July 1, 2019
IDEA PUBLIC SCHOOLS – IDEA Owassa Phase II

GOMEZ MENDEZ SAENZ, INC.
1150 PAREDES LINE RD.
BROWNSVILLE, TEXAS 78526
(956) 546-0110

ADDENDUM NO. 1

A. PURPOSE AND INTENT
This addendum is issued for the purpose of modifying the plans and specifications for the IDEA PUBLIC SCHOOLS – IDEA Owassa Phase II

This addendum shall become part of the contract and all CONTRACTORS shall be bound by its content. All aspects of the specifications and drawings not covered herein shall remain the same.

The General Conditions and the Special Conditions of the specifications shall govern all parts of the work and apply in full force to this Addendum.

B. SCOPE

I. CLARIFICATIONS:

1. NOTICE TO BIDDERS – Bid Date changed to:
   Tuesday July 16, 2019 @ 4:00pm – Same Location.
2. Pre-Proposal conference Agenda and Sign-In Sheet INCLUDED within this addendum.

II. SPECIFICATIONS:

1. Front End Specification, Bid Proposal Form
   REVISE *Bid Opening Date*. Bid Proposal Form included in this addendum will become part of the Contract Documents.

2. Section 07520 – Modified Bituminous Sheet Roofing
   Subject to compliance with this section: *Polyglass Q – Mapei Group (Polyfresko G SBS FR Type II, Elastoflex SA V Plus FR), shall be an approved manufacturer and product.*

3. Section 07724 – Roof Hatch
   Subject to compliance with this section: *Babcock Davis – Hurricane Roof Hatch BRHHG shall be an approved manufacturer and product.*

4. Section 10260 – Clear Corner Guards
   Subject to compliance with this section: *Pawling – Pro Tek Model CG-18, shall be an approved manufacturer and product.*

III. PLANS:

1. Sheet A1.02 – Site Plan Improvements
    a. REPLACE Sheet A1.02 Overall Site Plan previously issued with Sheet A1.02 Overall Site Plan Sheet included in this addendum.
    b. Key Note 22 – ADD the following to existing text: "Provide trail chaser plastic whiskers marking all painted soccer field stripe corners.
    c. ADD Key Note 24 – "Provide Trail Chaser Plastic Whiskers and HD Galv. Metal Stakes to mark jogging Trail @ 50' O.C. Provide 4" painted field stripe connecting all markers for the full length of trail."

Structural Addendum Items: See Attached Information (2 Pages)
MEP Addendum Items: See Attached Information (14 Pages)

End of Addendum 1

BID PROPOSAL FORM
(GENERAL CONTRACT)

Project: Idea Public Schools Owassa Academy and College Prep Phase II
Place: Idea Public Schools, 2115 W. Pike Blvd., Weslaco, Texas 78596
Date: Tuesday, July 16, 2019
Time: 4:00 p.m.

1. Pursuant to and in compliance with the Invitation to Bid and the proposed Contract Documents, prepared by Gomez Mendez Saenz, Inc. relating to the above referenced project, the undersigned, having become thoroughly familiar with the terms and conditions of the proposed Contract Documents and with local conditions affecting the performance and costs 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, and addenda, thereto, including furnishing of any and all labor and materials for all General Construction and Site Work, for the following sum of money:

A: BID:
All labor, materials, services and equipment, necessary for completion of the work shown on the drawings and described in the specifications for the **IDEA Owassa Academy and College Prep Phase II**._____

_____

_____DOLLARS ($_____)

B. ALTERNATES:
All labor, materials, services and equipment, necessary for completion of the work shown on the drawings and in the specifications.

Alternate No. 1: Provide Automated Logic, in lieu of, Johnson Controls_____
_____DOLLARS ($)

Alternate No. 2: Provide exterior athletic lighting (Poles, fixtures, contractor cabinet and branch circuits as noted on drawings). Reference Specification 265586_____
_____DOLLARS ($)

Alternate No. 3: Provide MC cable for all branch circuit wiring as allowed per NEC (homeruns to be in raceway). Reference Specification 260519. _____
_____DOLLARS ($)

Alternate No. 4: Add restroom 208B at K classroom 208 with associated finishes as indicated in Architectural and MEP Drawings. _____
_____DOLLARS ($)

Alternate No. 5: Provide Voice Data Communication Cabling Equipment including cabling for the multimedia and projector(s) outlets (rapid run). _____
_____DOLLARS ($)

2. If awarded this Contract the undersigned will execute a satisfactory Construction Contract, Performance Bond, Labor and Material Payment Bond and proof of insurance coverage, with the Owner for the entire work as per the Contract Documents within 10 days after notice of award. It is agreed that this proposal is subjected to the Owner's acceptance for a period of Thirty (30) calendar days from the above date.

3. This building must be completed by **May 2020**. Time extensions shall be submitted for review on a monthly basis.

4. Enclosed is a Certified Check or Bidders Bond in the amount of $_____ in compliance with the specification requirements. (5% of the highest amount bid).

The above check or Bidders Bond is to become the property of the Owner in the event the Construction Contract (when offered by the Owner) and the bonds and proof of insurance coverage are not executed within the time set forth above.

5. The undersigned agrees to the following:

- To furnish all materials as shown and specified in the plans and specifications.
- To start work 5 days after notice of award of contract.
- To work _____ working days per week.

6. The full amount of all allowances as specified in the General Requirements, Division 1, of the specifications, in the Base Proposal price shown.

7. Receipt is acknowledged of the following addendas:

No.	Dated	No.	Dated	No.	Dated
No.	Dated	No.	Dated	No.	Dated

8. Bidder agrees that the Owner has the right to accept or reject any or all bids and to waive all informalities.

9. A list of Sub-Contractors and Material Suppliers which are proposed to be used on this project is included with this proposal in a separate envelope. Upon acceptance of proposal, substitution of Sub-Contractors or Suppliers listed may be made only with approval by the Owner.

10. By signing, bidder acknowledges that **ALL ALLOWANCES** as listed in Section 01010 – Summary of Work, have been included in the Base Bid.

Respectfully submitted,

_____
CONTRACTOR

(SEAL: - if Bid is by a Corporation)

By: _____

Title: _____

Address: _____
Street or Box City State Zip

Telephone (____) _____
Fax: (____) _____

FILL IN APPLICABLE INFORMATION:

A CORPORATION, Chartered in the STATE of _____, authorized to do business in the State of TEXAS

A PARTNERSHIP composed of: _____

AN INDIVIDUAL, operating under the name of: _____

GMS ARCHITECTS

Pre-Proposal Conference
IDEA PUBLIC SCHOOLS – Elsa II and Owassa II

June 26, 2019

- **Sign-In Sheet**

- **Owners Representative and Design Team**
  - Owners Representative – PMSI
  - Design Team – GMS Architects, GRA Engineering, Ethos Engineering, SSP Design, Mariano Garcia Engineering (Elsa), Melden & Hunt (Owassa)

- **Construction Proposal Documents**
  - Electronic Copies available thru Gomez Mendez Saenz, David Monreal, dmonreal@gmsarchitects.com Must sign electronic file release form.

- **Bidding Questions**
  - Project questions regarding the project shall be submitted in writing for a formal response via email to: David Monreal, dmonreal@gmsarchitects.com Written questions will be accepted until:
    - IDEA Elsa II – 12:00pm (Noon) Monday July 8, 2019.
    - IDEA Owassa II – 12:00pm (Noon) Thursday July 11 2019.
  - Written question should be clear and concise. Include page number or detail reference.
  - Changes to the Bid Documents will only be issued thru an Addendum.
  - No Addendums have been issued as of today.

- **Bidding Information**
  - IDEA Elsa II
    - Sealed Proposals are due no later than **4:00pm, on Wednesday July 10, 2019 @ IDEA Headquarters**. Properly identified Proposals will be opened and read aloud.
  - IDEA Owassa II
    - Sealed Proposals are due no later than **4:00pm, on Tuesday July 16, 2019 @ IDEA Headquarters**. Properly identified Proposals will be opened and read aloud.
  - A 5% Bid Bond must accompany the proposal. Must be Original.

- Project Allowances are noted in Section 01010 Summary of Work General Requirements.
- Bid Items
  - There are (5) Alternate for this project. Listed in Section 01010 Summary of Work General Requirements.
- Review Ranking Evaluation and Ranking Criteria.
  - Provide (3) copies of your Proposal
  - Firm Experience/Key Personnel
  - Proposed Subcontractor Team (No later than 48 Hours after bid). Email to David Monreal dmonreal@gmsarchitects.com
  - Other required information (No Point Value)
  - Respond to every question
- Product Substitutions – Bidding Requirements
  - Must be submitted (10) days before receipt of bids.
    - Approvals will be issued via Addendum only.
  - Current Specs list a Basis of Design and approved manufactures that Match Phase I products. (Do not deviate from approved manufactures)

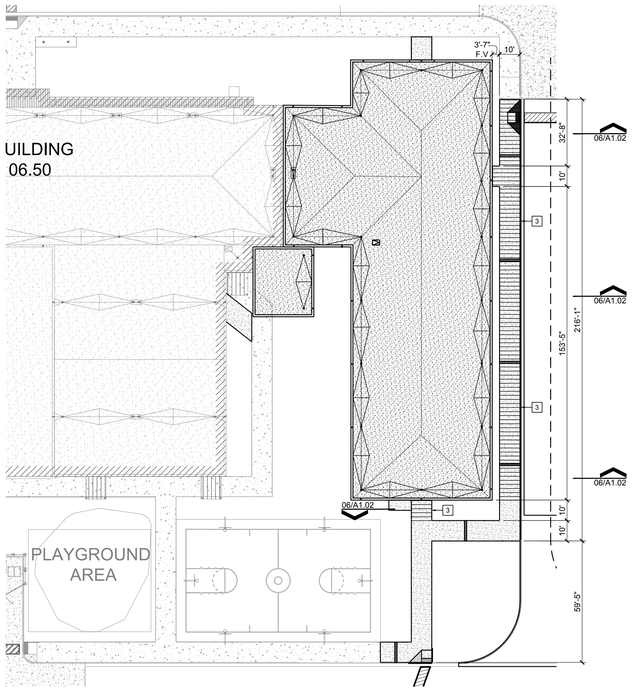
- **Project Overview**
  - Project Estimated Budget is $4.3 Million
  - Project consists of the following:
    - Two Story Classroom Wing Addition
    - Additional Parking Areas and extension of queuing lanes
    - Irrigated Soccer Field
    - Soccer Field Lighting and Bleachers
    - Walkway Canopies
  - Building Utilities
    - Extending Service from Phase I building (Electrical, Fire Protection, Domestic Water, Sanitary Sewer and Irrigation)

- **Questions?**

GMS ARCHITECTS

IDEA PUBLIC SCHOOLS
Pre-Bid Conference – Elsa II and Owassa II
June 26, 2019

Name	Company	Phone Number	E-Mail
David Monreal	GMS Architects	956-546-0110	dmonreal@gmsarchitects.com
Ernie Villarreal	PMSI	512-989-7045	evillarreal@pmsitx.com
Joe Lino	Rigney Const.	956-381-6916	RIGNEYCONSTRUCTION@GMAIL.COM
Joseph Aguirre	Centerline Construction	956.280.2545	centerlineconstruction956@yahoo.com
~~Ricardo Trevino~~	D Wilson Construction	956-686-9573	~~Ricardo@dwilsonconstruction.com~~
Ricardo Trevino	ProTek Commercial Construction	(956)241-0640	info@protekcommercialconstruction.com
David Cromer	Wil-Con	956-981-9781	dirika@wil-con.com



05 CANOPY PLAN **ENLARGEMENT**

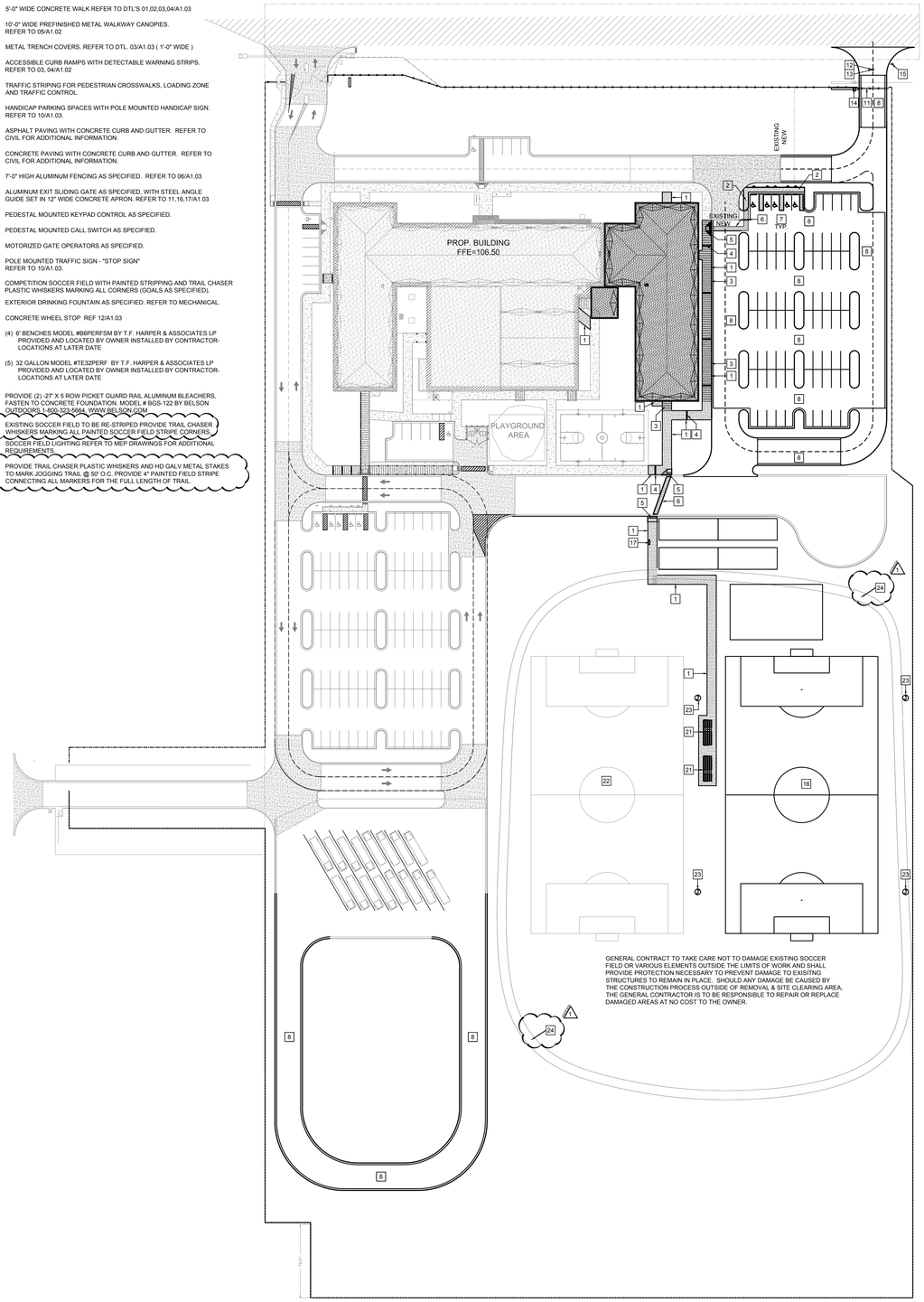
SCALE : 1"=30'-0"

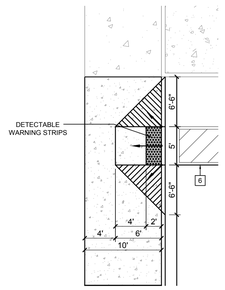
01 SITE PLAN **IMPROVEMENTS**

SCALE : 1=50

KEYED NOTES

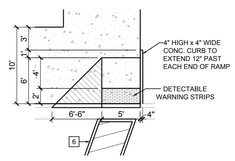
1. 10'-0" WIDE CONCRETE WALK REFER TO DTL'S 01,02,03,04/A1.03
2. 5'-0" WIDE CONCRETE WALK REFER TO DTL'S 01,02,03,04/A1.03
3. 10'-0" WIDE PREFINISHED METAL WALKWAY CANOPIES. REFER TO 05/A1.02
4. METAL TRENCH COVERS. REFER TO DTL. 03/A1.03 (1'-0" WIDE)
5. ACCESSIBLE CURB RAMPS WITH DETECTABLE WARNING STRIPS. REFER TO 03, 04/A1.02
6. TRAFFIC STRIPING FOR PEDESTRIAN CROSSWALKS, LOADING ZONE AND TRAFFIC CONTROL.
7. HANDICAP PARKING SPACES WITH POLE MOUNTED HANDICAP SIGN. REFER TO 10/A1.03.
8. ASPHALT PAVING WITH CONCRETE CURB AND GUTTER. REFER TO CIVIL FOR ADDITIONAL INFORMATION.
9. CONCRETE PAVING WITH CONCRETE CURB AND GUTTER. REFER TO CIVIL FOR ADDITIONAL INFORMATION.
10. 7'-0" HIGH ALUMINUM FENCING AS SPECIFIED. REFER TO 06/A1.03
11. ALUMINUM EXIT SLIDING GATE AS SPECIFIED, WITH STEEL ANGLE GUIDE SET IN 12" WIDE CONCRETE APRON. REFER TO 11,16,17/A1.03
12. PEDESTAL MOUNTED KEYPAD CONTROL AS SPECIFIED.
13. PEDESTAL MOUNTED CALL SWITCH AS SPECIFIED.
14. MOTORIZED GATE OPERATORS AS SPECIFIED.
15. POLE MOUNTED TRAFFIC SIGN - "STOP SIGN" REFER TO 10/A1.03.
16. COMPETITION SOCCER FIELD WITH PAINTED STRIPPING AND TRAIL CHASER PLASTIC WHISKERS MARKING ALL CORNERS (GOALS AS SPECIFIED).
17. EXTERIOR DRINKING FOUNTAIN AS SPECIFIED. REFER TO MECHANICAL.
18. CONCRETE WHEEL STOP REF 12/A1.03
19. (4) 6' BENCHES MODEL #96PERFSM BY T.F. HARPER & ASSOCIATES LP PROVIDED AND LOCATED BY OWNER INSTALLED BY CONTRACTOR- LOCATIONS AT LATER DATE
20. (5) 32 GALLON MODEL #TE32PERF BY T.F. HARPER & ASSOCIATES LP PROVIDED AND LOCATED BY OWNER INSTALLED BY CONTRACTOR- LOCATIONS AT LATER DATE
21. PROVIDE (2) -27' X 5 ROW PICKET GUARD RAIL ALUMINUM BLEACHERS, FASTEN TO CONCRETE FOUNDATION. MODEL # BGS-122 BY BELSON OUTDOORS 1-800-323-5564, WWW.BELSON.COM
22. EXISTING SOCCER FIELD TO BE RE-STRIPED PROVIDE TRAIL CHASER WHISKERS MARKING ALL PAINTED SOCCER FIELD STRIPE CORNERS.
23. SOCCER FIELD LIGHTING REFER TO MEP DRAWINGS FOR ADDITIONAL REQUIREMENTS.
24. PROVIDE TRAIL CHASER PLASTIC WHISKERS AND HD GALV METAL STAKES TO MARK JOGGING TRAIL @ 50' O.C. PROVIDE 4" PAINTED FIELD STRIPE CONNECTING ALL MARKERS FOR THE FULL LENGTH OF TRAIL.





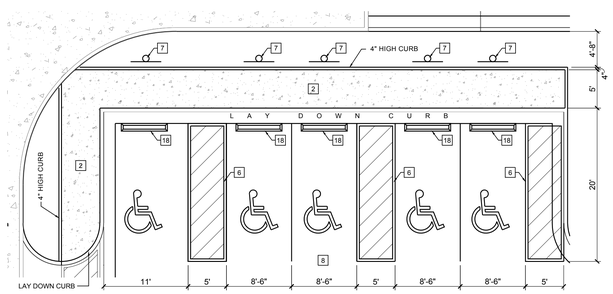
03 SITE PLAN **ENLARGEMENT**

SCALE : 1/8"=1'-0"



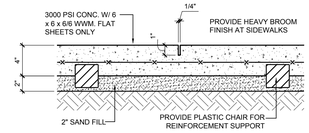
04 SITE PLAN **ENLARGEMENT**

SCALE : 1/8"=1'-0"



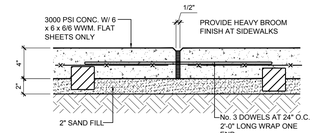
02 SITE PLAN **ENLARGEMENT**

SCALE : 1/8"=1'-0"



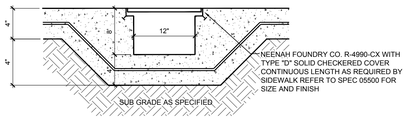
10 SIDEWALK CONTROL JT.

SCALE: 1-1/2"=1'-0"



09 SIDEWALK EXP. JT. DETAIL

SCALE: 1-1/2"=1'-0"

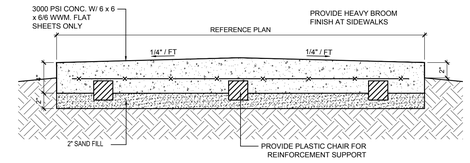


08 TRENCH DETAIL

SCALE 1 1/2" = 1'-0"

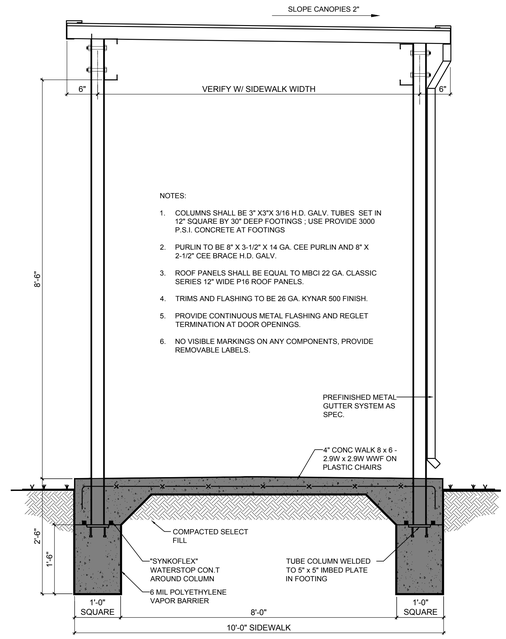
1.) CONTRACTOR TO VERIFY ALL BUILDING ROOF DRAINS & DOWN SPOUTS THAT WILL SPILL ONTO A SIDEWALK AND PROVIDE A TRENCH GUTTER AT THAT LOCATION TO ALLOW FOR RAIN WATER TO DRAIN THRU GUTTER AND NOT OVER SIDEWALK (WHICH COULD CAUSE A TRIPPING HAZARD). CONTRACTOR TO VERIFY TRENCH GUTTERS NEEDED PRIOR TO ANY POURING OF SIDEWALKS AROUND PERIMETER OF BUILDING. TYPICAL AT ALL BUILDINGS.

2.) REFER TO CIVIL DRAWINGS FOR ALL OTHER LOCATIONS OF TRENCH GUTTERS



07 SIDEWALK DETAIL

SCALE: 1-1/2" = 1'-0"



06 SECTION DETAIL

SCALE 3/4" = 1'-0"

No.	REVISIONS	BY
1	7-1-2019	

GMS ARCHITECTS
1150 Paredes Line Rd.
Brownsville TX 78526
(956) 546-0110
fax (956) 546-0196

IDEA-OWASSA COLLEGE PREP PHASE II

IDEA Public Schools

REGISTERED ARCHITECT
DAVID A. MONREAL
79556
STATE OF TEXAS
6-13-19

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Gomez Mendez Saenz Inc.
Architects-Planners
Interior Designers

Date:	June 13, 2019
Scale:	As Noted
Project Architect:	David A. Monreal, AIA
Drawn By:	J.Alvarado
Job No.	IDEA PHASE II
Sheet:	A1.02

GENERAL STRUCTURAL NOTES

THESE GENERAL NOTES SHALL APPLY UNLESS OTHERWISE SPECIFICALLY NOTED ON PLANS OR DETAILS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SHALL COORDINATE ALL STRUCTURAL PLANS AND DETAILS WITH ARCHITECTURAL & MECHANICAL DRAWINGS BEFORE STARTING WORK. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR CONTRACTOR MEANS AND METHODS OF CONSTRUCTION OR SITE SAFETY. DESIGN, CONSTRUCTION, WORKMANSHIP AND MATERIALS SHALL COMPLY WITH THE CONTROLLING PROVISIONS OF THE 2012 EDITION OF THE **INTERNATIONAL BUILDING CODE (IBC)**.

DESIGN CRITERIA

1. BASIS FOR DESIGN AND CODE COMPLIANCE

   A. GOVERNING BUILDING CODE..IBC 2012 EDITION

2. GRAVITY DESIGN
   ROOF:
   DEAD LOAD..SELF-WEIGHT OF STRUCTURE & ROOFING SYSTEM
   LIVE LOAD..20 PSF (REDUCIBLE)
   ADDITIONAL POINT LOADS........................AS NOTED ON DRAWINGS

   SECOND FLOOR:
   CORRIDOR .... 80 PSF
   STORAGE/OFFICE .... 50 PSF
   CLASSROOMS .... 40 PSF
   PARTITIONS .... 15 PSF
   MECHANICAL .... 100 PSF
   STAIRWELLS .... 100 PSF

3. WIND DESIGN BASED ON:

   A. ASCE 7–10 REQUIREMENTS

   DESIGN WIND SPEED..............................140 MPH
   RISK CATEGORY..................................III
   WIND EXPOSURE CATEGORY.........................C
   INTERNAL PRESSURE COEFFICIENT (GCpi)...........+/–0.18
   Kzt..1.0
   Kd...0.85

FOUNDATION DESIGN CRITERIA

1. FOUNDATION DESIGN IS IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, AND IS BASED ON THE GEOTECHNICAL REPORT PREPARED BY TERRACON, INC, PHARR, TEXAS, DATED MAY 12, 2017.

   GRADE BEAMS, FOOTINGS, AND SLAB:

   BEARING CAPACITY (TOTAL LOAD) .... 2.5 KSF

   MODULUS OF SUBGRADE REACTION (K) .... 125 PSI/IN

   SUBSURFACE WATER WAS ENCOUNTERED AT 12'–0" BELOW EXISTING GRADE DURING OR AFTER TERMINATION OF DRILLING OPERATIONS (MAY FLUCTUATE WITH SEASON).

2. THE GEOTECHNICAL ENGINEER OF RECORD SHALL BE RETAINED TO PERFORM TESTING AND INSPECTIONS DURING SITE PREPARATION AND PLACEMENT OF BUILDING PAD FILL AS REQUIRED BY SPECIFICATIONS AND GENERAL STRUCTURAL NOTES.

FOUNDATION NOTES

1. REMOVE AT LEAST 12 INCHES (TO ELEVATION 102.0 FEET) OF THE EXISTING SITE SOIL, VEGETATION, DEBRIS, ETC., FROM THE PROPOSED BUILDING AREA TO A DISTANCE OF 3'–0" OUTSIDE THE BUILDING AREA (EXTERIOR OF THE FOUNDATION, INCLUDING ATTACHED IMPROVEMENTS SUCH AS SIDE WALKS AND CANOPIES). DEPTH OF REMOVAL SHALL BE VERIFIED BY THE GEOTECHNICAL ENGINEER AT THE TIME OF CONSTRUCTION.
2. AFTER TOP SOIL HAS BEEN REMOVED, THE SUBGRADE SHALL BE PROOF–ROLLED WITH APPROPRIATE CONSTRUCTION EQUIPMENT WEIGHING AT LEAST 20 TONS UNTIL THE GRADE OFFERS A RELATIVELY UNYIELDING SURFACE. SOFT SOIL AND YIELDING AREAS SHALL BE OVER EXCAVATED AND REPLACED WITH COMPACTED SELECT FILL IN ACCORDANCE WITH THE REQUIREMENTS BELOW.
3. PROOFROLLING OPERATIONS AND EXCAVATION/BACKFILL ACTIVITIES SHOULD BE PERFORMED DURING A PERIOD OF DRY WEATHER AND OBSERVED BY THE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE TO DOCUMENT SUBGRADE CONDITIONS AND PREPARATION. IF SUBGRADE SOILS ARE ALLOWED TO BECOME WET OR SATURATED, REMOVAL AND REPLACEMENT OF SOFT SOILS OR LIME STABILIZATION PROCEDURES SHALL BE PERFORMED AT THE CONTRACTOR'S EXPENSE. THE GEOTECHNICAL ENGINEER SHALL BE CONTACTED FOR ADDITIONAL RECOMMENDATIONS, IF REQUIRED.
4. SCARIFY, MOISTURE CONDITION, AND COMPACT THE TOP 8" OF THE EXPOSED SUBGRADE TO 95% OF STANDARD PROCTOR MAXIMUM DRY DENSITY TO WITHIN OPTIMUM AND +4% OF OPTIMUM MOISTURE CONTENT, IN ACCORDANCE WITH TEST METHOD ASTM D–698 STANDARD PROCTOR. MOISTURE CONTENT SHALL BE AS NOTED IMMEDIATELY PRIOR TO PLACING SELECT FILL.
5. RESTORE GRADE USING MINIMUM OF 42 INCHES OR AS REQUIRED TO PROVIDE THE SPECIFIED FINISH FLOOR ELEVATION OF 106.5 FT, WHICHEVER IS GREATER, AND PROPER SITE DRAINAGE, COMPACTED IN ACCORDANCE WITH THE REQUIREMENTS BELOW. FINISH FLOOR SHALL BE VERIFIED WITH ARCHITECT AND CIVIL ENGINEER.
6. SELECT FILL SHALL BE COMPACTED IN THE FIELD IN LIFTS NOT TO EXCEED 8" LOOSE MEASURE (6" COMPACTED LIFT) TO A MINIMUM OF 95% OF STANDARD PROCTOR MAXIMUM DRY DENSITY FROM –2% OF OPTIMUM TO +2% ABOVE OPTIMUM MOISTURE CONTENT AS EVALUATED BY ASTM D–698 STANDARD PROCTOR.
7. SELECT FILL SHALL HAVE A PLASTICITY INDEX (PI) OF 7–17% AND NO CLAY BALLS LARGER THAN 2" IN DIAMETER.
8. FOUNDATION CONCRETE SHALL NOT BE PLACED ON SELECT FILL SOILS THAT HAVE BEEN DISTURBED BY RAINFALL OR WATER SEEPAGE. IF BEARING SOILS ARE SOFTENED BY WATER INTRUSION, OR BY DESICCATION, THE UNSUITABLE SOILS SHALL BE REMOVED FROM THE FOUNDATION EXCAVATION AND BE REPLACED WITH PROPERLY COMPACTED SELECT FILL PRIOR TO PLACEMENT OF FOUNDATION CONCRETE. ALL SOIL REMOVAL AND REPLACEMENT COSTS, INCLUDING ASSOCIATED COSTS TO REMOVE AND REINSTALL REINFORCEMENT AND VAPOR RETARDER MATERIALS, SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR. DEPTH OF SOIL REMOVAL AND RECOMPACTION REQUIREMENTS SHALL BE COORDINATED WITH THE GEOTECHNICAL ENGINEER.
9. SAMPLES OF PROPOSED SELECT FILL SHALL BE FURNISHED TO THE TESTING LABORATORY 7 DAYS PRIOR TO INSTALLATION TO PERMIT TIME FOR SPECIFICATION COMPLIANCE INSPECTION AND REVIEW BY THE GEOTECHNICAL ENGINEER.
10. LABORATORY MOISTURE–DENSITY CURVES SHALL BE DEVELOPED FOR SUBGRADE AND FILL. PROCTOR CURVES AND FIELD DENSITY TESTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. A MINIMUM OF ONE (1) IN PLACE DENSITY TEST PER 5,000 SQUARE FEET OF SLAB AREA SHALL BE TAKEN ON EACH LIFT DURING PLACEMENT OF SELECT FILL. DENSITY REPORTS SHALL BE TRANSMITTED TO ENGINEER WITHIN 3 DAYS AFTER TESTS ARE MADE.
11. GRAIN SIZE ANALYSIS AND ATTERBERG LIMITS TESTS SHALL BE PERFORMED DURING FILL PLACEMENT AT A RATE OF ONE TEST PER 2,000 CUBIC YARDS OF FILL BROUGHT TO THE SITE. SAMPLES FOR TEST SHALL BE TAKEN FROM JOBSITE MATERIALS.
12. SITE SHALL BE GRADED SO THAT WATER DOES NOT POND WITHIN 10 FEET OF THE PERIMETER FOUNDATION BEAM DURING OR AFTER CONSTRUCTION. THE SLOPE OF THE GROUND SURFACE AWAY FROM THE STRUCTURE SHOULD BE A MINIMUM OF FIVE (5%) PERCENT FOR A DISTANCE OF AT LEAST TEN (10') FEET. ELEVATION OF GROUND SURFACE ADJACENT TO THE FOUNDATION SHOULD BE AT LEAST 6 INCHES BELOW FINISH FLOOR.
13. FINAL DRAINAGE IS VERY IMPORTANT TO THE PERFORMANCE OF THE FOUNDATION. LANDSCAPING, PLUMBING, AND DOWNSPOUT DRAINAGE ARE ALSO VERY IMPORTANT. IT IS VITAL THAT ALL ROOF DRAINAGE BE TRANSPORTED AWAY FROM BUILDINGS SO THAT NO AREAS OF WATER POND AROUND BUILDINGS, WHICH CAN RESULT IN SOIL VOLUME CHANGE UNDER THE FOUNDATION. PLUMBING LEAKS SHOULD BE REPAIRED AS SOON AS POSSIBLE IN ORDER TO MINIMIZE THE MAGNITUDE OF MOISTURE CHANGE UNDER THE SLAB. LARGE TREES AND SHRUBS SHOULD NOT BE PLANTED IN THE IMMEDIATE VICINITY OF THE STRUCTURE, SINCE THE ROOT SYSTEMS CAN CAUSE A SUBSTANTIAL REDUCTION IN SOIL VOLUME IN THE VICINITY OF THE TREE DURING DRY PERIODS. BUSHES AND TREES SHOULD BE PLANTED A REASONABLE DISTANCE AWAY FROM THE STRUCTURE SO THAT THEIR CANOPY OR "DRIP LINE" DOES NOT EXTEND BEYOND THE PERIMETER OF THE FOUNDATION. WATERING OF VEGETATION SHOULD BE PERFORMED IN A TIMELY AND CONTROLLED MANNER. PROLONGED WATERING SHOULD BE AVOIDED.

CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE SPECIFICATION, A.C.I. #301 AND BUILDING CODE REQUIREMENTS, A.C.I. #318, LATEST EDITION.
2. ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, MUST FOLLOW THE A.C.I. "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE", A.C.I. #315, LATEST EDITION.
3. CONCRETE SHALL HAVE A MINIMUM COMPRESSION STRENGTH OF 3,000 PSI AT 28 DAYS.
4. A MAXIMUM OF 25% FLYASH MAY BE USED AS A CEMENT SUBSTITUTE AND SHALL CONFORM TO ASTM C618, CLASS C. THE WATER/CEMENT RATIO SHALL NOT EXCEED 0.6 AND SLUMPS SHALL BE 5 INCHES (±1 INCH). AGGREGATE SHALL BE WELL–GRADED, 1" MAXIMUM FOR THE SLAB ON GRADE, 1" MAXIMUM FOR CAST–IN–PLACE BEAMS AND ABOVE GRADE SLABS. COARSE AGGREGATE SHALL MEET ASTM C33, GRADATION #57. A QUALIFIED TESTING LABORATORY SHALL BE RETAINED TO FURNISH MIX DESIGNS FOR ALL CLASSES OF CONCRETE. A SAMPLE OF FOUR CYLINDERS SHALL BE TAKEN NOT LESS THAN ONCE A DAY, NOR LESS THAN ONCE FOR EACH 100 YD3 OF CONCRETE. ONE CYLINDER SHALL BE TESTED AT 7 DAYS AND TWO AT 28 DAYS. THE FOURTH CYLINDER MAY BE DISPOSED OF AFTER 45 DAYS IF NOT USED.
5. ADMIXTURES CONTAINING WATER SOLUBLE CHLORIDE IONS GREATER THAN 0.06% BY WEIGHT OF CEMENT SHALL NOT BE USED.
6. REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A–615, GRADE 60. #3 BARS MAY BE GRADE 40.
7. STANDARD PROTECTIVE COVER OF REINFORCING BARS UNLESS OTHERWISE NOTED SHALL BE:

   WHERE CAST AGAINST DIRT OR FILL .... 3 IN.
   EXPOSED TO EARTH OR WEATHER .... 2 IN.
   SLABS AND WALLS .... 1 IN.
   OTHER .... 1–1/2 IN.

CONCRETE (CONTINUED):

8. WELDED WIRE FABRIC MATS SHALL BE ASTM A185.
9. ALL ACCESSORIES SHALL BE IN ACCORDANCE WITH ACI 315, LATEST EDITION.
10. SLAB MAT TO BE SUPPORTED BY PLASTIC CHAIRS SPACED AT 4 FEET ON CENTER EACH WAY (MAX). BEAM CAGES SUPPORTED BY BATTS AT 4 FEET ON CENTER.
11. VERTICAL CONSTRUCTION JOINTS IN FLOOR SHALL BE COORDINATED WITH STRUCTURAL ENGINEER PRIOR TO FORMING SLAB. CRACK CONTROL JOINTS SHALL BE PROVIDED AT LOCATIONS SHOWN ON THE PLANS. CONTROL JOINTS SHALL BE SAWCUT (IMMEDIATELY SUBSEQUENT TO FINISHING SLAB) WITH "SOFF–CUT" SYSTEM. JOINTS SHALL BE CLEANED AND FILLED WITH "SONOLASTIC SL1" WITHIN TWO (2) DAYS AFTER SAWCUTTING. NO HORIZONTAL JOINTS WILL BE PERMITTED IN SLABS OR BEAMS UNLESS APPROVED BY THE ENGINEER.
12. INCLUDE IN BID AN ALLOWANCE FOR **1.0 TON** OF REINFORCING BARS TO BE USED AS DIRECTED IN FIELD FOR SPECIAL CONDITIONS AT A COST OF **$2,000.00 PER TON** (LABOR FOR PLACING SAME TO BE INCLUDED). ANY UNUSED ALLOWANCE WILL BE CREDITED TO THE OWNER AT THE END OF THE PROJECT.
13. PROVIDE 2 TOP & BOTTOM CORNER BARS AT ALL DISCONTINUOUS GRADE BEAMS AND FOUNDATION CORNERS. CORNER BARS SHALL BE 4'–0" IN LENGTH (2'–0" LEGS). SIZE OF THE CORNER BARS SHALL MATCH THE SIZE OF THE GRADE BEAM REINFORCING AS SHOWN BY STRUCTURAL DRAWINGS.
14. MAINTAIN A MINIMUM OF ONE AND ONE–HALF (1–1/2) TIMES THE MAXIMUM COARSE AGGREGATE SIZE BETWEEN ALL REINFORCING BARS (EXCEPT AT LAPS).
15. BARS SCHEDULED OR DETAILED "CONT" SHALL BE LAPPED 40 BAR DIAMETERS (24 INCHES MINIMUM) UNLESS OTHERWISE NOTED.
16. WHERE CONCRETE IS TO HAVE UNEXPOSED SURFACES, THE FORMS MAY BE CONSTRUCTED OF #2 LUMBER OR BETTER. WHERE SURFACES ARE EXPOSED, SUCH AS FOR FINISH PAINTING OR STUCCO DASH, THE FORMS SHALL BE COMMERCIAL STANDARD DOUGLAS FIR, MOISTURE–RESISTANT CONCRETE FORM PLYWOOD; MINIMUM 5–PLY AND AT LEAST 9/16" THICK, OR FORMS LINED WITH COMMERCIAL STANDARD DOUGLAS FIR, CONCRETE FORM EXTERIOR, 3–PLY, NOT LESS THAN 1/4" THICK. WHERE CONCRETE IS EXPOSED, A SMOOTH SURFACE IS REQUIRED, FREE FROM FINS, HONEYCOMB, FORM MARKS OR OTHER DEFECTS.
17. EXPOSED SURFACES OF CONCRETE AT THE PERIMETER OF THE FOUNDATION SHALL BE FORMED WITH 2x10 #2 LUMBER OR BETTER. A SMOOTH SURFACE IS REQUIRED, FREE FROM FINS, HONEYCOMB, FORM MARKS OR OTHER DEFECTS.
18. CONSTRUCT FORMS SO THAT JOINTS ARE LEAKPROOF. MAINTAIN FORMS SUFFICIENTLY RIGID TO PREVENT DEFORMATION UNDER LOAD.
19. CONCRETE MAY BE PLACED WITH CHUTES UP TO 25' MAXIMUM. SLUMP SHALL NOT EXCEED 6" AT TRUCK DISCHARGE POINT.
20. CONCRETE PLACED BY PUMPING SHALL MEET THE FOLLOWING REQUIREMENTS:
    A. COARSE AGGREGATE SHALL BE GRADED FROM A MAXIMUM OF 1" DOWN
    B. MAXIMUM ALLOWABLE INCREASE IN CEMENT FACTOR SHALL BE 1/2 SACK PER CUBIC YARD OVER NORMAL MIX DESIGN.
    C. MAXIMUM WATER CEMENT RATIO SHALL BE 7–1/2 GALLONS PER SACK OF CEMENT. IF MORE WORKABILITY IS REQUIRED, AN ADMIXTURE MAY BE USED.
    D. MAXIMUM WEIGHT RATIO OF FINE AGGREGATES TO COARSE AGGREGATES SHALL NOT EXCEED 2/3.
    E. REFER TO A.C.I. #301, LATEST EDITION, SECTION 800, FOR OTHER PUMPING REQUIREMENTS.
    F. IN NO CASE SHALL CONCRETE BE PUMPED THROUGH AN ALUMINUM TUBE.
    G. SLUMP SHALL NOT EXCEED 6" AT TRUCK DISCHARGE POINT.
21. FLOOR FINISH (TOLERANCES)
    A. STEEL TROWEL FINISH 1/8" IN 10'
    B. FLOAT FINISH 1/4" IN 10'
    C. SCRATCH FINISH 1/2" IN 10'
22. CONCRETE TO BE CURED IN ACCORDANCE WITH ACI RECOMMENDATIONS. PROPOSED METHOD OF CURING TO BE COORDINATED WITH ENGINEER PRIOR TO CONCRETE PLACEMENT.
23. SHOP DRAWINGS SHALL BE PREPARED FOR ALL REINFORCING STEEL AND SUBMITTED FOR REVIEW BY ENGINEER. SUBMITTALS SHALL INCLUDE ELECTRONIC (PDF) COPIES OF EACH DRAWING. ENGINEERING DRAWINGS SHALL NOT BE REPRODUCED AND USED AS SHOP DRAWINGS.
24. THE CONTRACTOR SHALL REVIEW AND ANNOTATE SHOP DRAWINGS BEFORE SUBMITTING THEM TO THE ARCHITECT/ENGINEER FOR REVIEW. THE CONTRACTOR SHALL ALLOW ARCHITECT/ENGINEER 10 WORKING DAYS FOR REVIEW OF SHOP DRAWINGS.
25. ENGINEER TO BE NOTIFIED 48 HOURS PRIOR TO PLACEMENT OF FOUNDATION AND OF STRUCTURAL CONCRETE TO SCHEDULE REQUIRED OBSERVATIONS.

LIGHT POLE DRILLED PIERS:

1. CONCRETE MIX FOR ALL DRILLED PIERS SHALL BE DESIGNED TO ACHIEVE MINIMUM OF 4,000 PSI 28–DAY COMPRESSIVE STRENGTH WHEN PLACED WITH A SEVEN (7) INCH (±1) INCH SLUMP.
2. THE CONTRACTOR SHALL COORDINATE POLE BASE PLATE/ANCHOR BOLT DIMENSIONS WITH POLE SUPPLIER PRIOR TO PLACING PIERS. CONFLICTS SHALL BE COORDINATED WITH ENGINEER.
3. INSTALL ALL PIERS AT THE LOCATIONS AND TO THE DEPTHS INDICATED ON THE DRAWINGS. BID SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIAL AND GENERAL CONDITIONS REQUIRED FOR INSTALLATION OF STRAIGHT SHAFT DRILLED PIERS, AS SHOWN ON THE DRAWINGS.
4. IF DIRECTED BY THE ARCHITECT/ENGINEER, PIERS SHALL BE ADJUSTED IN THE FIELD AS REQUIRED TO MEET DESIGN REQUIREMENTS.
5. PRIOR TO DEVELOPMENT OF THE PIER REINFORCEMENT SUBMITTALS, THE GENERAL CONTRACTOR, FOUNDATION CONTRACTOR, DRILLER, AND THE GEOTECHNICAL ENGINEER SHALL HAVE A PRE–CONSTRUCTION MEETING TO DISCUSS THE CONTRACTOR'S PROPOSED PIER INSTALLATION PROCEDURES. AT THE MEETING, THE CONTRACTOR NEEDS TO PERFORM A "TEST" PIER TO DETERMINE CURRENT SUBSURFACE WATER LEVELS AND THE CONSTRUCTABILITY OF THE DRILLED PIERS SPECIFIED. THE TEST PIER WILL NEED TO BE INSPECTED BY THE GEOTECHNICAL ENGINEER OF RECORD FOR APPROVAL OF THE PROPOSED INSTALLATION PROCEDURES AND/OR ISSUANCE OF ADDITIONAL RECOMMENDATIONS, AS REQUIRED.
6. DRILL PIERS TO THE EXACT SIZE SHOWN. SHAFTS SHALL BE BORED PLUMB WITH A TOLERANCE OF TWO INCHES. INSTALL OFFSET STAKES ON OPPOSITE SIDES OF THE PIER AND USE TO MAINTAIN THE PIER CENTERS AND TO CHECK THE PIER PLUMBNESS. FOOTING BOTTOMS SHALL BE INSPECTED FOR A MAXIMUM OF ONE INCH (1") OF LOOSE DIRT AND TWO INCHES (2") OF GROUND WATER IMMEDIATELY PRIOR TO PLACING CONCRETE. IF MACHINE CLEANING IS NOT SATISFACTORY TO ARCHITECT/ENGINEER, HAND CLEANING WILL BE REQUIRED.
7. EACH PIER SHAFT AND DRILLING OPERATIONS SHALL BE INSPECTED BY QUALIFIED GEOTECHNICAL PERSONNEL TO ENSURE PROPER BEARING AT SCHEDULED ELEVATION AND TO VERIFY STRATAS NOTED IN THE GEOTECHNICAL REPORT. INSPECTIONS SHALL ALSO VERIFY PIER SHAFT DIAMETER, DEPTH, REINFORCEMENT SIZE, QUANTITIES AND LOCATIONS. INSPECTION REPORTS SHALL BE TRANSMITTED TO ENGINEER WITHIN 3 DAYS OF INSPECTION.
8. PROVIDE SUITABLE ACCESS AND LIGHTING FOR INSPECTION OF THE EXCAVATIONS FOR CLEANLINESS AND FOR CORRECTNESS OF DIMENSIONS AND ALIGNMENT.
9. DUE TO SUBSURFACE STRATIGRAPHY AND WATER LEVELS ENCOUNTERED, IF THE CONTRACTOR CANNOT INSTALL THE RECOMMENDED PIER AT THE REQUIRED DEPTH, THE ENGINEER MUST BE CONTACTED IMMEDIATELY.
10. DUE TO SUBSURFACE WATER ENCOUNTERED DURING DRILLING OPERATIONS, THE FOUNDATION CONTRACTOR SHOULD BE PREPARED TO UTILIZE SLURRY OR CASINGS TO CONTROL SLOUGHING OR SUBSURFACE WATER INFLUX DURING EXCAVATION SHOULD IT OCCUR. CASING SHOULD ONLY BE USED IN DRILLED PIERS TERMINATING IN THE CLAYEY SOILS. PRIOR TO EXCAVATION, THE FOUNDATION CONTRACTOR SHOULD VERIFY THE SUBSURFACE WATER LEVELS. THE FOUNDATION CONTRACTOR SHOULD CONSIDER PERFORMING A "TEST" PIER EXCAVATION TO DETERMINE THE CONSTRUCTABILITY OF DRILLED PIER.
11. SHOULD A SLURRY BE USED TO CONTROL THE EXCAVATION PROCESS A CLEAN–OUT BUCKET SHOULD BE USED JUST PRIOR TO PIER COMPLETION IN ORDER TO REMOVE ANY CUTTINGS AND LOOSE SOILS WHICH MAY HAVE ACCUMULATED IN THE BOTTOM OF THE EXCAVATION. STEEL AND CONCRETE SHOULD BE PLACED IN THE EXCAVATION IMMEDIATELY AFTER PIER COMPLETION. A CLOSED–END TREMIE SHOULD BE USED TO PLACE THE CONCRETE COMPLETELY TO THE BOTTOM OF THE EXCAVATION IN A CONTROLLED MANNER TO EFFECTIVELY DISPLACE THE SLURRY DURING CONCRETE PLACEMENT.
12. SHOULD CASINGS BE USED TO CONTROL THE EXCAVATION PROCESS, CASING SHOULD BE METAL WITH AMPLE STRENGTH TO WITHSTAND HANDLING STRESSES, CONCRETE AND EARTH PRESSURES, AND SHALL BE WATERTIGHT.
13. PRECAUTIONS SHOULD BE TAKEN DURING THE PLACEMENT OF THE PIER REINFORCEMENT AND CONCRETE TO PREVENT LOOSE EXCAVATED MATERIAL FROM FALLING INTO THE EXCAVATION.
14. PLACEMENT OF CONCRETE SHALL BE ACCOMPLISHED AS SOON AS POSSIBLE AFTER EXCAVATION IS COMPLETE, REINFORCING CAGE IS PLACED, INSPECTED AND APPROVED. THE CONCRETE SHOULD NOT BE ALLOWED TO RICOCHET OFF THE WALLS OF THE PIER EXCAVATION NOR OFF OF THE REINFORCING STEEL. PLACEMENT OF CONCRETE SHALL COMPLY WITH AMERICAN CONCRETE INSTITUTE (ACI) 318–05 CODE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 336.3R–14 ENTITLED "SUGGESTED DESIGN AND CONSTRUCTION PROCEDURES FOR PIER FOUNDATIONS", U.S. DEPARTMENT OF TRANSPORTATION–FEDERAL HIGHWAY ADMINISTRATION PUB. NO. FHWA–IF–99–025 "MANUAL ON DRILLED SHAFTS: CONSTRUCTION PROCEDURES AND DESIGN METHODS" AND ADSC: THE INTERNATIONAL ASSOCIATION OF FOUNDATION DRILLING CONTRACTORS PUB. NO. ADSC–TL–4, AUGUST 1999.
15. NO PIER EXCAVATION SHALL BE LEFT OPEN OVERNIGHT WITHOUT CONCRETING.

STRUCTURAL STEEL

1. TOP OF BEAM/PLATE (TOB OR TOP) IS USED INTERCHANGEABLY ON PLANS. REFERENCE APPLICABLE SECTION FOR CLARIFICATION.
2. STRUCTURAL STEEL WIDE FLANGE MEMBERS SHALL CONFORM TO ASTM SPECIFICATION A 572 AND/OR ASTM A 992 (Fy = 50 KSI) UNLESS OTHERWISE SHOWN OR NOTED. PLATE AND ANGLES MAY BE A36 (Fy = 36 KSI).
3. ALL STRUCTURAL STEEL TUBING SHALL CONFORM TO ASTM SPECIFICATION A–500, GRADE B (Fy = 46 KSI). STEEL PIPE SHALL COMPLY WITH ASTM A53 TYPE E OR S (Fy = 35 KSI).
4. ALL STRUCTURAL STEEL SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST SPECIFICATIONS OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION, AND STEEL JOIST INSTITUTE.
5. ALL STEEL BAR JOISTS SHALL BE DESIGNED AND FABRICATED BY A MEMBER OF THE STEEL JOIST INSTITUTE. IF REQUESTED BY THE A/E, THE CONTRACTOR SHALL PROVIDE WRITTEN CERTIFICATE OF FABRICATOR'S MEMBERSHIP TO THE STEEL JOIST INSTITUTE AT TIME OF SHOP DRAWING SUBMITTAL.
6. BAR JOISTS SHALL BE BOLTED WHERE COLUMNS ARE FRAMED WITH STRUCTURAL STEEL MEMBERS IN ONLY ONE DIRECTION TO PROVIDE LATERAL STABILITY DURING CONSTRUCTION/ERECTION AS REQUIRED BY OSHA.
7. TOTAL LOAD DEFLECTION OF SPECIAL BAR JOIST SHALL NOT EXCEED L/240.
8. JOIST MANUFACTURER SHALL PROVIDE BRIDGING AS REQUIRED TO ADEQUATELY BRACE JOISTS AGAINST LATERAL MOVEMENT AND NET UPLIFT OF 30 PSF.
9. ALL BOLTS SHALL BE 3/4 DIAMETER ASTM A325. WASHERS SHALL BE PROVIDED AT OVERSIZED HOLES AND AT SLOTTED CONNECTIONS AT EXPANSION JOINTS. A325 CONNECTIONS SHALL BE BEARING TYPE CONNECTIONS UNLESS NOTED OTHERWISE. ANCHOR BOLTS MAY BE ASTM A307 UNLESS NOTED OTHERWISE.
10. REFER TO ARCHITECTURAL & MECHANICAL PLANS FOR VERIFICATION OF ALL BOLTS, BLOCKING ANCHORS, ETC., FOR THE ANCHORAGE OF THEIR RESPECTIVE ITEMS.
11. ALL BEAMS AND COLUMNS SHALL BE FULL LENGTH WITHOUT SPLICES UNLESS INDICATED ON PLANS OR APPROVED BY THE ENGINEER IN WRITING.
12. ALL SHOP AND FIELD WELDS SHALL BE MADE BY WELDERS WHO HAVE BEEN QUALIFIED AND CERTIFIED TO MAKE THE REQUIRED WELDS IN ACCORDANCE WITH THE LATEST AMERICAN WELDING SOCIETY SPECIFICATIONS (A.W.S. D–1.1).
13. WELDS SHALL BE MADE WITH COVERED MILD STEEL ELECTRODES COMPLYING WITH AWS D1 CODE AND SERIES E 70XX.
14. ERECTION CONNECTORS SHALL BE PROVIDED IN ORDER TO PROPERLY ALIGN AND BE TRUE AND PLUMB WHEN WELDS ARE MADE.
15. ALL COMPLETE PENETRATION WELDS, BOTH SHOP AND FIELD, SHALL BE TESTED BY A QUALIFIED TESTING LABORATORY UTILIZING ULTRA SONIC TESTING PROCEDURES IN ACCORDANCE WITH AWSD1.1 ANY WELDS FOUND DEFECTIVE SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER. ALL X–RAYED WELDS SHALL BE GROUND SMOOTH.
16. THE FABRICATOR SHALL SUPPLY BACK–UP PLATES AND EXTENSION TABS FOR ALL COMPLETE PENETRATION WELDS.
17. INCLUDE IN BID AN ALLOWANCE FOR **1.0 TON** OF FABRICATED AND PRIMED STRUCTURAL STEEL TO BE USED AS DIRECTED IN THE FIELD FOR SPECIAL CONDITIONS AT A COST OF **$4,000.00 PER TON** (LABOR FOR ERECTING SAME TO BE INCLUDED). ANY UNUSED ALLOWANCE WILL BE CREDITED TO THE OWNER AT THE END OF THE PROJECT.
18. ALL STEEL MEMBERS, INCLUDING BAR JOISTS, UNLESS NOTED OTHERWISE, SHALL BE PAINTED W/ ONE COAT OF SHOP PRIMER. DO NOT PRIME ITEMS TO BE EMBEDDED IN CONCRETE OR FIRE PROOFED W/ SPRAY ON MATERIAL WITHOUT COORDINATION W/ THE ARCHITECT. GALVANIZED DECK SHALL BE CONFORM TO ASTM A525, G60 (MINIMUM).
19. REINFORCE STEEL DECK OPENINGS (FLOOR & ROOF) FROM 6" TO 18" WITH 2 x 2 x 1/4 STEEL ANGLES. PLACE ANGLES PERPENDICULAR TO FLUTES, EXTEND MINIMUM OF TWO FLUTES BEYOND EACH SIDE OF OPENING AND WELD DECK AT EACH FLUTE. OPENINGS LARGER THAN 18" SHALL BE REINFORCED WITH 3 x 3 x 1/4 STEEL ANGLES WELDED TO TOP CHORD OF BAR JOISTS UNLESS SHOWN OTHERWISE ON PLANS. WELD DECK TO ANGLE AT 6" O/C AT PERIMETER OF OPENINGS.
20. STEEL LINTELS SUPPORTING BRICK VENEER AT EXTERIOR WALLS SHALL BE ONE HOT–DIPPED GALVANIZED 5 x 5 x 1/4 ANGLE, UNLESS NOTED OTHERWISE.
21. CONTRACTOR SHALL PROVIDE MISCELLANEOUS STEEL AS REQUIRED AT ELEVATOR RAIL SUPPORT POINTS. COORDINATE REQUIREMENTS WITH ELEVATOR MANUFACTURER.
22. WELDED HEADED STUDS (WHS) SHALL BE "NELSON ANCHORS", OR EQUAL, Fs = 60 KSI, DIAMETER AND LENGTH AS SHOWN ON PLANS. STUDS TO BE WELDED& SHOP TESTED IN ACCORDANCE W/ THE MANUFACTURER'S RECOMMENDATIONS.
23. AFTER ERECTION, PRIME WELDS, ABRASIONS AND SURFACES NOT PRIMED. USE PRIMER CONSISTENT WITH SHOP COAT. GALVANIZED SURFACES (HOT DIPPED OR COLD) SHALL BE CLEANED AND PAINTED WITH "ZRC". ROOF DECK WELDS TO BE CLEANED AND PAINTED PRIOR TO INSTALLING ROOF INSULATION.
24. FIELD WELDS AND BOLTED CONNECTIONS SHALL BE VISUALLY INSPECTED BY A QUALIFIED INDEPENDENT INSPECTOR. THE INSPECTOR SHALL PROVIDE A WRITTEN REPORT TO THE STRUCTURAL ENGINEER.
25. ELECTRONIC (PDF) SHOP DRAWINGS SHALL BE PREPARED FOR ALL STRUCTURAL STEEL COMPONENTS AND SUBMITTED FOR REVIEW BY ENGINEER. ENGINEERING DRAWINGS SHALL NOT BE REPRODUCED AND USED AS SHOP DRAWINGS.
26. THE CONTRACTOR SHALL REVIEW AND ANNOTATE SHOP DRAWINGS BEFORE SUBMITTING THEM TO THE ARCHITECT/ENGINEER FOR REVIEW. THE CONTRACTOR SHALL ALLOW ARCHITECT/ENGINEER 10 WORKING DAYS FOR REVIEW OF SHOP DRAWINGS.
27. THE STRUCTURAL ENGINEER SHALL BE NOTIFIED FOR A FRAMING OBSERVATIONS IMMEDIATELY AFTER ROOF DECK IS INSTALLED AND BEFORE INSTALLATION OF THE CEILING.

FASTENERS

1. CAST–IN–PLACE AND POST–INSTALLED ANCHORS SHALL BE PER ANCHOR DIAMETER AND EMBEDMENT DEPTH NOTED ON THE DRAWINGS. POST–INSTALLED ANCHORS SHALL BE UTILIZED ONLY WHERE SPECIFIED.
2. ALL ANCHORS NOTED BELOW SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL CONTACT MANUFACTURER'S REPRESENTATIVE FOR THE INITIAL TRAINING AND INSTALLATION OF ANCHORS, AND FOR PRODUCT RELATED QUESTIONS AND AVAILABILITY.
3. SPECIAL INSPECTIONS SHALL BE PROVIDED FOR ALL MECHANICAL AND ADHESIVE ANCHORS PER THE APPLICABLE EVALUATION REPORT NOTED BELOW. SPECIAL INSPECTIONS SHALL BE PERFORMED BY INDEPENDENT TESTING LABORATORY PERFORMING QA/QC SERVICES ON PROJECT.
4. EXPANSION BOLTS (EB) IN CONCRETE/CMU SHALL BE TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC–ES AC193. ACCEPTABLE PRODUCTS:
   A. KWIK BOLT III (ICC–ES ESR–2302) BY HILTI (CONCRETE)
   B. KWIK BOLT III (ICC–ES–ESR–1385) BY HILTI (MASONRY)
   C. STRONG–BOLT 2 (ICC–ES ESR–3037) BY SIMPSON STRONG–TIE (CONCRETE)
   D. WEDGE–ALL ANCHOR (ICC–ES ESR–1396) BY SIMPSON STRONG–TIE (MASONRY)
5. HEAVY DUTY SLEEVE ANCHORS IN CONCRETE/CMU SHALL BE TESTED AND QUALIFIED OR USE IN ACCORDANCE WITH ACI 355.2 AND ICC–ES AC193. EXPANSION BOLTS (EB) SHALL NOT BE SUBSTITUTED FOR SLEEVE ANCHORS WITHOUT PRIOR WRITTEN APPROVAL BY STRUCTURAL ENGINEER. ACCEPTABLE PRODUCTS:
   A. HSL–3 (ICC–ES ESR–1545) BY HILTI (CONCRETE)
6. SCREW ANCHORS IN CONCRETE SHALL BE TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC–ES AC193. ACCEPTABLE PRODUCTS:
   A. KWIK HUS–EZ (ICC–ES ESR–3027) BY HILTI (CONCRETE)
   B. KWIK HUS–EZ (ICC–ES ESR–3056) BY HILTI (MASONRY)
   C. TITEN HD (ICC–ES ESR–2713) BY SIMPSON STRONG–TIE (CONCRETE)
   D. TAPCON ANCHORS (ICC–ES ESR–1671) (MASONRY)
   E. POWERS WEDGE BOLT (ICC–ES ESR–1678) (MASONRY)
7. UNDERCUT ANCHORS IN CONCRETE SHALL BE TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC–ES AC193. ACCEPTABLE PRODUCTS:
   A. HDA (ICC–ES ESR–1546) BY HILTI (CONCRETE)
   B. TORQ–CUT (ICC–ES ESR–2705) BY SIMPSON STRONG–TIE (CONCRETE)
8. POWDER ACTUATED FASTENERS IN CONCRETE/CMU SHALL BE TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC–ES AC193. ACCEPTABLE PRODUCTS:
   A. X–U (ICC–ES ESR–2269) BY HILTI (CONCRETE/MASONRY/STEEL)
   B. POWDER ACTUATED FASTENERS (ICC–ES ESR–2138) BY SIMPSON STRONG TIE (CONCRETE/MASONRY)

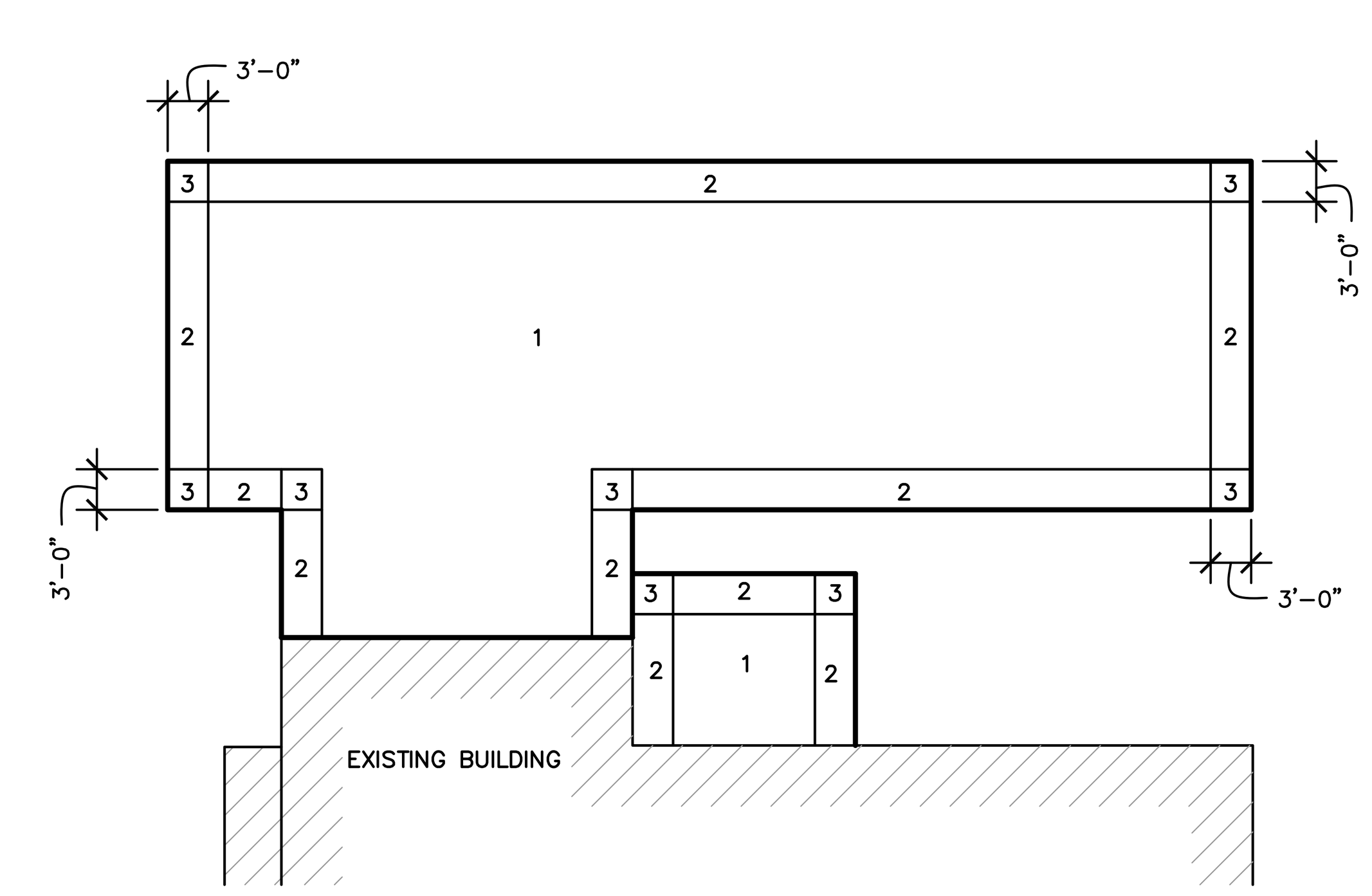
FASTENERS CONTINUED:

9. ADHESIVE ANCHORS IN CONCRETE/CMU SHALL BE TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.4 AND ICC–ES AC308. ACCEPTABLE PRODUCTS:
   A. HIT–RE 500–V3 (ICC–ES ESR–3814) BY HILTI (CONCRETE)
   B. HIT–HY 70 (ICC–ES ESR–2682) BY HILTI (MASONRY)
   C. SET–XP (ICC–ES ESR–2508) BY SIMPSON STRONG–TIE (CONCRETE)
   D. SET (ICC–ES ESR–1772) BY SIMPSON STRONG–TIE (MASONRY)
10. J–BOLTS SHALL BE FABRICATED FROM ASTM A36/A307 ROD. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. EXPANSION BOLTS/SLEEVE ANCHORS SHALL NOT BE SUBSTITUTED FOR J–BOLTS WITHOUT PRIOR WRITTEN APPROVAL BY STRUCTURAL ENGINEER.
11. HEADED ANCHOR RODS SHALL BE FABRICATED FROM ASTM F1554 MATERIAL, FY=36 KSI
12. SUBSTITUTION REQUESTS FOR PRODUCTS LISTED ABOVE SHALL BE SUBMITTED BY THE CONTRACTOR TO THE STRUCTURAL ENGINEER ALONG WITH CALCULATIONS THAT ARE PREPARED & SEALED BY A REGISTERED PROFESSIONAL ENGINEER. THE CALCULATIONS SHALL DEMONSTRATE THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERTINENT EQUIVALENT PERFORMANCE VALUES OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARDS. SUBSTITUTED ANCHORS SHALL HAVE A VALID CURRENT EVALUATION (ICC–ES OR IAPMO–ES) REPORT.
13. REFERENCE STRUCTURAL STEEL NOTES FOR BOLTS CONNECTING STRUCTURAL STEEL COMPONENTS.

LIGHTWEIGHT STEEL FRAMING (STEEL STUDS)

1. THE **GENERAL CONTRACTOR, PROJECT SUPERINTENDENT AND THE LIGHTWEIGHT STEEL FRAMING FOREMAN** SHALL MEET WITH THE STRUCTURAL ENGINEER PRIOR TO THE START OF LIGHTWEIGHT STEEL FRAMING WORK TO REVIEW PROJECT REQUIREMENTS AND PROCEDURES.
2. ALL STUDS AND ACCESSORIES SHALL BE OF THE TYPE, SIZE, GAUGE AND SPACING SHOWN ON THE DRAWINGS. STUD MANUFACTUREING OF ALL MEMBERS AND ACCESSORIES SHALL COMPLY w/ ASTM C 955.
3. ALL STUDS AND JOIST MEMBERS 16 GAUGE AND HEAVIER SHALL BE FORMED FROM STEEL CORRESPONDING TO A TYPE LISTED IN THE A.I.S.I. "SPECIFICATION FOR THE DESIGN OF COLD–FORMED STEEL STRUCTURAL MEMBERS", WITH A MINIMUM YIELD STRENGTH OF 50 KSI UNLESS SPECIFICALLY NOTED OTHERWISE.
4. ALL 18 GAUGE AND LIGHTER MEMBERS, TRACK, BRIDGING, AND ACCESSORY ITEMS SHALL BE FORMED FROM STEEL "SPECIFICATION FOR THE DESIGN OF COLD–FORMED STEEL STRUCTURAL MEMBERS", WITH A MINIMUM YIELD STRENGTH OF 33 KSI UNLESS SPECIFICALLY NOTED OTHERWISE.
5. ALL FRAMING PRODUCTS SHALL BE FORMED FROM STEEL POSSESSING A COATING CORRESPONDING TO THE MINIMUM REQUIREMENTS OF ASTM 653, G60.
6. ALL FRAMING COMPONENTS SHALL BE CUT SQUARELY FOR ATTACHMENT TO PERPENDICULAR EMBERS, OR, AS REQUIRED, FOR AN ANGULAR FIT AGAINST ABUTTING MEMBERS.
7. ALL FIELD CUTTING OF STUDS MUST BE DONE BY SAWING OR SHEARING. TORCH CUTTING OF COLD FORMED MEMBERS IS UNACCEPTABLE.
8. WHEN REQUIRED FOR BRIDGING PURPOSES, THE FRAMING FABRICATOR IS TO ENSURE PUNCH OUT ALIGNMENT WHEN ASSEMBLING FRAMING AND FIELD CUTTING STUDS TO LENGTH. REFER TO TYPICAL STUD/TRACK CONNECTION AND INDEXING DETAILS.
9. NO SPLICES IN STUDS, JOISTS, OR OTHER LOAD CARRYING MEMBERS MAY BE MADE WITHOUT PRIOR ENGINEERING REVIEW AND SPECIFIC DETAILS FOR ANY SUCH SPLICE(S).
10. NO NOTCHING OR COPING OF STUDS, JOISTS OR RAFTERS IS ALLOWED, UNLESS STATED WITHIN THIS DRAWING PACKAGE.
11. WHERE SPLICING OF WALL TRACK IS NECESSARY BETWEEN STUDS, A PIECE OF STUD SHALL BE PLACED IN THE ADJOINING TRACK SECTIONS AND FASTENED TO THE TRACK FLANGES AT BOTH SIDES OF THE WALL OR THE TRACKS SHALL BE BUTTED TIGHT TOGETHER AND FASTENED TO STRUCTURE EITHER SIDE OF THE JOINT.
12. FOR ALL TRACKS USED IN COMPOSITE MEMBERS SUCH AS TRUSSES, POSTS, HEADERS AND JAMBS, THE TRACK MUST BE INSTALLED AS A SINGLE PIECE; NO SPLICING IS PERMITTED.
13. ALL SCREWS SHALL BE OF THE DIAMETER AND SIZE INDICATED ON THE DRAWINGS, AND SHALL BE THOSE MANUFACTURED AND TESTED BY ITW BUILDEX OR EQUIVALENT. A MINIMUM ½ INCH EDGE DISTANCE AND 1/2 INCH SCREW SPACING IS REQUIRED, UNLESS NOTED OTHERWISE ON THE DRAWINGS. SCREW PENETRATION THROUGH JOINED MATERIALS SHALL NOT BE LESS THAN THREE EXPOSED THREADS. SCREW DESIGN IS BASED ON A TYPE 'T3' SCREW. (UNLESS NOTED OTHERWISE)
14. ALL POWDER ACTUATED FASTENERS (P.A.F.) SUBJECTED TO TENSION SHALL HAVE A 15MM (MINIMUM) DIAMETER STEEL WASHERS. THE FOLLOWING MINIMUM EDGE DISTANCES AND FASTENER SPACING APPLY:

	EDGE DISTANCE		MINIMUM SPACING		PENETRATION	
PIN DIAMETER	STEEL.	CONCRETE.	STEEL.	CONCRETE.	STEEL	CONCRETE.
0.157"ø	1/2"	3"	1"	4"	FULL	1.1/4"



IDEA OWASSA ACADEMY AND
COLLEGE PREP PHASE II MAIN BUILDING
ROOF DESIGN WIND PRESSURE

DESIGN WIND PRESSURE FOR ROOF COMPONENTS & CLADDING	
ZONE	P– (UPLIFT)
1	–30 PSF
2	–49 PSF
3	–74 PSF

EXTERIOR FINISHES, DOORS & WINDOWS MAXIMUM DESIGN WIND PRESSURES
P+ = +26 PSF TOWARDS THE SURFACE
P– = –34 PSF AWAY FROM THE SURFACE

No.	REVISIONS	BY
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IDEA-OWASSA
COLLEGE PREP PHASE II

IDEA Public Schools

STATE OF TEXAS
ROLANDO R. RUBIANO
86369
LICENSED
PROFESSIONAL ENGINEER
6·28·19

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CHECKED BY: JS
Job No. 192-519
Sheet: S1.1-R1

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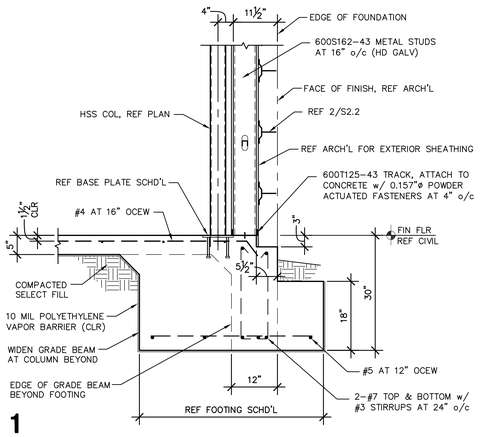

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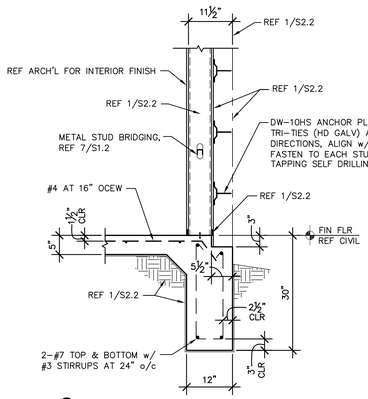

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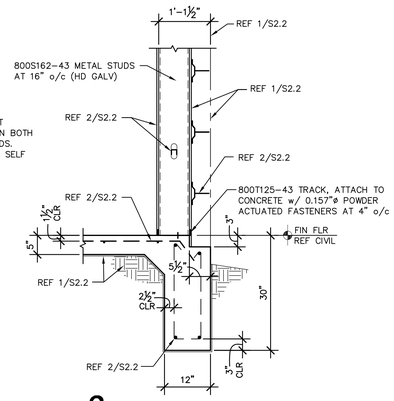

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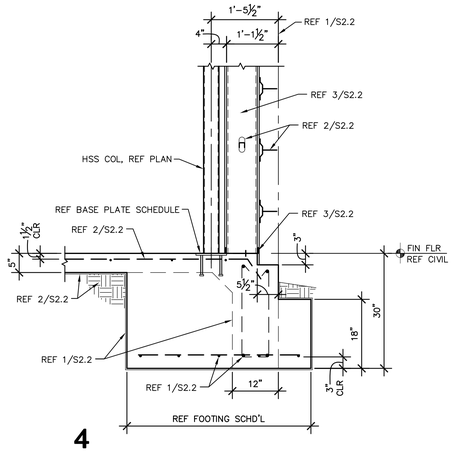

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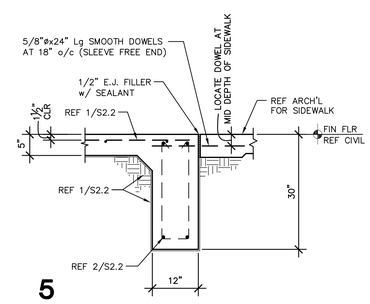

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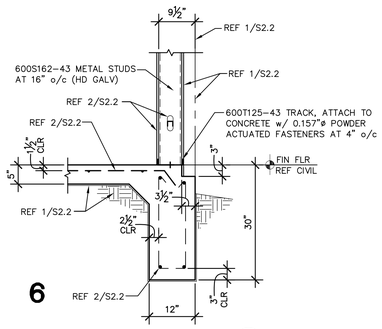

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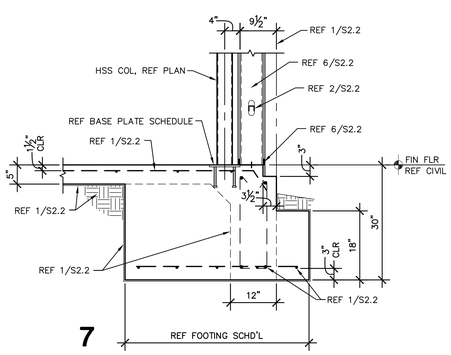

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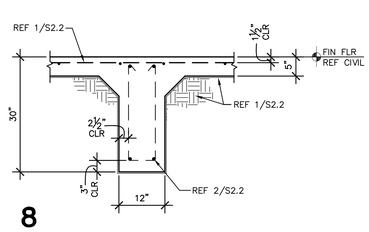

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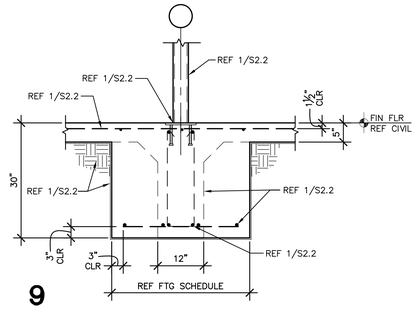

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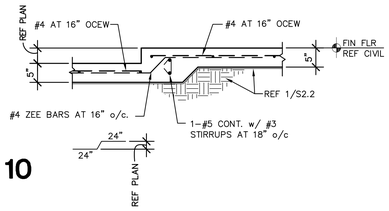

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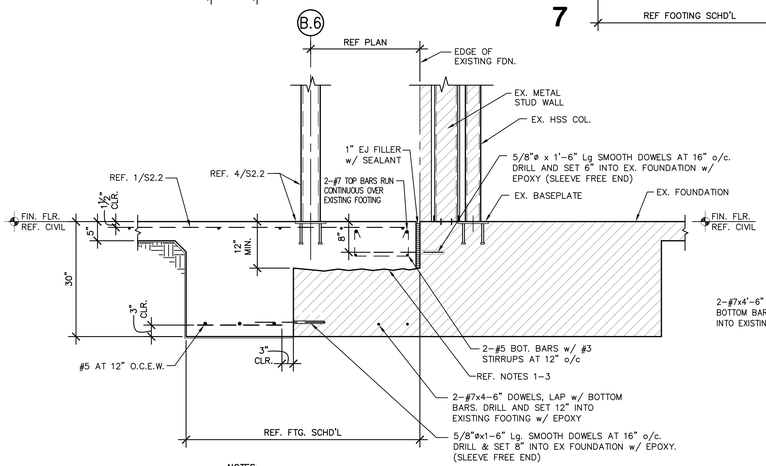
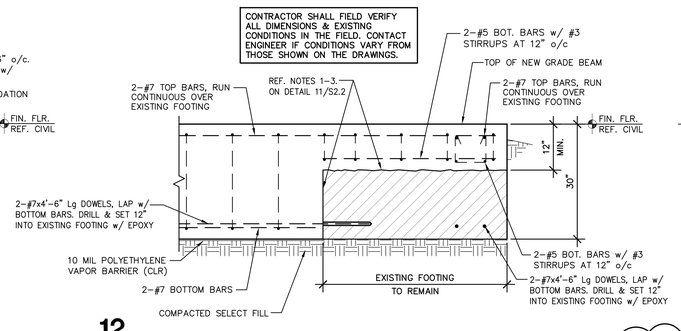


11

NOTES:

1. SCARIFY SURFACE OF EXISTING CONCRETE TO PROVIDE 1/8" DEEP GROOVED SURFACE.
2. CHIP AND REMOVE EXISTING CONCRETE AS REQUIRED TO PROVIDE 3" CLEARANCE AROUND NEW REINFORCEMENT.
3. SURFACE SHALL BE CLEANED OF DIRT AND LOOSE CONCRETE PRIOR TO POURING NEW CONCRETE.



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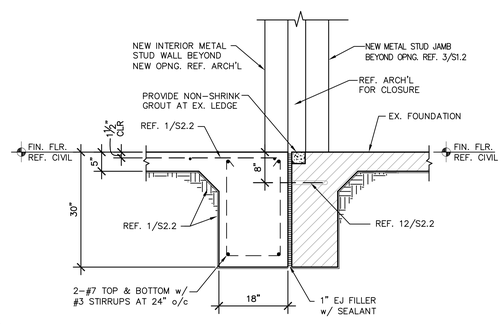

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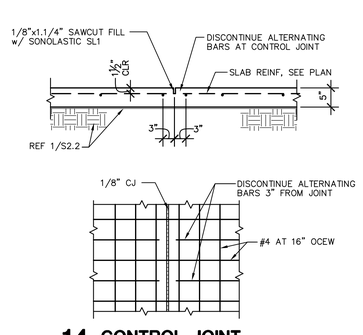
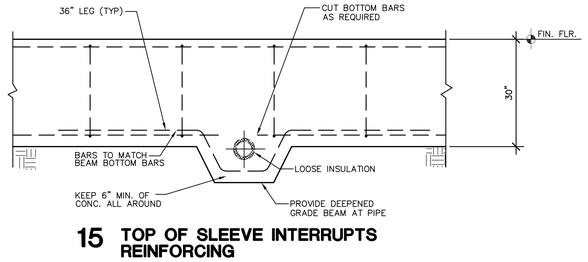
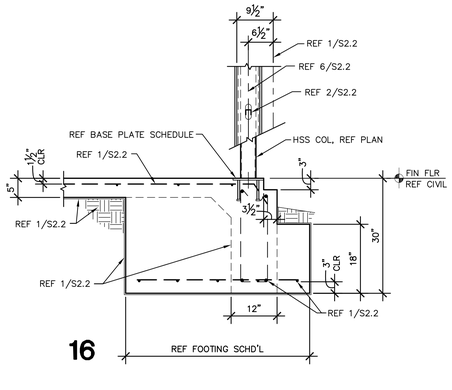


14 CONTROL JOINT

NOTE: ALL JOINTS ARE TO BE CLEANED AND FILLED WITH SONOLASTIC SL1 (SONNEBORN).



15 TOP OF SLEEVE INTERRUPTS REINFORCING



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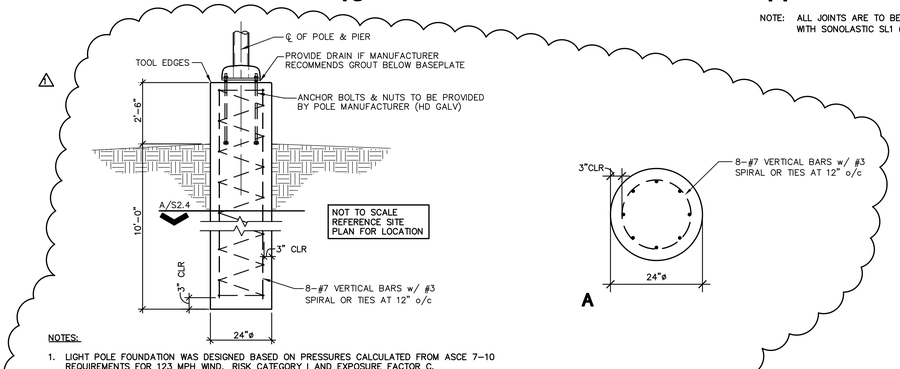

NOTES:

1. LIGHT POLE FOUNDATION WAS DESIGNED BASED ON PRESSURES CALCULATED FROM ASCE 7-10 REQUIREMENTS FOR 123 MPH WIND, RISK CATEGORY I AND EXPOSURE FACTOR C.
2. FOUNDATION DESIGN IS IN ACCORDANCE WITH THE 2012 INTERNATIONAL BUILDING CODE, AND IS BASED ON THE VALUES RECOMMENDED IN TABLE 1804.2 – ALLOWABLE FOUNDATION & LATERAL PRESSURE, AS LISTED BELOW:

   LATERAL BEARING CAPACITY (PIER) ..... 100 PCF
3. ALL CONCRETE WORK SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE SPECIFICATION, A.C.I. #301 AND 2006 INTERNATIONAL BUILDING CODE REQUIREMENTS, A.C.I. #318, LATEST EDITION. CONCRETE SHALL HAVE A MINIMUM COMPRESSION STRENGTH OF 4,000 PSI AT 28 DAYS, A WATER/CEMENT RATIO NOT TO EXCEED 0.6 AND A MAXIMUM SLUMP OF 7 INCHES.

17 TYPICAL LIGHT POLE FOUNDATION DETAIL

No.	REVISIONS	BY
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IDEA-OWASSA COLLEGE PREP PHASE II

IDEA Public Schools

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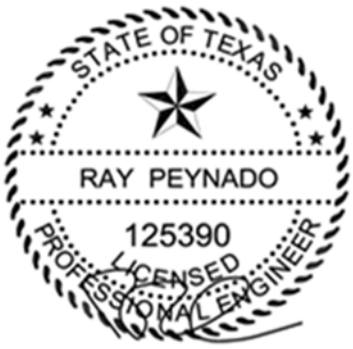


June 28, 2019
IDEA Owassa College Prep Phase II

ADDENDUM NO. 1

A. PURPOSE AND INTENT

This addendum is issued for the purpose of modifying the plans and specifications for the project referenced above.
This addendum shall become part of the contract and all contractors shall be bound by its content.
All aspects of the specifications and drawings not covered herein shall remain the same.
The General Conditions and the Special Conditions of the specifications shall govern all parts of the work and apply in full force to this addendum.

B. SCOPE

I. Specifications:

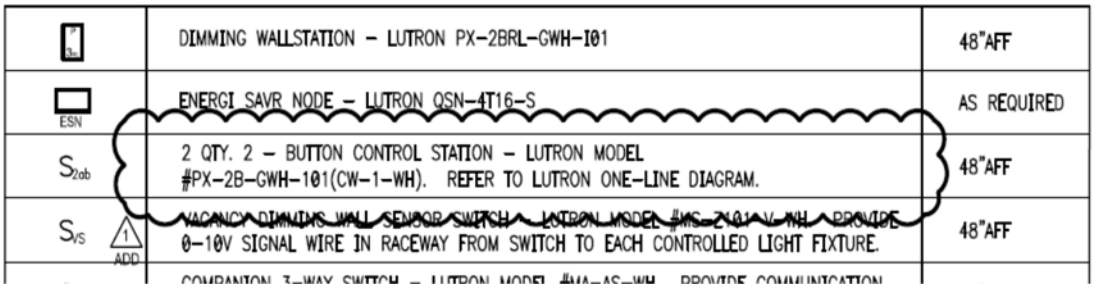
1) Section 260519.19 – Metal Clad Cable:
   a) Added specification. See attached sheets.

2) Section 265668 – Exterior Athletic Lighting:
   a) Added specification. See attached sheets.

II. Drawings:

1) Sheet E2.01:
   a) Revised Lutron Control Symbols. See snap shot below.

LUTRON CONTROL SYMBOLS:



2) Sheet E5.01:
   a) Revise Lighting Control Wiring Detail #01: Provide 2 qty. Lutron control stations at each location indicated. Provide a double gang box rough-in.

SECTION 260519.19 – METAL CLAD CABLE

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. This section includes the following:

1. Metal Clad (Type MC) and Metal-Clad Interlocking Armor Ground Cable (Type MCI-A).
2. Wiring connections and terminations.
3. Installation methods and procedures.

1.2 RELATED SECTIONS

A. 26 05 19 - Low Voltage Electrical Power Conductors and Cables

B. 26 05 26 - Grounding and Bonding for Electrical Systems

C. 26 08 11 - Testing of Electrical System

1.3 REFERENCES

A. UL 83 - Thermoplastic Insulated Wires and Cables

B. UL 1569 - Standard for Metal Clad Cables

C. NEC - NFPA 70, National Electrical Code 2014

D. ASTM B3 - ASTM International Standard B3 Standard Specification for Soft or Annealed Copper Wire

E. ASTM B8 - ASTM International Standard B8 Standard Specification for Concentric-Lay- Stranded Copper Conductors, Hard, Medium-Hard, or Soft

F. ANSI/NETA ATS - International Electrical Testing Association Standard for Acceptance Testing Specifications for Electrical Power Equipment and Systems, 2013 edition

1.4 SUBMITTALS

A. Product Data Submittals: Submit product data for each type of metal clad cable and fitting indicated.

B. Quality Assurance/Control Submittals: Submit qualification data for testing agency.

C. Closeout Submittals: Submit field quality-control test reports.

1.5 QUALIFICATIONS

A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the International Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

B. Testing Agency's Field Supervisor: Person currently certified by the International Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in unopened cartons or bundles as appropriate, clearly identified with manufacturer's name, Underwriter's or other approved label, grade or identifying number.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. AFC Cable Systems, Inc. or approved equivalent.

2.2 ARMORED CABLE ASSEMBLY

A. Metal clad cable assemblies shall consist of 2 or more insulated current carrying copper conductors and a green insulated copper ground conductor. The metal clad cable (or armored cable assembly) shall be UL classified as a through-penetrating product (XHLY) for use in one, two or three-hour through-penetration firestop systems (XHEZ). The assembly shall be suitable for use in cable trays in accordance with the NEC.

B. Current-Carrying Conductors: Soft annealed copper in compliance with the latest edition of ASTM B3 and/or B8; size 12 AWG through 6 AWG. A separate neutral conductor shall be supplied with each phase conductor. Neutral conductor shall be oversized where indicated on the plans.

C. Insulated Equipment Grounding Conductor: The equipment ground shall be a full-sized insulated conductor with a protective cover, sized in accordance with Table 6.1 of UL 1569. The grounding conductor shall be soft-annealed copper in compliance with the latest edition of ASTM B3 and/or B8.

D. Isolated Grounding Conductor: An additional isolated, insulated grounding conductor shall be provided where specified in section 26 05 26. The isolated ground shall be a full-sized insulated conductor with a protective cover, sized in accordance with Table 6.1 of UL 1569. The isolated grounding conductor shall be soft-annealed copper in compliance with the latest edition of ASTM B3 and/or B8.

E. Conductor Insulation: The insulated conductors shall be type THHN 90°C DRY with an extruded polypropylene protective covering. The insulated conductors with protective covering shall be manufactured and tested in accordance with UL 83 and UL 1569.

F. Armor: An aluminum armor shall be applied over the cabled wire assembly with an

interlock in compliance with Section 13 of UL 1569. Armor shall be colored to identify the voltage and number of conductors.

2.3 FITTINGS

A. Fittings shall be UL listed and identified as MCI-A for such use with metal clad interlocking armor ground.

B. Connectors shall be of steel or malleable iron and shall have saddle clamp to insure a tight termination of MC or MCI-A cable to box.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Scope: Provide metal clad cable for lighting and receptacle branch circuits, excluding home runs. Provide metal clad cable for exterior circuits, generator feeders, and cooling tower circuits.

B. Interior Routing: Route metal clad cable runs parallel with or perpendicular to walls or structural elements. Route horizontal runs level. Route vertical runs plumb. Rack groups together neatly with both straight runs and bends parallel and uniformly spaced.

C. Supporting: Provide support for MC cable in accordance with NEC Article 330 or the following, whichever is more stringent.

1. Use of cable tray: Basket, ladder rack, or ventilated cable tray may be utilized for support of metal clad cabling. The sum of the cross-sectional areas of cables shall not exceed the maximum allowable cable fill area allowed by NEC Article 392. Ampacity of cables installed in cable tray shall meet the requirements of NEC 392.80.
2. In existing buildings, provide independently supported cable hangers. These hangers are to be suitable for installation of MC cable.
3. In new buildings, provide a combination of cable tray and/or J cable hangers.
4. Individual metal clad cables hung from roof structure or structural ceiling shall be supported by split-ring hangers and wrought-iron hanger rods. Where three or more metal clad cables are suspended from the ceiling in parallel runs, use steel channels, Unistrut or equal, hung from 1/2-inch (13 mm) rods to support the cables. The cables on these channels shall be held in place with metal clad cable clamps designed for the
particular channel that is used.
5. Secure metal clad cable support racks to concrete walls and ceilings by means of cast-in-place anchors; die- cast, rustproof alloy expansion shields; or cast flush anchors. Wooden plugs, plastic inserts, or gunpowder driven inserts shall not be used as a base to secure conduit supports.
6. Support metal clad cable immediately on each side of a bend and not more than 1 foot (300 mm) from an enclosure where a run of metal clad cable ends.

D. Clearances: Maintain clearances described below.

1. Where metal clad cable is installed parallel to framing members, such as studs, joist, or rafters, support the cable so that the nearest outside surface of the cable is at least 1-1/4 inches (31 mm) from the nearest edge of the framing member. Where this distance cannot be maintained, protect the cable by a steel plate, sleeve, or equivalent that is at

least 1/16-inch thick.

2. Maintain at least 6-inch clearance between metal clad cables and other piping systems.
3. Maintain 12-inch (300 mm) clearance between metal clad cables and heat sources such as flues, steam pipes, and heating appliances.
4. No metal clad cable shall be fastened to other conduits or pipes or installed so as to prevent the ready removal of other pipes or ducts for repairs.

E. Fittings: Follow manufacturer's instructions for cable preparation for installation of fittings.
Cleanly cut the cable end with metal clad cable rotary cutting tool to ensure flush seating of the cable into the fitting. Properly torque fitting securement screws.

F. Splices and Terminations: Make splices at junction boxes with an approved, insulated, live spring type connector such as those manufactured by Scotchlock, 3M or Ideal.

G. Conductors in Enclosures: Provide neat and workmanlike installation with conductors tied with nylon wire ties in terminal cabinets, gutters and similar locations.

H. Terminating metal clad cables into panelboards:
1. Provide a junction box within plenum space with sweep elbows down to panelboard, or
2. Use a ladder tray mounted vertically above the panelboard. Strap cables to rungs and install cover on cable tray.

I. Identification: Identify all wiring with permanent wire labels, using alphanumeric designations. Terminations and splices shall be identically labeled for the same wire (i.e. common conductors terminated in multiple locations). Wire labels shall agree with the circuit designations on the Construction Drawings. Identify conductors in outlets, pull boxes and similar locations where conductors are accessible with printed plastic adhesive tapes to show circuit numbers. Wrap tapes at least two turns around conductor. Mark panel identification number with felt tip pen on cloth or plastic tag and attach to entering conductors with nylon
string.

3.2 SITE TESTS, INSPECTION

A. Hire an independent testing agency to perform acceptance testing.

B. All fittings and locknuts shall be re-examined for tightness. A continuity test is to be performed at each connection as a final means of inspection for tightness of joints.

C. Perform site tests in accordance with sections 26 08 11 and 26 05 19.

D. Perform field tests in conformance with the ANSI/NETA ATS.

END OF SECTION 260519.19

SECTION 265668 – EXTERIOR ATHLETIC LIGHTING

PART 1 – GENERAL

1.1 SUMMARY

A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.

B. The purpose of these specifications is to define the lighting system performance and design standards for IDEA Schools using an LED Lighting source. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.

C. The sports lighting will be for the following venues:

1. Soccer

D. The primary goals of this sports lighting project are:

1. Guaranteed Light Levels: Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore light levels are guaranteed to not drop below specified target values for a period of 25 years.
2. Environmental Light Control: It is the primary goal of this project to minimize spill light to adjoining properties and glare to the players, spectators and neighbors.
3. Cost of Ownership: In order to reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated for the duration of the warranty.
4. Control and Monitoring: To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system. Fields should be proactively monitored to detect luminaire outages over a 25-year life cycle. All communication and monitoring costs for 25-year period shall be included in the bid.

1.2 LIGHTING PERFORMANCE

A. Illumination Levels and Design Factors: Playing surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting calculations shall be developed, and field measurements taken on the grid spacing with the minimum number of grid points specified below. Appropriate light loss factors shall be applied and submitted for the basis of design. Average illumination level shall be measured in accordance with the IESNA LM-5-04 (IESNA Guide for Photometric Measurements of Area and Sports Lighting Installations). Illumination levels shall not to drop below desired target values in accordance to IES RP-6-15, Page 2, Maintained Average Illuminance and shall be guaranteed for the full warranty period.

Area of Lighting	**Average Target Illumination Levels**	**Maximum to Minimum Uniformity Ratio**	**Grid Points**	**Grid Spacing**
Soccer	30FC	2.5:1	60	30’ x 30’

B. Color: The lighting system shall have a minimum color temperature of 5700K and a CRI of 75.

1.3 ENVIRONMENTAL LIGHT CONTROL

A. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers and external shields. No symmetrical beam patterns are accepted.

C. Glare Control: Maximum candela values at a distance of 150 feet and a height of 3 feet are defined for typical sports fields below.

Typical Field Type	Maximum Candela at 150 feet
Soccer	<10,000 candela

D. Spill Scans: Spill scans must be submitted indicating the amount of horizontal and vertical foot candles along the specified lines. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights. Illumination level shall be measured in accordance with the IESNA LM-5-04 after 1 hour warm up.

E. The first page of a photometric report for all luminaire types proposed showing horizontal and vertical axial candle power shall be provided to demonstrate the capability of achieving the specified performance. Reports shall be certified by a qualified testing laboratory with a minimum of five years' experience or by a manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products. A summary of the horizontal and vertical aiming angles for each luminaire shall be included with the photometric report.

1.4 Cost of Ownership

A. Manufacturer shall submit a 25 year Cost of Ownership summary that includes energy consumption, anticipated maintenance costs, and control costs. All costs associated with faulty luminaire replacement - equipment rentals, removal and installation labor, and shipping - are to be included in the maintenance costs.

PART 2 – PRODUCT

2.1 SPORTS LIGHTING SYSTEM CONSTRUCTION

A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory assembled, aimed, wired and tested.

B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel of 18-8 grade or better, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.

C. System Description: Lighting system shall consist of the following:

1. Galvanized steel poles and cross-arm assembly.
2. Non-approved pole technology:
    a. Square static cast concrete poles will not be accepted.
    b. Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosive reaction to the soils and long term performance concerns.
3. Lighting systems shall use concrete foundations. See Section 2.4 for details.
    a. For a foundation using a pre-stressed concrete base embedded in concrete backfill the concrete shall be air-entrained and have a minimum compressive design strength at 28 days of 3,000 PSI. 3,000 PSI concrete specified for early pole erection, actual required minimum allowable concrete strength is 1,000 PSI. All piers and concrete backfill must bear on and against firm undisturbed soil.
    b. For anchor bolt foundations or foundations using a pre-stressed concrete base in a suspended pier or re-inforced pier design pole erection may occur after 7 days. Or after a concrete sample from the same batch achieves a certain strength.
4. Manufacturer will supply all drivers and supporting electrical equipment
    a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure. Integral drivers are not allowed.
    b. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2_2002.
5. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
6. All luminaires, visors, and cross-arm assemblies shall withstand 150 mph winds and maintain luminaire aiming alignment.
7. Control cabinet to provide remote on-off control, monitoring, and entertainment features of the lighting system. See Section 2.3 for further details.
8. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.
    a. Integrated grounding via concrete encased electrode grounding system.
    b. If grounding is not integrated into the structure, the manufacturer shall supply grounding electrodes, copper down conductors, and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780.The grounding electrode shall be minimum size of 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.

D. Safety: All system components shall be UL listed for the appropriate application.

2.2 ELECTRICAL

A. Electric Power Requirements for the Sports Lighting Equipment:
   1. Electric power: See Plans
   2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.

2.3 CONTROL

A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.

B. Lighting contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.

C. Dimming: System shall provide for 3-stage dimming (high-medium-low). Dimming with be set via scheduling options (Website, app, phone, fax, email)

D. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.

   The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields to only having permission to execute “early off” commands by phone. Scheduling tool shall be capable of setting curfew limits.

   Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

E. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The controller shall determine switch position (manual or auto) and contactor status (open or closed).

F. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show current status of luminaire outages, control operation and service. Mobile application will be provided suitable for IOS, Android and Blackberry devices.

   Hours of Usage: Manufacturer shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the owner.

   1. Cumulative hours: shall be tracked to show the total hours used by the facility
   2. Report hours saved by using early off and push buttons by users.

G. Communication Costs: Manufacturer shall include communication costs for operating the control and monitoring system for a period of 25 years.

2.4 STRUCTURAL PARAMETERS

A. Wind Loads: Wind loads shall be based on the 2018 International Building Code. Wind loads to be calculated using ASCE 7-16, an ultimate design wind speed of 150 MPH and exposure category C.

B. Pole Structural Design: The stress analysis and safety factor of the poles shall conform to 2013 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-6).

C. Foundation Design: The foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by 2018 IBC Table 1806.2.

D. Foundation Drawings: Project specific foundation drawings stamped by a registered engineer in the state where the project is located are required. The foundation drawings must list the moment, shear (horizontal) force, and axial (vertical) force at ground level for each pole. These drawings must be submitted at time of bid to allow for accurate pricing.

PART 3 – EXECUTION

3.1 SOIL QUALITY CONTROL

A. It shall be the Contractor's responsibility to notify the Owner if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may issue a change order request / estimate for the Owner's approval / payment for additional costs associated with:

1. Providing engineered foundation embedment design by a registered engineer in the State of Texas for soils other than specified soil conditions;
2. Additional materials required to achieve alternate foundation;
3. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.

3.2 DELIVERY TIMING

A. Delivery Timing Equipment On-Site: The equipment must be on-site 6-8 weeks from receipt of approved submittals and receipt of complete order information.

3.3 FIELD QUALITY CONTROL

A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA LM-5-04.

B. Field Light Level Accountability

1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 25 years. These levels will be specifically stated as "guaranteed" on the illumination summary provided by the manufacturer.
2. The contractor/manufacturer shall be responsible for conducting initial light level testing and an additional inspection of the system, in the presence of the owner, one year from the date of commissioning of the lighting.
3. The contractor/manufacturer will be held responsible for any and all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.

C. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles and uniformity ratios are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer shall be required to make adjustments to meet specifications and satisfy Owner.

3.4 WARRANTY AND GUARANTEE

A. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 25 years from the date of shipment. Warranty shall guarantee specified light levels. Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term. Warranty does not cover weather conditions events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.

B. Maintenance: Manufacturer shall monitor the performance of the lighting system, including on/off status, hours of usage and luminaire outage for 25 years from the date of equipment shipment. Parts and labor shall be covered such that individual luminaire outages will be repaired when the usage of any field is materially impacted. Manufacturer is responsible for removal and replacement of failed luminaires, including all parts, labor, shipping, and equipment rental associated with maintenance. Owner agrees to check fuses in the event of a luminaire outage.

PART 4 – DESIGN APPROVAL

4.1 PRE-BID SUBMITTAL REQUIREMENTS (Non-Musco)

A. Design Approval: The owner / engineer will review pre-bid submittals per section 4.0.B from all the manufacturers to ensure compliance to the specification 10 days prior to bid. If the design meets the design requirements of the specifications, a letter and/or addendum will be issued to the manufacturer indicating approval for the specific design submitted.

B. Approved Product: Musco's Light-Structure System™ with TLC for LED™ is the approved product. All substitutions must provide a complete submittal package for approval as outlined in Submittal Information at the end of this section at least 10 days prior to bid. Special manufacturing to meet the standards of this specification may be required. An addendum will be issued prior to bid listing any other approved lighting manufacturers and designs.

C. All listed manufacturers not pre-approved shall submit the information at the end of this section at least 10 days prior to bid. An addendum will be issued prior to bid; listing approved lighting manufacturers and the design method to be used.

D. Bidders are required to bid only products that have been approved by this specification or addendum by the owner or owner's representative. Bids received that do not utilize an approved system/design, will be rejected.

REQUIRED SUBMITTAL INFORMATION FOR ALL MANUFACTURERS (NOT PRE-APPROVED) 10 DAYS PRIOR TO BID

All items listed below are mandatory, shall comply with the specification and be submitted according to pre-bid submittal requirements. Complete the Yes/No column to indicate compliance (Y) or noncompliance (N) for each item. ***Submit checklist below with submittal.***

Yes / No	Tab	Item	Description
	A	Letter/ Checklist	Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer's local representative and his/her phone number. Signed submittal checklist to be included.
	B	Equipment Layout	Drawing(s) showing field layouts with pole locations
	C	On Field Lighting Design	Lighting design drawing(s) showing: a. Field Name, date, file number, prepared by b. Outline of field(s) being lighted, as well as pole locations referenced to the center of the field (x & y), Illuminance levels at grid spacing specified c. Pole height, number of fixtures per pole, horizontal and vertical aiming angles, as well as luminaire information including wattage, lumens and optics d. Height of light test meter above field surface. e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of variance (CV), coefficient of utilization (CU) uniformity gradient; number of luminaries, total kilowatts, average tilt factor; light loss factor.
	D	Off Field Lighting Design	Lighting design drawing showing initial spill light levels along the boundary line (defined on bid drawings) in foot candles. Lighting design showing glare along the boundary line in candela. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights.
	E	Photometric Report	Provide first page of photometric report for all luminaire types being proposed showing candela tabulations as defined by IESNA Publication LM-35-02. Photometric data shall be certified by laboratory with current National Voluntary Laboratory Accreditation Program or an independent testing facility with over 5 years' experience.
	F	Performance Guarantee	Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed to not fall below target levels for warranty period.
	G	Structural Calculations	Pole structural calculations and foundation design showing foundation shape, depth backfill requirements, rebar and anchor bolts (if required). Pole base reaction forces shall be shown on the foundation drawing along with soil bearing pressures. Design must be stamped by a structural engineer in the state of Texas, if required by owner.
	H	Control & Monitoring System	Manufacturer of the control and monitoring system shall provide written definition and schematics for automated control system and entertainment packages. They will also provide ten (10) references of customers currently using proposed system in the state of Texas.
	I	Electrical Distribution Plans	Manufacturer bidding an alternate product must include a revised electrical distribution plan including changes to service entrance, panels and wire sizing, signed by a licensed Electrical Engineer in the state of Texas.
	J	Warranty	Provide written warranty information including all terms and conditions. Provide ten (10) references of customers currently under specified warranty in the state of Texas.

	K	Project References	Manufacturer to provide a list of projects where the technology and specific fixture proposed for this project has been installed in the state of Texas. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number.
	L	Product Information	Complete bill of material and current brochures/cut sheets for all product being provided.
	M	Delivery	Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.
	N	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.
	O	Cost of Ownership	Document cost of ownership as defined in the specification. Identify energy costs for operating the luminaires. Maintenance cost for the system must be included. All costs should be based on 25 Years
	P	Environmental Light Control Design	Environmental glare impact scans must be submitted showing the maximum candela from the field edge on a map of the surrounding area until 500 candela or less is achieved.