission of the Architects. This Contractor shall furnish and pay for the installation of all sleeves required for his work.

1.12 EQUIPMENT FURNISHED UNDER OTHER SECTIONS

1.12.1 This Contractor shall furnish all necessary material and labor for the connection to the mechanical and electrical systems of all fixtures and equipment requiring such connections, and which fixtures and equipment are furnished by the Owner or are specified under other section of these specifications. If any such fixtures or equipment are not delivered prior to final acceptance, the services shall be capped or plugged at walls or floors as directed, and shall be left ready for future connection.

1.13 DEFECTIVE WORK

1.13.1 If inspections or tests show defects such defective work or material shall be replaced and inspections and tests repeated. All repairs shall be made with new material.

PART TWO - PRODUCTS

2.1 LIGHT FIXTURES

Contractor shall furnish, install and adjust complete and ready to operate each and every light fixture shown and scheduled on the drawings.

A. This Contractor shall exercise extreme care in laying out his work so as to insure that ceiling outlets are located symmetrically within the area and with respect to air conditioning, heating, and ventilating outlets, tile patterns, finishes, etc. Any errors shall be corrected at no additional cost. This contractor shall check with the ceiling contractor for type of ceiling and order fixtures that are compatible with ceiling material as required to support fixtures. See reflected ceiling plan for exact location of fixtures.

B. The orientation of light fixtures in the same space shall match and be approved by Architect.

C. Contractor shall power 0-10V low-voltage wiring to all fixtures throughout circuit whether shown or not.

D. Occupancy sensor and lighting control manufacturers specified shall provide layout shop drawings prior to beginning work.

2.2 CONDUCTORS

2.2.1 The Drawings reflect sizes for copper conductors (no aluminum). Conductors shall be tested for opens and grounds before energizing. Suitable lugs for aluminum to copper connections at panels, motors, etc., shall be included. In no case shall wire be smaller than #12 A.W.G. All branch circuit wiring shall be solid N.E.C. type THWN or THHN for size #10 and smaller, with THHN where fluorescent fixture channel is used as a wireway.

All feeder wire shall be type THHN 90°C to all panels and motors of one horsepower and above. Aluminum wire shall not be used.

2.2.2 Insulation resistance tests shall be made in accordance with the National Electrical Code in the presence of the Architect or his representative, and the results filed with the Architect and Engineer before final acceptance.

2.2.3 If conductors are larger than set screw terminal provisions in panelboards, switches, etc., contractor shall furnish Burndy Type YE-P compression adaptors or AYP connectors as required. Adaptor shall match aluminum or copper as required. Cutting strands of conductors will not be allowed.

2.3 CONDUIT

2.3.1 Conduit below grade shall be Schedule 40 PVC with rigid 90° elbows, rigid steel or IMC. Interior branch circuits above floor slab shall be EMT. Exterior exposed conduit shall be galvanized rigid steel (RSC) only.

A. Electrical metallic tubing shall be employed for all branch circuits. (Route all branch circuits above grade unless specifically shown or noted otherwise.)

B. All steel conduit shall be galvanized inside and out, and aluminum conduit may be used only when soft nosed fish tapes are used to prevent scoring. No conduit or E.M.T. smaller than three quarter inch (3/4") IPS shall be used unless noted otherwise.

C. The conduit system shall be electrically continuous for grounding purposes. Bond across all insulating bushings.

D. Provide four 3/4" empty conduit from each flush mounted branch panel board to the attic or joist space.

E. Flexible metal conduit shall not be smaller than 1/2" except as allowed in Article 350-3 of N.E.C. Contractor shall not use lengths longer than 6' and shall be supported as per 350-4 N.E.C. Flexible metal conduit shall not be used to go from light fixture to light fixture. Contractor shall securely anchor outlet box above each group of fixtures and then install flexible conduit to each fixture.

F. Conduit 1" and smaller below slab shall be installed 6" below compacted fill. Conduit larger than 1" shall be 18" below compacted fill.

G. Electrical contractor is responsible for installation of all conduit including power and all mechanical control systems.

H. Install 3/4" EMT from all T-stat locations to 6" above ceiling. Verify location with Mechanical Contractor.

I. Feeders and branch circuits installed outside of building slab shall be a minimum of 24" below finished grade.

J. See section 3 for support and securing of conduit.

K. MC and NM cables are not acceptable.

2.4 RACEWAY FITTINGS

2.4.1 Insulated bushings must be provided for all conductors number four (#4) and larger when entering or leaving a conduit. All rigid steel conduit without insulated bushings shall have malleable iron bushings.

2.4.2 Couplings, whether threadless or not, shall be run up tight to assure electrical continuity. Conduit threads must be devoid of non-conductive coatings, and connectors must be watertight where buried in concrete or fill.

2.4.3 Outlet, pull, and junction boxes shall be of sufficient sizes to properly nest the conductors passing in and out. Size and gauge shall not be smaller than that required by the National Electrical Code. All non-weatherproof outlet boxes shall be galvanized steel. All free-standing weatherproof outlet boxes shall be cast aluminum, hub or hubless, equal to Killark FS Series. Pull and Junction Boxes shall be as noted on plans.

2.4.4 Set screw and indenter fittings are not allowed.

2.5 FUSES

2.5.1 Fuses of 600A capacity and below serving circuit breaker panels shall be Bussman KTN or KTS Limitron fast acting fuse. Fuses of greater capacity shall be Bussman dual element FRN and FRS Fustrons.

2.6 SAFETY SWITCHES

2.6.1 Safety switches shall conform to governing industry NEMA Standards, heavy duty. They shall be listed by Underwriters Laboratories, Inc., where applicable. All safety switches shall be front operated with factory enamel finishes. All switches shall be either NEMA TYPE 1 or 3R, depending on moisture conditions or direct exposure to exterior conditions. Furnish complete with equipment ground kits.

2.7 DEVICES AND PLATES

2.7.1 Devices shall be equal to as follows unless noted otherwise on plans:

Switch, single pole (S), Leviton CS120-2*
Switch, double pole (S2), Leviton CS220-2*
Switch, three way (S3), Leviton CS320-2*
Switch, four way, (S4) Leviton CS420-2*
Switch, single pole, pilot light (Sp), Leviton 1221-PLR
Switch, interchangeable (SIC), Arrow Hart QST91* or QST93*
Receptacle, duplex (Use tamper-resistant listed below.)
Receptacle, duplex, WP, G5362-WT* with TAYMAC MX4280S cover
Receptacle, ground fault interrupter, Leviton 7899-SG*
Receptacle, 2 pole, 3 wire, 20A, 250V, Leviton 5461
Receptacle, 3 pole, 4 wire, 30A, 250V, Leviton 278
Receptacle, 3 pole, 4 wire, 50A, 250V, Leviton 279
Receptacle, surge suppressor, Leviton 5380*
Receptacle, commercial grade, tamper-resistant, 5362-SG*
Receptacle, commercial grade, GFCI, tamper-resistant, G5362-WT*

2.7.2 Plates: All non-weatherproof coverplates shall be Leviton nylon plates, color as noted by Architect. Provide horizontal or vertical gang plates where more than one device is concurrent at the same elevation or location. For interchangeable door mullion switches use narrow cover plates as manufactured by Arrow-Hart T-1650. Furnish blank plates for outlets without a device. All non-weatherproof coverplates throughout project shall be of the same material, color, finish and design and shall match any existing device coverplates as directed by architect.

A. Blank weatherproof cover plates shall be cast aluminum with rubber gasket equal to Killark FSBC Series.

2.7.3 Switches for use on 277 volt system, grouped in outlet boxes shall have a permanently installed shield as directed by N.E.C. 380-8.

2.7.4 Heights: Switches shall be installed at 46" centerline to finish floor on strike side of doors. Receptacles and other outlets are at eighteen inches (18") centerline to finish floor unless noted otherwise on the drawings. Where receptacles occur where built-in cabinets or table tops exist, they shall be installed above working surfaces as directed. All receptacles to have grounding slots below parallel slots.

2.7.5 All floor outlets to be installed from an approved shop drawing. Locations shown for bidding purposes only. Floor boxes shall be Legrand RFB6-OG unless indicated otherwise on plans.

2.7.6 Provide metallic (finish selected by Architect) carpet flanges for floor boxes in carpet areas.

2.7.7 All of the following receptacles shall be GFCI type:

A. Receptacles in bathrooms or within 6'-0" of a sink.

B. NEMA 5-20R receptacles for a kitchen or concession area.

C. Exterior receptacles shall be GFCI and WR type.

Notes 1: Receptacles for electric water coolers shall be on GFCI breaker.
2: Feed through protection of outlets is not allowed.

2.7.8 All exterior outlets and kitchen stub-up outlets shall be weatherproof boxes.

2.8 CIRCUIT BREAKER/PANELBOARDS

2.8.1 Furnish and install circuit breaker panelboards as indicated in panelboard schedule. Panelboards shall be of a dead front safety type equipped with thermal magnetic molded case circuit breakers. Panelboards shall be as manufactured by Cutler-Hammer, General Electric or Square D. Use bolt on breakers only. Two section panelboards shall be of equal size in both sections.

2.8.2 Panelboard doors shall have a cylinder tumbler type lock, and all doors shall be keyed alike, but different from telephone cabinets. On doors more than 48 inches high, provide a three point catch and lock; for double tub panelboards provide two reverse acting doors mounted. A complete typed circuit directory shall be provided, on the inside of each door identifying each circuit and load fed by that circuit. All boxes shall be factory painted gray.

2.8.3 Circuit breakers shall be quick-make, quick-break, thermal magnetic trip indicating, and have common trip on all multipole breakers. Handle ties will not be accepted.

All panelboards and circuit breakers shall be fully rated to AIC rating as noted on drawings. (No series rating allowed.)

2.8.4 All sub-feed breakers shall be connected to line side of main circuit breaker.

2.8.5 All circuit breakers shall be in proper sequence according to panel schedule. Factory rearranged sequence will not be accepted. See Section 1.5.7.

2.8.6 Each panelboard shall be labeled with a bakelite name tag indicating voltages, phase, and wire, and panelboard identification. See Section 2.10. Each circuit shall be identified by numbers furnished by factory as 1 thru 42 or 1 thru 84 in 2 section panelboards. Any change or alteration in numbering shall be corrected by contractor at his expense.

2.8.7 Main Circuit Breakers "MCB" shall be Separate Vertically Factory Mounted on bus bars and not "back-fed" branch style. Service Entrance Main Breakers shall also have barriers to comply with UL 67 and NEC 230.

2.9 GROUNDING

2.9.1 The service entry equipment, including switchboard frame and grounding bus and all outgoing feeder and/or motor supply connections shall be permanently and effectively grounded as required per Article 250.50 of the National Electric Code. The grounding electrode system shall consist of the following:

A. 1” metal water pipe with connection within 5’0” of point of entry to building.

B. Concrete encased rebar.

C. Metal frame of the building or structure.

D. 3/4” x 10’0” ground rod.

E. Ground ring consisting of 20’0” of #2 AWG base copper conductor.

Use Burndy Bar Connector or Cadwell to attach to water line. Contractor to verify that the resistance to ground is less than 25 ohms. Ground wire to panel shall be in PVC. All connection shall be visibly inspected and approved by Engineer.

2.10 NAME PLATES

2.10.1 All electrical equipment, timer switches, safety switches, starters, panels, and transformers shall have black or red and white laminated bakelite nameplates securely fastened to device.

A. Nameplate size shall be 1-1/2" x 4" with beveled edges and 1/4" letters.

B. Nameplate shall include panel or equipment designation. Include amperage, voltage, phase and wire for the panels, and "panel fed from" for the equipment.

C. Nameplates shall be installed to panels, cabinets, switches, etc. with rivets or sheet metal screws. Plates attached to drywall or block on interior may be adhesive back.Nameplates for normal equipment shall be black, emergency equipment shall be red. Letters shall be white.

D. Embossed stick back will not be allowed.

E. Name plates for switches may be omitted for furnaces when the equipment which is serviced is obvious to service technicians.

F. Where equipment disconnect is at panel, secure nameplate (with unit designation and “Fed From Panel”) to the equipment.

G. Samples:

PANEL A 225A, 120/208V, 3P, 4W

CU-1 FED FROM PANEL E

2.11 SYSTEMS CONDUIT

2.11.1 All conduit shall be left sealed against moisture collection, and a number sixteen (#16) gauge galvanized pull wire left between each box or outlet for the installer. Provide a minimum of 1" EMT to all systems boxes to include, but not limited to: telecom, data, voice, video, audio, security, surveillance and fiber. (Fire alarm and intercom shall be 3/4" EMT minimum.)

2.12 SPD SYSTEM

2.12.1 The Electrical Contractor shall furnish all labor, materials, equipment and services necessary for and incidental to the installation of the Surge Protection Device (SPD). Components as specified herein.

2.12.2 Related Documents and Applicable Standards

A. Systems shall be designed, manufactured, tested, and installed in accordance with the following standards:

1. Underwriters Laboratories (UL 1449)
2. National Electrical Manufacturers Association
3. American National Standards Institute
4. Institute of Electrical and Electronic Engineers (C62.41 and C62.45)
5. Military Standards (MIL-STD 220A)
6. National Electrical Code (Article 280)
7. National Fire Protection Association (NFPA-78)
8. Federal Information Processing Standards Publication (FIPS PUB 94)

B. The system shall be UL 1449 listed as a complete system under the UL 1449 standard for Surge Protection Devices. Systems not UL 1449 listed are not acceptable.

2.12.3 Manufacturers

A. Subject to compliance with requirements, provide devices of one manufacturer:

Innovative Technology, Inc.
EFI Electronics
L.E.A. International
Square D
Advanced Protection Technologies

2.12.4 Equipment

A. Equipment shall be a parallel protector rated for 3 phase, 4 wire applications. The equipment surge current capacity, based on an 8 x 20 microsecond waveform per ANSI/IEEE C62.41 Category C3 rating, shall be a minimum of 150,000 amps per phase repetitive surge capacity and 225,000 amps per phase single impulse surge current.

B. The system protection modules shall contain a symmetrically balanced metal oxide varistor (MOV) array. The input and output leads of the circuit shall be completely symmetrical and of equal distance to their respective connection points and each MOV individually fused. There shall also be a Silicon Avalanche Diode array which functions in coordination with the MOV array. Each protection module shall be rated for at least 75,000 amperes of surge current capacity based on the standard 8 x 20 microsecond waveform. Each protection module shall be capable of withstanding over 1,000 sequential 10,000 Amp ANSI/IEEE C62.41 Category C3 impulses without degradation or failure. All module internal wiring, including terminals or suppressor elements, shall be of #8 AWG minimum or copper bus bar of 3/4" width minimum. No plug-in component modules shall be used in suppression current carrying paths. Each module must have an indicator light to report status of the module. A corresponding indicator must be mounted on the front of the panel.

C. Units shall be UL 1449 listed for SPD. However, each individual surge protection unit shall be considered on its own merit. Units which rely on other external or upstream units to achieve the required performance and UL 1449 listing are not allowed.

D. Protection modes: The SPD shall provide Line to Ground (L-G), Line to Line (L-L), Line to Neutral (L-N), and Neutral to Ground (N-G) protection.

E. Status alarm monitor, surge counter, audible alarm and remote status monitors are the only valid options. Other options considered to increase impedance to the protection circuit or increase the potential for system failure, such as integrated test points, voltmeter, or power monitor may not be included as part of the SPD system.

F. Equipment shall be warranted for a minimum of 10 years.

G. Performance Ratings: The system performance ratings shall be based on the UL 1449 listing ratings for IEEE C62.41 Category B equipment. The maximum UL 1449 voltage clamping rating for each of the specified protection modes shall be:

1. 800 volts L-G and 1600 volts L-L for 277/480 volt systems; LEA International model #DS2-277/480-3Y-A-F-B or equivalent.
2. 400 volts L-G and 800 volts L-L for 120/208 volt systems; LEA International model #DS2-120/208-3Y-A-F-B or equivalent.

2.12.5 Installation of the SPD Systems

A. The specified system shall be installed no further than three (3) feet in total wire lead length(s) distance from the power conductor(s) it is protecting and shall avoid any unnecessary bends. Terminals shall be provided for all necessary power and ground connections.

B. The specified system shall be provided with an internal safety interlocked disconnect system providing no interruption to the protected load for testing and maintenance. System shall not require removal and replacement for warranty or other repairs. All internal component replacements shall be capable of being completed by a licensed electrician.

C. Other materials and equipment shall comply with applicable Sections of this Division.

2.12.6 Testing

A. Conduct manufacturer's standard factory tests per approved submittal data.

B. Submit formal report of factory tests within 10 days of factory tests, stating tests conducted, acceptable limits of such tests, actual test results, and original test data sheet with legible signatures of those conducting, witnessing, and approving such tests.

C. System shall be tested to meet ANSI/IEEE C62.41 1991, tested per ANSI/IEEE C62.45 1987.

Category A - .5µS x 100 KHz Ring Wave
Category B - .5µS x 100 KHz Ring Wave
Category B - Biwave
8 x 20 µSEC at 3,000 Amperes
1.2 x 50 µSEC at 6,000 Volts
Category C3 - Biwave
8 x 20 µSEC at 10,000 Amperes
1.2 x 50 µSEC at 20,000 Volts

D. The system shall be tested to MIL-STD 220A for electrical line noise attenuation per 50 ohm insertion loss measurement method of radio frequencies up to 100 MHz.

2.12.7 Warranty

2.12.7.1Manufacturer shall provide a product warranty for a period of not less than ten (10) years from date of installation. Warranty shall cover unlimited replacement of system protection modules during the warranty period.

PART THREE - EXECUTION

3.1 EQUIPMENT AND MATERIAL

3.1.1 In order to establish standards of quality, the engineer has, in the detailed specifications referred to certain products by name and catalog number. This procedure is not to be construed as eliminating from competition other products of equivalent or better quality by other manufacturers where fully suitable in design. Where multiple manufacturing sources are shown on the drawings or herein specified, the subcontractor shall limit his bid to one of those manufacturers.

3.1.2 The subcontractor shall abide by the engineer's judgement when proposed substitute materials or items of equipment are judged to be unacceptable and shall furnish the specified material or item of equipment in such case. All proposals for substitution shall be submitted in writing by the General Contractor and not by the electrical subcontractor or material suppliers. The engineer will approve or disapprove proposed substitution in writing within a reasonable time and, if any request for a substitution is rejected, the Contractor shall automatically furnish material specified. No substitute materials shall be used unless approved in writing.

A. Delivery and storage: Equipment and materials shall be delivered to the site and stored in original containers, suitably sheltered from the elements. All items subject to moisture damage (such as coils of dry transformers) shall be stored in dry, heated spaces.

B. Protection: Equipment shall be tightly covered and protected against dirt, water, chemical, or mechanical damage or theft. At the completion of the work, fixtures, equipment, and materials shall be cleaned and polished thoroughly and turned over to the Owner in a condition satisfactory to the Architect. Damage or defects developing before acceptance of the work shall be made good at no expense to the Owner.

C. Main switchboard shall be provided with a heater of type approved by Architect. Heater shall be installed in switchboard, and shall remain as directed by Architect from time of installation until final acceptance.

D. Manufacturer's directions: Shall be followed completely in the delivery, storage, protection and installation of all equipment and materials. The electrical subcontractor shall promptly notify the Architect in writing of any conflict between any requirements of the contract documents and the manufacturer's directions and shall obtain the Architect's written instructions before proceeding with the work. Should this subcontractor perform any work that does not comply with the manufacturer's directions or such written instruction of the Architect he shall bear all costs arising in connection with correcting the deficiencies.

3.2 COORDINATION

3.2.1 This subcontractor shall compare the electrical drawings and specifications with the drawings and specifications of all other trades, and shall report any discrepancies to the Architect and obtain from him written instruction for changes necessary in the electrical work. The electrical work shall be installed in cooperation with other trades installing inter-related work. Before installation, the subcontractor shall make proper provision to avoid interferences in a manner approved by the engineer. All changes required in the work of the contractor caused by his neglect to do so shall be made by him at his own expense.

3.2.1.1 The orientation of Light Fixtures in the same space shall match and be approved by Architect.

3.2.1.2 Contractor shall power 0-10V low-voltage wiring to all fixtures throughout circuit whether shown or not.

3.2.1.3 Occupancy sensor and lighting control manufacturer specified shall be provided layout shop drawings prior to beginning work.

3.2.1.4 Anchor bolts, sleeves, inserts and supports shall be installed by this subcontractor where required. Any expense resulting from the location of such appurtenances shall be borne by the electrical subcontractor.

3.2.1.5 Slots, chases, openings, and recesses: Slots, chases, openings, and recesses through floors, walls, ceilings, and roofs, as specified, will be provided by the electrical subcontractor in the proper material, and he shall properly coordinate the location. No structural member shall be disturbed in any manner without written permission of the Architect.

3.2.1.6 Sleeves: All conduits passing through masonry construction shall be fitted with 20 gauge galvanized steel sleeve. Each sleeve shall extend through its respective floor or wall, and shall be cut flush with each surface, except floor sleeves which shall be extended to a minimum of 1 inch above the floor. Unless otherwise noted, the sleeve shall be two sizes larger than the overall outside diameter of the conduit. Sleeves thru non-fire rated structure may be PVC. Sleeves in walls below grade shall be a pre-engineered assembly equal to LINK-SEAL as manufactured by Thunderline Corporation; assembly shall be sized and installed in accordance with manufacturer's recommendations. All sleeves shall be fastened in place prior to pouring concrete and caulked with flexible caulking or LINK-SEAL device as applicable. Sleeves or conduits shall not be installed in spread footing. Core drilling will not be permitted without consent of the structural engineer. Sleeves in grade beams shall be installed near center.

3.3 PENETRATION WALL/FLOOR FIRESTOP

3.3.1 All fire walls, fire barriers, fire partitions, upper floors of multi-story buildings where pipe or ducts pass through, into, or out of, shall be protected by an approved penetration firestop system installed as tested in accordance with ASTM E 814, with a minimum positive pressure differential of 0.01 inch of water and shall have an F rating of not less that the required fire-resistance rating of the wall penetrated.

3.3.2 A UL approved firestop system shall be as specified by 3M Fire Protection Products, SpecSeal Firestop Products, or approved equal.

3.3.3 Firestopping material and method of installation shall be submitted to the Architect for approval.

3.3.4 Steel electrical boxes in fire walls, barriers or partitions shall be covered on the back with UL classified putty pads.

3.4 OPERATION AND MAINTENANCE INSTRUCTIONS

3.4.1 Provide complete operation and maintenance instructions on all equipment and instruct Owner's representative in their operation.

3.5 METERING

3.5.1 This contractor shall furnish and install all conduit, wire, cabinets, weatherheads, etc., as required by local utility company for metering purposes. Contractor shall verify with utility the type, location, and general requirements for metering.

3.6 SERVICE

3.6.1 The Contractor shall arrange with the utility companies for the electrical and the telephone service as shown. The Contractor shall obtain the consent of each serving utility company for the electrical and telephone service connections shown for the project. Each utility shall be requested by the Contractor to examine the contract documents and reply in writing their consent to service. This contractor shall furnish and install all material required by local utility company for metering.

3.6.2 The electrical service entrance will be installed by this subcontractor as shown and detailed on the drawings. The electrical service characteristics are to be as shown on the drawings, and conductors shall be code type THHN or THWN installed in rigid conduit or as noted.

3.6.3 Underground telephone service shall be installed by utility serving facility. Contractor shall pay all cost associated with service as required by the telephone company. Refer to Riser Diagram for specific details.

3.6.4 Contractor shall pay all costs, furnish all material, labor, drawings, etc., as required by utility companies for relocation of existing telephone and electric service. Contractor shall pay all additional costs for underground service, pad mounted transformer and pad.

3.7 CLEANUP

3.7.1 The contractor shall remove his tools, machinery, debris, etc., from the premises when his part of the work is finished. He shall leave the premises free of all obstructions and hindrances.

3.8 WARRANTY

3.8.1 The electrical subcontractor shall warrant all equipment furnished and work performed under the electrical subcontract for a period of one (1) year from the date of written acceptance of the work. This guarantee shall cover all patching, refinishing, etc., required to restore the faulty condition at no additional expense to the Owner.

3.9 EXCAVATION FOR UTILITIES

3.9.1 Existing utilities encountered in excavating for this contract shall be relocated outside the building lines as directed by the Architect.

3.9.2 Each contractor shall perform all excavations of every description and of whatever substances encountered, to the depths indicated on the drawings and required for the installation of his portion of the utilities systems. Wherever possible, all exterior lines shall be installed with a minimum of 30" of cover, unless shown otherwise. All excavated materials not required for fill or backfill shall be removed and wasted as directed by the Architect. All excavations shall be made by open cut. The banks of trenches shall be kept as nearly vertical as practicable and where required shall be properly sheeted and braced. Rock shall be excavated to a minimum overdepth of 4" below the trench depths specified. The overdepth rock excavation shall be backfilled with loose, moist earth, thoroughly tamped. All grading in the vicinity of excavations shall be controlled to prevent surface ground water from flowing into the excavations. Any water accumulated in the excavations shall be removed by pumping, or by other approved method.

3.9.3 The trenches shall be carefully backfilled with the excavated materials approved for backfilling, or other approved material free from large clods of earth or stones. The backfill shall be in layers, moistened and tamped. Any trenches where settlement occurs shall be reopened for proper compaction.

3.10 SAFETY

3.10.1 The electrical subcontractor is completely responsible for how all his work is performed; safety, in, on, or about the job site; methods of work performance; and timeliness in such performance. In the event he is unsatisfied with the performance and/or cooperation of other trades, he shall set forth such complaints in writing for the Architect's review. In no event shall this subcontractor expect to be specifically directed in the protection of personnel or material by the Owner, Architects, or Engineer.

3.11 BRANCH CIRCUIT WIRING

3.11.1 All branch circuit wiring shall be installed in conformance with the National Electrical Code. Conductors shall be code Type THW or THHN. For all runs from low voltage panels where the first outlet is not more than fifty feet (50') to the panelboards, use minimum number twelve (#12) AWG; for runs fifty-one to eighty (51' to 80') to the first outlet, use number ten (#10) AWG; for runs over eighty feet (80'), use number eight (#8) AWG unless otherwise noted. Branch circuit color coded as follows: Phase "A" black; Phase "B" red; Phase "C" blue; switch legs yellow or orange on brown; grounding - green. All joints shall be twisted and inserted into a Scotchlok insulated connector. Provide ground wire in all branch circuits.

3.11.2 This subcontractor is warned to adhere strictly to the circuitry shown on the plans to achieve optimum system balance. Failure to properly circuit according to plans shall result in rewiring as directed at no additional cost to the Owner.

3.11.3 All parallel conductors shall be of the same length, of the same conductor material, circular - mil area, same insulation type and terminated in the same manner. No parallel conductors smaller than #1/0 are acceptable.

3.12 ELECTRICAL WIRING

3.12.1 The electrical wiring for the mechanical equipment furnished by others is separated into two main wiring divisions: (1) Power wiring by electrical contractor, and (2) control wiring below 120V by the mechanical contractor.

A. Power wiring shall be the energy source and include installation of circuit protective devices, motor starters or controllers, conduit, wiring and safety disconnects from the power supply, and termination at the motor or appropriate terminals on the equipment. This also includes all 120V control wiring.

B. Control wiring shall comprise all wiring not included in power wiring and below 120V. This wiring shall specifically include all automatic temperature control wiring, safety pilot interlocking wiring, push button starting, pilot light and signal wiring, etc., that is not included as part of pre-wired equipment but necessary for the proper operation and safety of the equipment. All conduit, boxes, etc., required for control wiring shall be provided and installed by the electrical contractor. See Section 2.3.1.

3.12.2 The mechanical contractor shall furnish to the electrical contractor all magnetic motor starters and operators for installation and connection by the electrical contractor except for kitchen hood interlock system. (See wiring diagrams on drawings). Electrical contractor shall interlock 120V or above wiring between fans and operable louvers. Electrical contractor to furnish all manual motor starters.

3.13 MOTOR CONNECTIONS

3.13.1 Wherever equipment is shown requiring electrical connection as specified, all wiring shall be furnished and installed under this section of the specifications. Starting switches, protective devices, and other means for the operation and control of equipment shall be furnished under the various sections and installed under the ELECTRICAL SECTION unless specifically noted otherwise on the Drawings.

3.13.2 Additional disconnects required by the National Electrical Code shall be furnished, installed and connected under the ELECTRICAL SECTION. Motor terminal or equipment connection shall terminate in a junction box or disconnect adjacent to the equipment.

3.13.3 Install approximately twelve inches (12") maximum of flexible conduit at final connection of equipment. For motors or equipment in exterior damp/wet locations, use polyvinyl chloride jacketed flexible metallic conduit.

3.14 TEMPORARY CONSTRUCTION POWER

3.14.1 This contractor shall furnish and install temporary construction power wiring as required to provide sufficient power and lighting for all construction needs. Temporary electrical service shall be obtained in the name of the General Contractor and it will be the General Contractor's responsibility to pay all power company charges. The temporary service shall be obtained from the local utility company. All receptacles shall be grounding type. Provide temporary lighting as required or directed by the Architect for adequate illumination for construction purpose.

3.15 WORKMANSHIP

3.15.1 All conduits shall be thoroughly swabbed out before pulling wire; all ends of conduit shall be free of burrs or defects.

A. Bends shall be made with an approved bender, and no conduit shall be installed with crimps or indenters. Where applicable, factory formed long radius ells are recommended.

B. Electrical raceways shall be concealed where possible. All conduit runs shall be grouped where possible, properly supported by approved conduit or pipe hangers and run parallel or perpendicular to building lines. Where surface mounted panelboards are utilized, contractor shall mount all conduits above and below panel to Unitstrut Channels with P2900 Series Universal clamps or equal. Conduit shall be arranged in a neat and orderly manner. Failure to comply with the above will result in replacement without additional cost to the Owner.

C. All conduit shall be supported with Cast "C" clamps, "U" straps or ring hangers, attached to rods and/or plates to prevent sag and undue strain. Perforated straps or wire will not be permitted.

D. Caddie clips shall not be attached to ceiling grid wire.

E. All conduit to be supported every 10' and within 3' from outlet boxes. Conduit shall be attached to support with clamps or caddie clips. Wire is not acceptable.

3.16 ROOFING FLASHING

3.16.1 Where electrical items penetrate the roofing, the Contractor shall coordinate location and size as required for factory vent flashing assembly to be furnished and installed by the Roofing Contractor in strict accordance with the Roof Manufacturer’s recommendation.

3.16.2 If single ply membrane roof is used, Contractor shall use factory pipe flashing assembly as recommended by Roofing Manufacturer. Coordinate locations with Roofing Contractor.

3.17 NOISE AND VIBRATION CONTROL

3.17.1 The electrical systems as installed shall be free from objectionable noise or vibration. The Contractor shall isolate motor starters, conduits, fixture ballast, transformers, equipment, etc., as directed or required so as to insure an acceptable noise level free from objectionable vibration.

END OF SECTION

Section 31 11 00

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

Section 31 22 00

GRADING

PART ONE - GENERAL

1.1 WORK INCLUDED

A. Stripping and stockpiling surface layer of topsoil and organic matter in building 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.

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

Section 31 23 00

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.	Grading	Section 31 22 00
C.	Seeding	Section 32 92 19
D.	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

Section 31 23 16

ROCK EXCAVATION

PART ONE – GENERAL

1.1 SUMMARY

A. Section includes:

1. Removal of identified and discovered rock during excavation.
2. Incorporating removed rock into fills and embankments.

B. Related Documents: The Contract Documents, as defined in Section 01 11 00 – Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other Document

C. Related Sections:

1. Section 31 22 00 – Grading
2. Section 31 23 00 – Excavation and Fill

1.2 DEFINITIONS

A. Solid Rock: Material which cannot be reasonably ripped using a D-8R Caterpillar bulldozer with a single-tooth ripper, a Caterpillar 330B track excavator with 36" bucket and rock teeth or other equipment of equal or greater size and power.

B. Solid Rock Excavation in Footings and Trenches: material which cannot reasonably be removed using a Caterpillar 330B track excavator with 36" bucket and rock teeth.

1.3 PROJECT CONDITIONS OR SITE CONDITIONS

A. Environmental Requirements: Determine all environmental effects associated with proposed rock removal Work and safeguard those concerns as regulated by law and authorities having jurisdiction by approved methods.

B. Explosives: Not permitted

C. Existing Conditions:
1. Geotechnical Data:
a. Reports of Subsurface Investigation and data are a part of Contract Documents.
b. Soil and subsurface investigations were conducted at the site by an independent testing laboratory and a report with log of borings prepared. This report was obtained for design use only.
c. A copy of the report is provided by Owner and is made available for convenience of the Contractor.

d. Soils investigation data is not warranted to indicate actual conditions. Owner and Architect/Engineer do not assume responsibility for variations in kind, depth, quantity and condition of soils; they disclaim responsibility for accuracy, true location, and extent of soils investigation that has been prepared by others; and they further disclaim responsibility for interpretation of that data by Contractor as in projecting soil bearing values, rock profiles, soil stability, and presence, level, and extent of underground water.

e. Additional test borings and other exploratory operations may be made by Contractor at no additional cost to Owner.

1) Immediately report any discrepancy between Contract Documents and amount and type of rock to be removed to Architect.

PART TWO - PRODUCTS

Section Not Used

PART THREE - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready for rock excavation to begin.

B. Report in writing to Architect prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

C. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 ROCK EXCAVATION

A. Perform rock excavation in a manner that will produce material of such size as to permit it being placed in embankments in accordance with Section 31 23 00. Remove rock to limits indicated. Remove loose or shattered rock, overhanging ledges and boulders which might dislodge.

1. Rock Excavation – Mechanical Method:

a. Excavate for and remove rock by mechanical method. Drill holes and utilize expansive tools and wedges to fracture rock.

b. Cut away rock at excavation bottom to form level bearing. Remove shaled layers to provide sound and unshattered base for foundations.

c. In utility trenches, excavate to 6 inches below invert elevation of pipe and 24 inches wider than pipe diameter.

d. Remove shaled layers to provide sound unshattered base for footings and foundations.

e. Re-use excavated rock materials on-site in accordance with Section 31 23 00.

f. Remove excavated rock materials not re-used off-site.

B. Use lean concrete or suitable materials to replace rock overexcavation in building area and in expansion area to facilitate placement of utilities and future footings.

3.3 FIELD QUALITY CONTROL

A. Section 01 45 29 – Testing Laboratory Services: Field inspection.

B. Observation: Architect will observe bearing surfaces and cavities formed by removed rock.

END OF SECTION

Section 31 25 00

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. 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 our 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

Section 32 17 23

SYNTHETIC TURF SYSTEM

PART ONE – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

A. The work under this section shall consist of furnishing all labor, materials, and equipment necessary to install, in place, all synthetic turf and other materials as indicated on the plans and as specified herein. The installation of all new materials shall be performed in strict accordance with these specifications, the turf provider's instructions and in accordance with all details and shop drawings.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

1. Submit catalog cuts, brochures, specifications, preparation and installation instructions and recommendations.
2. All supplied and installed materials and products will meet or exceed the minimum specifications designated in this section. Sufficient data must be submitted to indicate compliance with the Contract Documents.
3. Submit instructions for installation.

B. Shop Drawings: Show fabrication and installation details for synthetic turf including, but not limited to:

1. Proposed locations of all seams in fabric surfacing. Show installation methods and construction.
2. Field lining and marking - Submit a complete scale and dimensional drawing of inlaid or tufted-in field lines and marking boundaries. Include graphics for end zones and center logo artwork for approval as well.

C. The Turf Provider / Installer shall provide the following samples of the artificial turf selected for this project:

1. An 8.5" x 11" minimum sample of the exact synthetic turf that is specified for this project.

D. Turf Provider Certificates: Certified list of five (5) existing installations of a synthetic turf system installed within the last three years, including Owner Representative and telephone number, attesting compliance with quality assurance information.

1. The Contractor shall provide a warranty to the Owner that covers defects in materials and installation workmanship of the turf for a period of eight (8) years from the date of substantial completion. The turf provider must verify that their representative has inspected the installation and that the work conforms to the turf provider's requirements and any written directives. The warranty shall include general wear and damage caused from UV degradation. Other items that must be addressed include the following:
   a. Acceptable uses for the field
   b. Fading
   c. Color match within specifications
   d. Excessive fiber wear
   e. Wrinkling and panel movement
   f. Shock absorbency (Gmax)
   g. Seam integrity
   h. Drainage (through the turf only)
2. Exclusions shall include the following:
   a. Vandalism
   b. Acts of God
3. The warranty shall be fully insured for the entire 8-Year term and be non-prorated. Warranties that include language which pro-rates benefits shall cause the provider's bid to be rejected. Prior to final payment for the synthetic turf, the Contractor shall submit to the Owner, this policy guaranteeing the warranty to the Owner. Insurance must reflect the following values:
   a. $5,000,000.00 per each insured warranty
   b. $5,000,000.00 dollar annual aggregate for all warranties issued during each 12 month period of the 8-Year warranty
   c. Policies that are backed by a Letter of Credit are not acceptable
   d. Policy must be issued by an A- rated or greater A.M. Best Rating
   e. Policies that include self-insurance or self-retention clauses shall not be considered. Policy cannot include any form of deductible amount. Policy must be in force at the time of the bid.

E. Maintenance and Operations Data: At the completion of the project submit 3 complete sets, in manual form, of all the turf provider's recommended procedures and materials for, but not limited to general maintenance, line/marking installation, small repair procedures, cleaning, etc.

F. Project Record Documents: Record actual locations of seams, drains, and other pertinent information in accordance with the General Requirements.

1.4 QUALITY ASSURANCE

A. Turf Provider Qualifications

1. Shall be experienced in the installation of synthetic grass (including RootZone® fiber) for a minimum of five (5) years.
2. Shall have a minimum of 500 full sized tall fiber infilled type field installations. Field size to be a minimum of 65,000 square feet to qualify. This list is to be provided with the bid.
3. Shall provide third party certification confirming compliance with referenced standards.

B. Installer Qualifications:

1. Installation team shall be an established, insured installation firm experienced as a premium turf installer with suitable equipment and supervisory personnel, with a minimum of five years' experience with 15 foot wide tufted materials.
2. Installation team shall be trained and certified, in writing, by the turf provider, as competent in the installation of the specified material, including seaming.
3. Site superintendent shall have at least 10 installations similar to this type.

C. All components and their installation method shall be designed and manufactured for use on outdoor athletic fields. The materials as hereinafter specified, should be able to withstand full climatic exposure, be resistant to insect infestation, rot, fungus and mildew; to ultra-violet light and heat degradation, and shall have the basic characteristic of flow- through drainage allowing free movement of surface run-off through the turf and directly into prepared granular base and into the field drainage system.

D. The synthetic turf and components shall be of national reputation. The turf fabric shall be installed by factory-authorized distributors directly employing the installation crew.

1.5 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit synthetic turf work to be performed according to Contractor or Turf Provider's written instructions and warranty requirements.

B. Field Measurements: Indicate measurements on Shop Drawings.

1.6 WARRANTY

A. Special warranty for American Football: Turf must maintain an ASTM F 355 Gmax of less than 165 for the life of the warranty. This is for the entire warranty period of eight (8) years.

1.7 MAINTENANCE SERVICE

A. Turf Installation Contractor shall train maintenance staff and/or contracted maintenance staff in the use of the recommended maintenance equipment and provide maintenance guidelines to the facility maintenance staff.

PART TWO – PRODUCTS

1.1 TURF PROVIDERS

A. AstroTurf®, LLC – AstroTurf® PGPN 2680 Abutment Road, SE Dalton, GA 30721 or Architect approved equal.

1.2 TURF MATERIALS

A. Synthetic Turf System: A complete synthetic turf system consisting of 8,040 denier parallel slit film fibers along with an extruded nylon RootZone®. Pile height shall be nominal 0.75". Fibers shall be tufted to a primary backing and a mechanically applied adhesive secondary backing.

1. The tufted fiber shall not weigh less than 58 ounces per square yard. The tufted rows of fiber are to be spaced no more than 3/16" apart. ASTM tests proving the fiber meets these qualifications must be provided with the bid. Turf systems that do not meet this specification will be disqualified.
2. The carpet's primary backing shall be comprised of three layers (18 pic polypropylene, 13 pic polypropylene, reinforced by a non-woven PET cap fiber layer). This backing is to have a minimum weight of 7 oz per square yard. The carpet shall then be coated with a secondary backing of Biocel™ Polyurethane synthetic coating material with a minimum application rate of 20 ounces per square yard and then perforated for adequate drainage. Carpets that are not perforated for adequate drainage shall not be acceptable.
3. The carpet shall be delivered in 15' wide rolls. The rolls shall be of sufficient length to go from sideline to sideline. Head seams, other than at sidelines, will not be acceptable.

B. The pile surface shall provide good traction in all types of weather with the use of conventional sneaker type shoes, composition mold sole athletic shoes, baseball spikes and screw-on football spikes.

C. The pile surface shall be suitable for both temporary and permanent line markings using acrylic paint, as per the turf provider's recommendations.

D. All adhesives used in bonding the seams shall be resistant to moisture, freeze/thaw, bacteria and fungus attacks, and resistant to ultraviolet radiation. The adhesive shall be made especially for the adhesion of synthetic turf seams.

E. The adhesive system shall have been utilized on at least 25 full installations. Provide this information with the bid. It shall consist of a factory-made adhesive bed applied to a non-woven fabric seaming tape. The adhesive bed shall be a metered amount suitable for the application. It shall be heat and pressure activated. A special heat application machine and pressure application using weighted rollers is mandatory.3

F. Supply field groomer and sweeper or single maintenance apparatus that performs basic maintenance functions.

G. Perimeter edge details required for the system shall be as detailed and recommended by the turf provider, and as approved by the turf provider.

1.3 TURF FABRIC SURFACE

A. The pile surface shall resemble freshly mown natural grass in appearance, texture and color.

B. The pile surface shall be nominally uniform in length.

C. The pile fiber angle shall be 90 degrees ± 15 degrees, measured from the horizontal.

D. The entire system shall be resistant to weather, insects, rot, mildew and fungus growth and will be non-allergic and non-toxic.

E. The synthetic turf system shall have a nominal fiber length of 0.75".

F. Each roll shall be minimum 15' wide

G. The entire system shall be constructed for porous standards as specified. Synthetic turf system shall be perforated at 4 – 6" on center. Systems that are not perforated for maximum drainage shall not be acceptable.

H. All markings shall be tufted in-place, inlaid or glued. It is recommended that the maximum amount of markings be factory-prefabricated into the turf system prior to shipment to site. At a minimum all football markings (with the exception of hash marks) shall be factory prefabricated.

1.4 PRODUCT SPECIFICATIONS - TURF

A. Yarn shall be proven athletic quality slit film yarn with a nylon thatch layer (RootZone®) designed specifically for outdoor use and stabilized to resist the effects of ultraviolet degradation, heat, foot traffic, water and airborne pollutants.

B. The fabric shall possess the following minimum physical characteristics. ASTM testing shall be provided with the bid and any products not meeting the minimum physical characteristics 4will be rejected:

Average Pile Yarn Weight	ASTM D 5848	58 oz/square yard
Average Total Weight	ASTM D 5848	85 oz/square yard
Secondary Backing Weight	ASTM D 5848	20 oz/square yard
Primary Backing	ASTM D 5848	7.0 oz/square yard
Average Tuft Length	ASTM 5823	0.75"
Tufting Gauge	ASTM D 5793	3/16" maximum
Tuft Bind	ASTM D 1335	> 8 lbs
Yarn Denier (slit film fiber)	ASTM D 1577	8,000/1
Yarn Denier (secondary fiber)	ASTM D 1577	6,000/8
Fiber Thickness (primary)	ASTM D 3218	115 microns
Surface Flammability	ASTM D 2859	TEST Passed
Permeability	ASTM F 1551	> 30
Melt Point	ASTM D 789	248° Fahrenheit
Gmax System (American Football)	ASTM F 355	< 125 at installation < 165 over life of warranty

PART THREE - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for visual installation tolerances. Proceed with installation only after satisfactory conditions have been corrected.

B. Certification of prior work: The synthetic turf provider and / or installation contractor shall perform a visual inspection of the field base onto which the synthetic turf system is to be installed and to examine the finished surface for required compaction, and grade tolerances (through string line testing). After any discrepancies between the required materials, application and tolerance requirements noted have been corrected, the synthetic turf installer should submit a written certification of VISUAL acceptance of the base for installation of the synthetic turf system. Any tests other than VISUAL tests (string line, water hose, etc.) shall be the responsibility of the General Contractor or Landscape Architect.

C. Installation of all materials shall be performed in full compliance with approved project shop drawings. Only factory trained technicians skilled in the installation of athletic caliber synthetic turf systems, working under the direct supervision of the turf provider's supervisors, shall undertake the placement of the turf system. The designated Supervisory personnel on the project must be certified, in writing by the turf provider as competent in the installation of these materials, including proper seaming. The turf provider shall certify the installation and warranty compliance.

3.2 PREPARATION

A. Inspect delivered field surface fabric and components immediately prior to installation. Any damaged or defective items shall be rejected. Installed artificial system shall be inspected for, but not limited to, the following:

1. Uniformity of product and color
2. Surface bubbles
3. Field markings
4. Field Edge installation
5. Pile height of each roll shall be measured. Any material(s) that does not meet minimum height and thickness specifications shall be rejected. Pile height shall be measured in its finished positions.

B. Environmental Conditions: Weather conditions are important for the successful installation of the systems. No work under this section will proceed when:

1. Ambient temperatures are below 45 degrees F.
2. Material temperatures are below 45 degrees F.
3. Surfaces are wet or damp.
4. Rain is imminent or falling.
5. Conditions exist or are imminent, which will be unsuitable to installation requirements of the systems specified herein. Humidity levels will be inside the limits recommended by the adhesive manufacturer to obtain optimal bonding characteristics of the surfaces.

3.3 INSTALLATION OF THE SYNTHETIC TURF

A. The carpet rolls are to be installed directly over properly prepared base. Extreme care should be taken to avoid disturbing the base stone both in regard to compaction and planarity. A 2-5 ton static roller shall be on site and available to repair and properly compact any disturbed areas of the base stone.

B. The full width rolls shall be laid out across the field. When all of the rolls of the playing surface have been installed, the sideline areas will be installed at right angles to the playing field turf. All work shall be such that the seams shall remain as required for the duration of the warranty period at a minimum. All seam widths are to be held to a minimum and shall be traverse to the field direction. Seams shall be flat, tight and permanent with no separation or fraying.

C. The perimeter of the field shall be firmly secured to the edge anchors for the life of the warranty and in accordance to project details.

3.4 FIELD LINING AND MARKINGS

A. General: A complete field "Lining, Marking and Field Boundary" system will be provided with the installation of the surfacing system specified herein. All markings shall be installed in accordance with prior approved project Shop Drawings.

B. Inlays shall conform to the turf provider's specifications, directions and recommendations for the best results.

C. Striping layouts shall be accurately surveyed by the Contractor before installation of inlaid field markings.

D. Install inlays only when the surface is completely dry. Adhere all inlays securely into place. Never loose-lay and sew an inlay into place.

3.5 FINAL ACCEPTANCE

A. Prior to final acceptance, the Contractor shall submit to the Owner three (3) copies of Maintenance Manuals, which will include all necessary instructions for the proper care and preventative maintenance of the synthetic turf system, including painting and striping.

B. The Contractor shall provide evidence that the turf can be plowed with conventional rubber bladed snow removal equipment.

C. The finished playing surface shall appear as mowed grass with no irregularities and shall afford excellent traction for conventional athletic shoes of all types. The finished surface shall resist abrasion and cutting from normal use.

3.6 CLEANING

A. Contractor shall provide the labor, supplies and equipment as necessary for final cleaning of surfaces and installed items. All usable remnants of new material shall become the property of the Owner. The Contractor shall keep the area clean throughout the project and clear of debris. Surfaces, recesses, enclosures, etc. shall be cleaned, as necessary, to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the Owner.

END OF SECTION

Section 32 92 19

SEEDING

PART ONE - GENERAL

1.1 WORK INCLUDED

A. Preparation of sub-grade

B. Placing topsoil

C. Seeding 10' around new building and areas disturbed by construction

D. Fertilizing and watering

E. Compacting disturbed gray gravel area that is not seeded

1.2 RELATED WORK

A.	Grading	Section 31 22 00
B.	Excavation and Fill	Section 31 23 00

1.3 SUBMITTALS

Submit certification that the seed meets the specifications requirements, and that it complies with the requirements of the Arkansas State Plant Board.

PART TWO - PRODUCTS

2.1 MATERIALS

A. Topsoil: Use topsoil excavated from the site only if conforming to the specified requirements:

1. Existing topsoil: Natural, fertile, agricultural soil capable of sustaining vigorous plant growth, not in frozen or muddy condition, containing not less than 6% organic matter, and corrected to pH value of 5.9 to 7.0. Free from subsoil, slag, clay stones, lumps, live plants, roots, sticks, crabgrass, cough grass, noxious weeds, and foreign matter.
2. Imported topsoil: Natural, fertile, agricultural soil typical of locality, capable of sustaining vigorous plant growth, from well drained site free of flooding, not in frozen or muddy condition, not less than 6% organic matter, and lumps, live plants, roots, sticks, crabgrass, cough grass, noxious weeds and foreign matter.

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