

**ADDENDUM NUMBER ONE (1)
TO THE PLANS AND SPECIFICATIONS FOR:**

July 24, 2026

**Harmony Public Schools
Harmony Science Academy
City Place Phase 2
New High School / Middle School
22000 Springwood Village Pkwy.
Spring, Texas 77077
Project No. 24.23**

**GIGNAC & ASSOCIATES
416 STARR STREET
CORPUS CHRISTI, TEXAS 78401
(361) 884-2661**



This addendum is generally separated into sections for convenience; however, all contractors, subcontractors, materialmen, and other parties shall be responsible for reading the entire addendum. The failure to list an item or items in all affected sections of this addendum does not relieve any party affected from performing as per instructions, provided that the information is set forth any time, any place in this addendum. These documents shall be attached to and become a part of the contract documents for this project.

CLARIFICATION ITEMS:

Item C-1 Pre-Bid Meeting Attendance Sign-In Sheet
Attached is the Pre-Bid Meeting sign in sheet. This document is issued for informational purposes only.

Item C-1 Substitution Requests:

- Contractor to follow Specification Section 00 2600 Procurement Substitution Procedures.
- Provide a point-by-point comparison.
- Provide a complete CSI Substitution Request Form 1.5C., included within this addendum.

Item C-3 **Questions and Answers**

The following questions have been received from potential bidders and are answered in this section:

Question 1: I see that there is a drawing for a water softener but I have not come across an actual schedule outlining what is needed.

Question 1: No water softener will be required.

Question 2: Spec 078116 calls out Type IB Construction ratings; however, Code Sheet G-003 calls out Type IIB Construction ratings (0-HOUR). I am assuming the Type IIB on the Code sheet is correct and NO FIREPROOFING will be required. This is typical for 99% of Harmony schools historically. Please confirm the Construction Type, IB or IIB.

Answer 2: Construction Type II-B (Non-Rated)

Question 3: Reference Attachment C "Price Form" of the specification manual. The Owner Contingency on this form is \$750,000, but the Owner Contingency in the IonWave bid form is \$500,000. Please advise which amount is correct.

Answer 3: *The Owner Contingency in the IonWave bid form will be correct, \$750,000.00 is the correct amount.*

Question 4: In the Schedule of Values (Appendix B) - Alternate Bid list, Alternates #1 & #2 appear to both be the same "Tubular Daylighting Devices. Will this typo be corrected in the Addendum 01?

Answer 4: *Yes, revised Schedule of Values (Appendix B), included within this addendum.*

Question 5: Reference page 3 of the Table of Contents. Specification section 09 72 16 Vinyl Wall Coverings is listed but not included in the manual, please provide.

Answer 5: *Specification Section 09 72 16 Vinyl Wall Coverings has been added to the Project Manual.*

Question 6: Received a substitution request for Canopy Solutions pre-engineered aluminum canopies in lieu of the spec. Will substitution requests be considered for the metal canopies?

Answer 6: *Yes, if it meets or exceeds the specification, reference specification section of this addendum for additional approved manufacturers.*

Question 7: Reference specification section 00 40 00 "Proposal Form." Please be advised this document has March 1st, 2024 listed as the substantial completion date versus April 1st 2028 which is listed in section 00 20 00.

Answer 7: *Section 00 04 00 Proposal Form – Attachment A has been updated per this addendum.*

Question 8: Reference page 45 of specifications, Schedule of Values (Appendix B) - Alternate Bid. This alternates section has 5 spaces, but the IonWave portal only has (4) alternate. Please advise.

Answer 8: *Yes, revised Schedule of Values (Appendix B), included within this addendum.*

Question 9: Please be advised, sheet C3.6 is not listed on the Cover sheet.

Answer 9: *Cover sheet has been revised per this addendum.*

Question 10: Drawing sheets A-401 through A-403 are missing from the plan set, please provide.

Answer 10: *Missing Drawings sheets have been added per this addendum.*

Question 11: Division 07, Section 07 52 16.11 is not included in the project manual. Will it be added in an addendum?

Answer 11: *Missing specification section has been added per this addendum.*

Question 12: What jurisdiction is permitting?

Answer 12: *Harris County*

Question 13: What is the status of the permit?

Answer 13: *Building permit TIA under review. Permits received are civil, water, and traffic.*

Question 14: Which color will be used for the aluminum storefront frames?

Answer 14: *Clear Anodize*

Question 15: For the Steel Joist scope in the structural drawings, Will the joists be screwed to the shear wall, or will they be welded to the shear wall studs?

Answer 15: *The steel joists will be welded to the bearing plate as indicated on detail 4 of S4.4 and details 3 and 7 of sheet S4.5.*

Question 16: Please provide a data sheet for the Acid Waste Tank, located on Drawing P2.11E.

Answer 16: *ANT-1 is scheduled on P5.02*

Question 17: According to Specs 2210 00 – 9, note D says: D. CPVC Pipe and Fittings (Buried and not buried): All system pipe and fittings shall be from a single manufacturer, Schedule 40 CPVC manufactured of material in conformance with ASTM D1784 and in produced in accordance with ASTM F2618 from CPVC Type IV, ASTM Cell Classification 23447. Please clarify if it's acceptable to use CPVC underground.

Answer 17: *Buried is included.*

Question 18:

- RFI 1: According to Drawing P2.11E, Room E102A indicates restrooms; however, the architectural drawing A-105 shows it as a storage room. Please clarify.
- RFI 2. Please provide a data sheet for the Acid Waste Tank, located on Drawing P2.11E. RFI 3. According to Specs 2210 00 – 9, note D says: D. CPVC Pipe and Fittings (Buried and not buried): All system pipe and fittings shall be from a single manufacturer, Schedule 40 CPVC manufactured of material in conformance with ASTM D1784 and in produced in accordance with ASTM F2618 from CPVC ASTM Cell Classification 23447. Please clarify if it's acceptable to use CPVC underground
- RFI 4. Bentonite or Clay plugs are required. Please clarify.
- Regarding RFI 5, is it permissible to use Flus valve-trap primers for the floor drains in the restrooms?

Answer 18:

- *RFI 1 - Room E102 is a Storage Room, drawings will be update on next addendum.*
- *RFI 2 - ANT-1 is scheduled on P5.02. Buried is included in the specifications. Flus is not listed as an acceptable manufacturer and the owner does not prefer flush valve trap primers.*
- *RFI 3 - Buried is included in the specifications.*
- *RFI 4 – “Where are you intending to use bentonite clay plugs?” We allow for trench plugs via 22 10 00, 3.1 C.*

Question 19:

- D117, D118 Staff restrooms D117, D118 do not show floor drains. Is this correct? D119 Janitors closet containing a water heater does not show a floor drain. Was this intentional or omitted?
- A. In Room E106, there is an acid waste line servicing a SK-1. Is this sink going to need a bottle trap like the P-1 sinks?
- B. In Room E105, there is an SK-1. Is there supposed to be a solid interceptor in the cabinet below?
- L-1 is shown in bathrooms as a countertop basin but is listed as a wall hung lavatory in the fixture schedule.
- Please clarify. DN-1, DC-1 Both of these are used throughout the project, and each appears to represent a different overflow outlet. In some locations, both tags are shown on the same overflow outlet. Please clarify. DB-1 Description is missing from the fixture schedule. Please clarify

Answer 19:

- *Floor drains will be added and shown in upcoming Addendum No. 02.*
- *SK-1 does not have the same requirements as P-1 and will not require a bottle trap. The owner is not to put art materials down the SK-1 in Art Lab E105.*
- *L-1 is wall mounted.*
- *DN-1, DC-1 and DB-1 are all scheduled on P5.01.*

Question 20: able to forward my contact to bidding GCs to sub for Softener/Reverse

Osmosis installation?

Answer 20: No water softener is required.

Question 21: Is it permissible to use Flus valve-trap primers for the floor drains in the restrooms?

Answer 21: Not Owner preference.

Question 22: Reference A-115 & 5/A-305. The room finish schedule calls for rubber base at the stage and ramp, but 5/A-305 calls out wood base to match flooring. Please advise what base is needed in this location.

Answer 22: Refer to revised drawings attached to this addendum.

SPECIFICATION ITEMS:

- | | |
|----------|---|
| Item S-1 | <u>SECTION 00 04 00 – Proposed Form – Attachment A – CERTIFICATION OF PROPOSER</u>
<ol style="list-style-type: none">1. Delete this specification section in its entirety and replace it with revised specification, included within this addendum.2. Project completion updated to match Section 00 02 00. |
| Item S-2 | <u>SECTION 00 01 15 – List of Drawings Sheets</u>
<ol style="list-style-type: none">1. Delete this specification section in its entirety and replace it with revised specification, included within this addendum. |
| Item S-3 | <u>SECTION 00 04 00 – Proposed Form – Attachment C - PRICE FORM: SCHEDULE OF SERVICES, EQUIPMENT AND PRICES</u>
<ol style="list-style-type: none">1. Delete this specification section in its entirety and replace it with revised specification, included within this addendum.2. Number of Alternates updated to match Section 01 23 00 Alternates. |
| Item S-4 | <u>SECTION 00 31 43 – PERMIT APPLICATION</u>
<ol style="list-style-type: none">1. Add Section 00 31 43 Permit Application in its entirety to the Project Manual. |
| Item S-5 | <u>SECTION 07 52 16.11 – STYRENE-BUTADIENE-STYRENE (SBS) MODIFIED BITUMINOUS MEMBRANE ROOFING</u>
<ol style="list-style-type: none">1. Add Section 07 52 16.11 Styrene-Butadiene-Styrene (SBS) Modified Bituminous Membrane Roofing in its entirety to the Project Manual. |
| Item S-6 | <u>SECTION 07 81 16 – CEMENTITIOUS FIREPROOFING</u>
<ol style="list-style-type: none">1. Add Section 07 81 16 Cementitious Fireproofing in its entirety to the Project Manual.2. Item 1.2 has been updated. |
| Item S-7 | <u>SECTION 08 56 19 – ALUMINUM INTERIOR SLIDING SERVICE WINDOW</u>
<ol style="list-style-type: none">1. Add Section 08 56 19 Aluminum Interior Sliding Service Window in its entirety to the Project Manual. |
| Item S-8 | <u>SECTION 09 72 16 – Vinyl Wall Coverings</u>
<ol style="list-style-type: none">1. Add Section 09 7 16 Vinyl Wall Coverings in its entirety to the Project Manual. |
| Item S-9 | <u>Section 10 21 13.13 – Metal Lockers</u>
<ol style="list-style-type: none">1. Approved Comparable product provided they meet or exceed all provisions of the specification. |

- a. LockersMFG All Welded Lockers

Item S-10 Section 10 73 16 – Metal Canopies

- 1. Approved Comparable product provided they meet or exceed all provisions of the specification.
 - a. Aluminum Techniques, Inc.
 - b. Canopy Solutions, LLC

Item S-11 Section 11 66 23 – GYMNASIUM EQUIPMENT

- 1. Approved Comparable product provided they meet or exceed all provisions of the specification.
 - a. ADP Lemco Inc.

Item S-12 Section 12 66 00 - TELESCOPING STANDS

- 1. Approved Comparable product provided they meet or exceed all provisions of the specification.
 - a. Sheridan

Item S-13 SECTION 32 17 23 – PAVEMENT MARKINGS

- 1. Add Section 32 17 23 Pavement Markings in its entirety to the Project Manual.

Item S-14 SECTION 32 18 23.33 - POST- TENSIONED CONCRETE BASKETBALL COURTS

- 1. Add Section 321823.33 Post Tensioned Concrete Basketball Courts in its entirety to the Project Manual.

Item S-15 SECTION 32 18 23.39 – SYNTHETIC RUNNING TRACK SURFACING - SPRAY SEALED STRUCTURAL SYSTEM

- 1. Add Section 32 18 23.39 Synthetic Running Track Surfacing – Spray Sealed Structural System in its entirety to the Project Manual.

Item S-16 SECTION 32 18 23.43 – OUTDOOR BASKETBALL COURT SURFACE COLOR COATING SYSTEM

- 1. Add Section 321823.43 Outdoor Basketball Court Surface Color Coating System in its entirety to the Project Manual.

Item S-17 SECTION 32 31 13 – CHAIN LINK FENCES AND GATES

- 1. Add Section 32 31 13 Chain Link Fences and Gates in its entirety to the Project Manual.

Item S-18 SECTION 32 31 19 – DECORATIVE PEDESTRAIN EGRESS GATE SYSTEM

- 1. Add Section 32 31 19.13 Decorative Metal Fences and Gates (Steel) in its entirety to the Project Manual.

Item S-19 SECTION 32 31 19.13 - DECORATIVE METAL FENCES AND GATES (STEEL)

- 1. Add Section 32 31 19.13 Decorative Metal Fences and Gates (Steel) in its entirety to the Project Manual.

PLAN ITEMS:

Item P-1 Sheet G-001 Drawing Index and Conventions

1. Delete this sheet in its entirety and replace with sheet G-001, included within this addendum.
2. Drawing index updated - Sheet number C3.6 Storm Water Quality Management Plan added.

Item P- 2 Sheet G-003 Code Review

1. Delete this sheet in its entirety and replace with sheet G-003, included within this addendum.
2. Location address updated.

Item P- 3 Sheet AS-106 Site, Track and Field Details

1. Delete this sheet in its entirety and replace with sheet AS-106, included within this addendum.
2. Detail 4 – Partial section across bleachers track and field updated.

Item P- 4 Sheet C0.1 Harris County Flood Control Review Sheet

1. Delete this sheet in its entirety and replace with sheet C0.1, included within this addendum.

Item P- 5 Sheet C0.2 Harris County Engineering Review Sheet

1. Delete this sheet in its entirety and replace with sheet C0.2, included within this addendum.

Item P- 6 Sheet C0.3 General notes

1. Delete this sheet in its entirety and replace with sheet C0.3 , included within this addendum.

Item P- 7 Sheet C0.5 Fire Access Plan

1. Delete this sheet in its entirety and replace with sheet C0.5, included within this addendum.

Item P- 8 Sheet C0.6 Overall Site and dimension Control Plan

1. Delete this sheet in its entirety and replace with sheet C0.5, included within this addendum.

Item P- 9 Sheet C1.0 Grading and Drainage plan (1 of 2)

1. Delete this sheet in its entirety and replace with sheet C1.0, included within this addendum.

- Item P- 10** Sheet C1.1 Grading and Drainage plan (2 of 2)
1. Delete this sheet in its entirety and replace with sheet C1.1, included within this addendum.
- Item P-11** Sheet C3.1 Phase 2 Drainage Area Map
1. Delete this sheet in its entirety and replace with sheet C3.1, included within this addendum.
- Item P-12** Sheet C3.5 Detention basin layout
1. Delete this sheet in its entirety and replace with sheet C3.5, included within this addendum.
- Item P-13** Sheet A-115 Room Finish Schedule
1. Delete this sheet in its entirety and replace with sheet A-115, included within this addendum.
 2. Base finish updated at ramp and stage.
- Item P- 14** Sheet A-305 Platform and Ramp Sections and details
1. Delete this sheet in its entirety and replace with sheet A-305, included within this addendum.
 2. Wood base finish added to stage and ramp detail.
- Item P- 15** Sheet A-401 Partial roof plans – Area A/B
1. Add missing sheet A-401, included within this addendum.
- Item P- 16** Sheet A-402 Partial roof plan Area B
1. Add missing sheet A-402, included within this addendum.
- Item P- 17** Sheet A-403 Partial roof plan Area C
1. Add missing sheet A-403, included within this addendum.

END OF ADDENDUM



Pre-Bid Meeting Sign-In Sheet

Project Name: **Harmony Science Academy - City Place Middle/Highschool-Ground Up**

Date: **7/17/2026** Time: **11:00 AM**

	Name	Organization	Email
1.			
2.	Prasad Nunna	Sterling Structures, Inc	pnunna@sterlingstructures.com
3.	Amine Elhiyat	Harmony Public Schools	aelhiyat@harmonytx.org
4.	Rohini Dhamija	Gignac Architects	rdhamija@gignac-associates.com
5.			
6.	Jay Caldwell	HPS - Construction field manager	pcaldwell@harmonytx.org
7.	Laura Reddehase	SEDALCO Construction	bids@sedalco.com
8.	Leticia Garcia	TGS Sports, LLC	info@sportsbytgs.com
9.			
11.			
12.			
13.			
14.			
15.			

CSI Form 1.5C**SUBSTITUTION
REQUEST
(During the Bid Period)**

Project: _____ Substitution Request Number: _____

From: _____
To: _____ Date: _____

A/E Project Number: _____
Re: _____ Contract For: _____

Specification Title: _____ Description: _____
Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____
Manufacturer: _____ Address: _____ Phone: _____
Trade Name: _____ Model No.: _____

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: _____
Signed by: _____
Firm: _____
Address: _____

Telephone: _____

A/E's REVIEW AND ACTION

- ☐ Substitution approved - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
☐ Substitution rejected - Use specified materials.
☐ Substitution Request received too late - Use specified materials.

Signed by: _____

Date: _____

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

ATTACHMENT A

CERTIFICATION OF PROPOSER

The undersigned Proposer has carefully examined all instructions, requirements, specifications, terms and conditions of this procurement solicitation and the construction documents and certifies:

1. It is a reputable company regularly engaged in providing construction services necessary to meet the requirements, specifications, terms and conditions of the procurement solicitation.
2. It has the necessary experience, knowledge, abilities, skills, and resources to satisfactorily perform the requirements, specifications, terms and conditions of this procurement solicitation. Further, if awarded, the Proposer agrees to perform the requirements, specifications, terms and conditions of this procurement solicitation and to obtain final completion for the entire project on or before **April 1, 2028.**
3. Proposer proposes to furnish all labor, materials, supervision and any other services necessary to complete the project for the proposal amount(s) listed on Attachment C. The undersigned certifies that the amount(s) contained in Attachment C have been carefully checked and are submitted as correct and final.
4. All statements, information, and representations prepared and submitted in response to this procurement solicitation are current, complete, true, and accurate. Proposer acknowledges that HPS will rely on such statements, information, and representations in selecting the successful proposer. Proposer shall be bound by all statements, representations, warranties, and guarantees made in its proposal.
5. It is not currently barred or suspended from doing business with the Federal government, any of the members represented, or any of their respective agencies.
6. That all of the requirements of this procurement solicitation and the construction documents have been read and understood, including any amendments/addenda. In addition, compliance with all requirements, terms and conditions will be assumed by HPS if not otherwise noted in the proposal.
7. The individual signing below has authority to submit this proposal on behalf of Proposer.

PROJECT TITLE:	HSA – City Place – Middle/High School		
PROPOSER NAME:			
AUTHORIZED SIGNATURE:			
PRINT NAME:			
TITLE:			
DATE:			
ADDRESS:			
CITY, STATE, ZIP CODE:			
PHONE:		FAX:	
EMAIL ADDRESS:			
WEBSITE URL:			

ATTACHMENT C
PRICE FORM: SCHEDULE OF SERVICES, EQUIPMENT AND PRICES

The contractor shall furnish all resources and services necessary and required to perform the construction services for this project detailed in the procurement solicitation and construction documents, in accordance with the specifications and the general terms and conditions of the proposed contract for the proposed price(s) listed below.

All equipment shall be new.

Appendix A is representative of the scopes dictated under the construction/procurement documents. Use the appropriate schedule of values. Note: Use only those line items appropriate to the scope of work.

SCHEDULE OF VALUES (APPENDIX A)

Contractor: _____

Contact: _____ **Proposal Date:** _____

Please refer to scope of work for detailed information. (Please mark N/A if it is not necessary for the project scope of work.)

	Job Name	Job Description	Total Price
1	General Requirements	Project Supervision and management; weekly and final cleanup	
2	Reports, Tests and Inspections	All necessary material testing and reporting (concrete, steel, inspections, etc.)	
3	County approvals, Certificate of Occupancy	Preparing, submitting and follow-up with Fire Marshall and MUD requirements.	
4	Mobilization	Trailer, Dumpster, Toilet, Trailer Furniture, Equipment, Temporary utilities, etc.	
5	Site Work	Earthwork, water service piping, storm sewerage, sanitary sewerage, excavation, grading, landscape etc.	
6	Play Field	Material and Installation	
7	Driveway, Parking Area, Sidewalk	Concrete and asphalt pavement and sidewalks, striping, painting curbs and ramps, traffic signs, repairs, and cleaning.	
8	Concrete for Building	Material and Installation	

9	Exterior Finishes	Sheathing, stucco, EIFS, brick, CMU etc.	
10	Waterproofing	Material & Labor	
11	Metals	Material and Installation of new steel, flashing, metal stud framing.	
12	Drywall and Ceiling	Material & Labor	
13	Toilet/Changing Room Partitions and toilet accessories	Material and Installation of toilet/changing room partitions and toilet accessories	
14	Kitchen Equipment	Material & Labor	
15	Thermal & Moisture Protect.	Wall insulation, sealants	
16	Doors, Frames & Windows	Material & Labor	
17	Finishes	Interior finishes: Paint, tile, ceiling tile, carpet.	
18	Mechanical	RTU's, curbs, wiring, testing, air-balancing, generator, etc.	
19	Electrical	Electrical power, panels, breakers, lighting, sensors, switching. Relocating Light Poles.	
20	Structured Cabling	Material & Labor	
21	Audio Visual Systems	Material & Labor	
22	Distributed Communication (PA) System	Material & Labor	
23	Intrusion Detection System	Material & Labor	
24	Access Control System	Material & Labor	
25	Video Surveillance System	Material & Labor	
26	Underground Fiber Optic	Material & Labor	
27	Plumbing	Water, waste, vent, fixtures, etc.	
28	Fire Prevention	Fire sprinkler, fire alarm, and related permits & approvals.	
29	Painting	Material and labor for 1 coat of primer and 2 coats of paint.	
30	Fences	Material and installation of the fence, gates, concrete footing etc.	
31	Roofing	Material and Installations	
32	Exterior Awning	Material and Installation	

33	Performance/Payment Bond	Bonds	
34	All permit costs, inspection costs and associated fees.	Including but, not limited to, building permit, sprinkler permit, canopy permits, fence permits, etc.	
35	Owner Contingency	\$750,000 Contingency	\$750,000.00
36	Data Network and Wireless	Material and Installation	
37	Voice Network System	Material and Installation	
38	Gym Equipment	Material and Installation	
39	Marquee with Electronic Message Display	Delegated Design, Material and Installation	
40	Construction Camera	Material/Labor/Service – Per Specifications	
41	Other	Any other costs related to the project	
	TOTAL BASE BID AMOUNT		

SCHEDULE OF VALUES (APPENDIX B) – Alternate Bid

	Job Name	Job Description	Total Price
1	Alternate 1: Tubular Daylighting Devices	Material & Labor	
2	Alternate No. 2: 80 Mil TPO Roofing in lieu of SBS Modified Bitumen Membrane Roofing	Material & Labor	
3	Alternate No. 3: 60 Mil TPO Roofing in lieu of SBS Modified Bitumen Membrane Roofing	Material & Labor	
4	Alternate No. 4: Electrical Switchgear Expediting	Material & Labor	

SECTION 00 31 43 - PERMIT APPLICATION

PART 1 - Permit Application

1.1 PERMIT APPLICATION INFORMATION

- A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of the Bidders' own investigations. This Document and its attachments are not part of the Contract Documents.
- B. Permit Application: Complete building permit application and file with authorities having jurisdiction within five days of the Notice of Award.
 - 1. Contractor shall be responsible for all fees associated with the building permit.

END OF SECTION 00 31 43

SECTION 07 52 16.11 - STYRENE-BUTADIENE-STYRENE (SBS) MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Styrene-butadiene-styrene (SBS)-modified bituminous membrane roofing.
 - 2. Roof insulation.
- B. Section includes the installation of insulation strips in ribs of acoustical roof deck. Insulation strips are furnished under Section 053100 "Steel Decking."
- C. Related Requirements:
 - 1. Section 076200 "Sheet Metal Flashing and Trim" for metal roof flashings and counterflashings.
 - 2. Section 077129 "Manufactured Roof Expansion Joints" for proprietary manufactured roof expansion-joint assemblies.
 - 3. Section 079200 "Joint Sealants" for joint sealants, joint fillers, and joint preparation.

1.3 DEFINITIONS

- A. Roofing Terminology: Definitions in ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" apply to work of this Section.

1.4 PREINSTALLATION MEETINGS

- A. Pre-installation Roofing Conference: Conduct conference at Project site.
 - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 - 3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
 - 5. Review structural loading limitations of roof deck during and after roofing.
 - 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
 - 7. Review governing regulations and requirements for insurance and certificates if applicable.
 - 8. Review temporary protection requirements for roofing system during and after installation.
 - 9. Review roof observation and repair procedures after roofing installation.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work, including:
 - 1. Base flashings and membrane terminations.
 - 2. Tapered insulation, including slopes.
 - 3. Crickets, saddles, and tapered edge strips, including slopes.
 - 4. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
 - 5. Roof edge securement requirements meeting ANSI/SPRI ES-1
- C. Samples for Verification: For the following products:
 - 1. Cap sheet, of color required.
 - 2. Flashing sheet, of color required.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer and manufacturer.
- B. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.

1. Submit evidence of complying with performance requirements.
- C. Provide third party test reports indicating overhead coiling door assemblies has been tested to resist 1.5 times the design wind pressures noted on the structural contract drawings. The overhead coiling door assemblies should be tested per ASTM E330 protocols.
- D. Product Test Reports: For components of membrane roofing system, for tests performed by manufacturer and witnessed by a qualified testing agency.
- E. Research/Evaluation Reports: For components of membrane roofing system, from ICC-ES.
- F. Field quality-control reports.
- G. Sample Warranties: For manufacturer's special warranties.
- 1.7 CLOSEOUT SUBMITTALS
 - A. Maintenance Data: For roofing system to include in maintenance manuals.
- 1.8 QUALITY ASSURANCE
 - A. Manufacturer Qualifications: A qualified manufacturer that is FM Global approved for membrane roofing system identical to that used for this Project.
 - B. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.
- 1.9 DELIVERY, STORAGE, AND HANDLING
 - A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
 - B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
 - C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
 - D. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.
- 1.10 FIELD CONDITIONS
 - A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- 1.11 WARRANTY
 - A. Special Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period with no dollar limit (NDL).
 1. Special warranty includes membrane roofing, base flashings, roof insulation, fasteners, cover boards, roofing accessories, and other components of roofing system.
 2. Warranty Period: 20 years from date of Substantial Completion.
 - B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of roofing system such as membrane roofing, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, and walkway products, for the following warranty period:
 1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Johns Manville, Roof Assembly in accordance with FM ROOFNAV # 376570-373762-0 & FM ROOFNAV # 374829-373726-0 where required by wind pressures or comparable product by one of the following:
 1. Garland Company, Inc. (The).
 2. Siplast, Inc.
 3. Tremco Incorporated.
- B. Source Limitations: Obtain components including roof insulation, fasteners for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and base flashings shall remain watertight.
 - 1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
 - 2. Impact Resistance: Roofing system shall resist impact damage when tested according to ASTM D 3746 or ASTM D 4272.
- B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Roofing System Design: Tested by a qualified testing agency to resist the following uplift pressures:
 - 1. Corner Uplift Pressure: As indicated on drawings.
 - 2. Perimeter Uplift Pressure: As indicated on drawings.
 - 3. Field-of-Roof Uplift Pressure: As indicated on drawings.
- D. FM Global Listing: Roofing, base flashings, and component materials shall comply with requirements in FM Global 4450 or FM Global 4470 as part of a roofing system, and shall be listed in FM Global's "RoofNav" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.
 - 1. Fire/Windstorm Classification: Class 1A-105 at field, Class 1A-315 at perimeter.
 - 2. Hail-Resistance Rating: SH.
- E. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- F. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

2.3 ROOFING SHEET MATERIALS

- A. Base Sheet: ASTM D 6163, Grade S, Type I, SBS-modified asphalt sheet (reinforced with glass fibers), SBS-modified asphalt-impregnated and -coated sheet, with glass-fiber-reinforcing mat, dusted with fine mineral surfacing on both sides.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Johns Manville, DynaBase, fiberglass reinforced SBS base or comparable product.
 - a. Weight: 45 lb/100 sq. ft. (2 kg/sq. m), minimum.
 - b. Thickness: 80 mil, minimum
- B. Granule-Surfaced Roofing Cap Sheet: ASTM D 6163, Grade G, Type I, SBS-modified asphalt sheet (reinforced with glass fibers); granule surfaced; suitable for application method specified, and as follows:
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Johns Manville, DynaGlas FR CR G, fire retardant, fiberglass reinforced SBS reflective mineral surfaced, cool roof cap sheet or comparable product.
 - a. Granule Color: Bright White (Reflective).
 - b. Three Year Aged Solar Reflectance: 0.55 minimum.
 - c. Three Year Aged Thermal Emittance: 0.75 minimum.

2.4 BASE FLASHING SHEET MATERIALS

- A. Granule-Surfaced Flashing Sheet: ASTM D 6164/D 6164M, Grade G, Type I or II, SBS-modified asphalt sheet (reinforced with polyester fabric); granule surfaced; suitable for application method specified, and as follows:
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Johns Manville, DynaLastic 180 FR CR G, fire retardant, polyester reinforced SBS reflective mineral surfaced, cool flashing sheet or comparable product.
 - a. Granule Color: Bright White (Reflective).

2.5 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing.
 - 1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
 - 2. Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content:
 - a. Plastic Foam Adhesives: 50 g/L.

- b. Gypsum Board and Panel Adhesives: 50 g/L.
 - c. Multipurpose Construction Adhesives: 70 g/L.
 - d. Fiberglass Adhesives: 80 g/L.
 - e. Contact Adhesives: 80 g/L.
 - f. Other Adhesives: 250 g/L.
 - g. Non-membrane Roof Sealants: 300 g/L.
 - h. Sealant Primers for Porous Substrates: 775 g/L.
- B. Roofing Asphalt: ASTM D 312, Type IV.
- C. Mastic Sealant: Polyisobutylene, plain or modified bitumen; non-hardening, non-migrating, non-skinning, and nondrying.
- D. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roofing components to substrate; tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.
- E. Roofing Granules: Ceramic-coated roofing granules, No. 11 screen size with 100 percent passing No. 8 (2.36-mm) sieve and 98 percent of mass retained on No. 40 (0.425-mm) sieve, color to match roofing.
- F. Miscellaneous Accessories: Provide those recommended by roofing system manufacturer.

2.6 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated and that produce FM Global-approved roof insulation.
- B. Composite Polyisocyanurate Board Insulation: ASTM C 1289, with factory-applied facing board on one major surface, as indicated below by type, and felt or glass-fiber mat facer on the other surface.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Johns Manville, FLAT ENRGY 3, or comparable product.
- C. Composite Polyisocyanurate Board Tapered Insulation: Provide factory-tapered insulation boards fabricated to provide slope of 1/4 inch per 12 inches (1:48) unless otherwise indicated.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Johns Manville, TAPERED ENRGY 3, or comparable product.
- D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.7 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with roofing.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.
- C. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer as follows:
 - 1. Modified asphaltic, asbestos-free, cold-applied adhesive.
- D. Cover Board: ASTM C 1278/C 1278M, cellulosic-fiber-reinforced, water-resistant gypsum substrate, 1/2 inch (13 mm) thick.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
- E. USG Corporation; Securock Gypsum-Fiber Roof Board.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work:
 - 1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
 - 2. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
 - 3. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Section 053100 "Steel Decking."
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Install insulation strips in ribs of acoustical roof decks according to acoustical roof deck manufacturer's written instructions.

3.3 INSTALLATION, GENERAL

- A. Comply with roofing system manufacturer's written instructions.
- B. Asphalt Heating: Heat asphalt to its equiviscous temperature, measured at the mop cart or mechanical spreader immediately before application. Circulate asphalt during heating. Do not raise asphalt temperature above equiviscous temperature range more than one hour before time of application. Do not exceed asphalt manufacturer's recommended temperature limits during asphalt heating. Do not heat asphalt within 25 deg F (14 deg C) of flash point. Discard asphalt maintained at a temperature exceeding finished blowing temperature for more than four hours.
 - 1. Apply hot roofing asphalt within plus or minus 25 deg F (14 deg C) of equiviscous temperature.
- C. Substrate-Joint Penetrations: Prevent roofing asphalt and adhesives from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

3.4 INSULATION INSTALLATION

- A. Install tapered insulation under area of roofing to conform to slopes indicated.
- B. Install insulation with long joints of insulation in a continuous straight line, with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
 - 1. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
- C. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 4.4 inches or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.
- D. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- E. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.
- F. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches (150 mm) in each direction. Loosely butt cover boards together and fasten to roof deck. Tape joints if required by roofing system manufacturer.
 - 1. Fasten cover boards to resist uplift pressure at corners, perimeter, and field of roof.
 - 2. Apply hot roofing asphalt to underside, and immediately bond cover board to substrate.

3.5 ROOFING INSTALLATION, GENERAL

- A. Install roofing system according to roofing system manufacturer's written instructions and applicable recommendations in ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing" and as follows:
 - 1. Deck Type: N (nailable).
 - 2. Adhering Method: M (mopped).
 - 3. Base Sheet: One.
 - 4. Number of SBS-Modified Asphalt Sheets: One.
 - 5. Surfacing Type: M (mineral-granule-surfaced cap sheet).
- B. Start installation of roofing in presence of manufacturer's technical personnel.
- C. Where roof slope exceeds 1/2 inch per 12 inches (1:24), install roofing membrane sheets parallel with slope.
- D. Coordinate installation of roofing system so insulation and other components of the roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
 - 1. Provide tie-offs at end of each day's work to cover exposed roofing sheets and insulation with a course of coated felt set in roofing cement or hot roofing asphalt, with joints and edges sealed.
 - 2. Complete terminations and base flashings, and provide temporary seals to prevent water from entering completed sections of roofing system.
 - 3. Remove and discard temporary seals before beginning work on adjoining roofing.

3.6 BASE-SHEET INSTALLATION

- A. Install lapped base-sheet course, extending sheet over and terminating beyond cants. Attach base sheet as follows:
 - 1. Adhere to substrate in a solid mopping of hot roofing asphalt.

3.7 SBS-MODIFIED BITUMINOUS MEMBRANE INSTALLATION

- A. Install modified bituminous roofing cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond cants, installing as follows:
 - 1. Adhere to substrate in a solid mopping of hot roofing asphalt applied at not less than 425 deg F (218 deg C).
 - 2. Unroll roofing sheets and allow them to relax for minimum time period required by manufacturer.
- B. Laps: Accurately align roofing sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.
 - 1. Repair tears and voids in laps and lapped seams not completely sealed.
 - 2. Apply roofing granules to cover exuded bead at laps while bead is hot.
- C. Install roofing sheets so side and end laps shed water.

3.8 FLASHING AND STRIPPING INSTALLATION

- A. Install base flashing over cant strips and other sloped and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to roofing system manufacturer's written instructions and as follows:
- B. Extend base flashing up walls or parapets a minimum of 8 inches (200 mm) above roofing membrane and 4 inches (100 mm) onto field of roofing membrane.
- C. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.
 - 1. Seal top termination of base flashing.
- D. Install roofing cap-sheet stripping where metal flanges and edgings are set on roofing according to roofing system manufacturer's written instructions.
- E. Roof Drains: Set 30-by-30-inch-(760-by-760-mm-) metal flashing in bed of asphaltic adhesive on completed roofing membrane. Cover metal flashing with roofing cap-sheet stripping, and extend a minimum of 6 inches (150 mm) beyond edge of metal flashing onto field of roofing membrane. Clamp roofing membrane, metal flashing, and stripping into roof-drain clamping ring.
 - 1. Install stripping according to roofing system manufacturer's written instructions.

3.9 FIELD QUALITY CONTROL

- A. Testing Agency: Owner reserves the right to engage a qualified testing agency at any time during the roof installation to inspect substrate conditions, surface preparation, membrane application, flashings, protection, and drainage components, and to furnish reports to Architect.
- B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.
 - 1. Notify Architect and Owner 48 hours in advance of date and time of inspection.
- C. Roofing system will be considered defective if it does not pass tests and inspections.
 - 1. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.10 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.11 ROOFING INSTALLER'S WARRANTY

- A. Submit Roofing Installer's Warranty attached at end of section

END OF SECTION 07 52 16.11

ROOFING INSTALLER'S WARRANTY

A. WHEREAS _____ of _____, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:

1. Owner: _____

5. Area of Work: _____

2. Address: _____

6. Acceptance Date: _____

3. Building Name/Type: _____

7. Warranty Period: _____

4. Address: _____

8. Expiration Date: _____

B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
 - a. lightning;
 - b. peak gust wind speed exceeding _____ mph (m/s);
 - c. fire;
 - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
 - e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
 - f. vapor condensation on bottom of roofing; and
 - g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this _____ day of _____, _____.

1. Authorized Signature: _____.

2. Name: _____.

3. Title: _____.

SECTION 08 56 19 – ALUMINUM INTERIOR SLIDING SERVICE WINDOW

PART 1 – GENERAL

1.1 SUMMARY

- A. This section includes:
 - 1. Aluminum interior mid-grade sliding service window.

1.2 SUBMITTALS

- A. Product Data: Submit Manufacturer's technical product data substantiating that products comply.
- B. Shop drawings: Submit for fabrication and installation of windows. Include details, elevations and installation requirement of finish hardware and cleaning.
- C. Certification: Provide printed data in sufficient detail to indicate compliance with the contract documents.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver windows crated to provide protection during transit and job storage
- B. Inspect windows upon delivery for damage. Unless minor defects can be made to meet the Architect's specifications and satisfaction, damaged parts should be removed and replaced.
- C. Store windows at building site under cover in dry location.

1.4 PROJECT CONDITIONS

- A. Field measurements: Check opening by accurate field measurement before fabrication. Show recorded measurements on shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of work.

1.5 WARRANTY

- A. All material and workmanship shall be warranted against defects for a period of one (1) year from the original date of purchase.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURER'S

- A. Basis-of-Design Product: Subject to compliance with requirements, provide CR Laurence Co. Inc, SW Series Model SW2200A or comparable product.

2.2 MATERIALS

- A. Frames: Aluminum frame modules shall be constructed of 6063-T5 extruded aluminum. Window rolls on top-hung ball bearing rollers. Catch locks included with all interior windows. Overall frame sizes are to be in accordance with the contract drawings.
- B. Finish: All aluminum to be clear anodized.
- C. Glazing: The glazing shall be ¼" tempered.
- D. Provide also the following:
 - 1. Stainless steel shelf.
 - 2. Keyed lock.
 - 3. Full bottom track.
 - 4. Surround frame.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Install window in accordance with manufacturer's printed instructions and recommendations. Repair damaged units as directed or replace with new units.

3.2 CLEANING

- A. Clean frame and glazing surfaces after installation, complying with requirements contained in the manufacturer's instructions. Remove excess glazing sealant compounds, dirt or other substances.

3.3 PROTECTION

- A. Institute protective measures required throughout the remainder of the construction period to ensure that all the windows do not incur any damage or deterioration, other than normal weathering, at the time of acceptance.

END OF SECTION 08 56 19

SECTION 09 72 16 – VINYL WALL COVERINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Vinyl wall covering at Cafeteria North Wall/Stage Wall.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each type of wall covering and for each color, pattern, texture, and finish specified, full width by 36-inch- long in size.

1.3 INFORMATIONAL SUBMITTALS

- A. Product test reports.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: As determined by testing identical wall coverings applied with identical adhesives to substrates according to test method indicated below by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - a. Flame-Spread Index: 25 or less.
 - b. Smoke-Developed Index: 450 or less.
 - 2. Fire-Growth Contribution: No flashover and heat and smoke release according to NFPA 265 .

2.2 VINYL WALL COVERING

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Desert Sand Collection by Koroseal or comparable product.
 - 1. Color/Pattern: Patriot Blue 5921-69.
- B. Description: Provide mildew-resistant products in rolls from same production run and complying with the following:
 - 1. ASTM F 793 for strippable wall coverings.
 - a. Category V, Type II.
- C. Fire Testing: NFPA 101, NFPA 255 (ASTM E84)) Tunnel Test.
 - Class A Rating.
 - Flame Spread: 10.
 - Smoke Developed: 5.
- D. Total Weight: 20.0 oz./ly.
- E. Roll Width: 54 inches.
- F. Gauge: .025".
- G. Fabric: Woven.
- H. Backing: Scrim fabric.
 - 1. Fiber Content: Acrylic.
- I. Match Information: Random Match, Reverse Hang.

2.3 ACCESSORIES

- A. Adhesive: Mildew-resistant, non-staining adhesive, for use with specific wall covering and substrate application indicated and as recommended in writing by wall-covering manufacturer.
- B. Primer/Sealer: Mildew resistant, complying with requirements in and recommended in writing by primer/sealer and wall-covering manufacturers for intended substrate.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Comply with manufacturer's written instructions for surface preparation.
- B. Clean substrates of substances that could impair bond of wall covering, including dirt, oil, grease, mold, mildew, and incompatible primers.
- C. Prepare substrates to achieve a smooth, dry, clean, structurally sound surface free of flaking, unsound coatings, cracks, and defects.

1. Moisture Content: Maximum of 5 percent on new plaster, concrete, and concrete masonry units when tested with an electronic moisture meter.
 2. Gypsum Board: Prime with primer as recommended in writing by primer/sealer manufacturer and wall-covering manufacturer.
- D. Check painted surfaces for pigment bleeding. Sand gloss, semigloss, and eggshell finish with fine sandpaper.
 - E. Remove hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.
 - F. Acclimatize wall-covering materials by removing them from packaging in the installation areas not less than 24 hours before installation.
- 3.2 WALL-COVERING INSTALLATION
- A. Comply with wall-covering manufacturers' written installation instructions applicable to products and applications indicated.
 - B. Cut wall-covering strips in roll number sequence. Change the roll numbers at partition breaks and corners.
 - C. Install strips in same order as cut from roll.
 - D. Install wall covering without lifted or curling edges and without visible shrinkage.
 - E. Match pattern above the finish floor.
 - F. Install seams vertical and plumb at least 6 inches from outside corners and from inside corners unless a change of pattern or color exists at corner. Horizontal seams are not permitted.
 - G. Trim edges and seams for color uniformity, pattern match, and tight closure. Butt seams without overlaps or gaps between strips.
 - H. Fully bond wall covering to substrate. Remove air bubbles, wrinkles, blisters, and other defects.
 - I. Remove excess adhesive at seams, perimeter edges, and adjacent surfaces.
 - J. Reinstall hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.

END OF SECTION 09 72 16

SECTION 32 17 23 - PAVEMENT MARKINGS

PART 1 GENERAL:

This specification shall govern for all work necessary to provide all Pavement Marking required to complete the project. This specification shall be designated for roadway traffic marking only and is not applicable to pedestrian crosswalk marking. It is the intent of this specification that all pavement marking and all work be in accordance with the current edition of the Texas MUTCD.

PART 2 PRODUCTS:

2.1 Paint:

- A. Set fast acrylic modified alkyd zone paint (white – TM5632 and yellow – TM 5633).
- B. All products as manufactured by Sherwin Williams, or approved equal. Apply in two (2) coats (7 mils dry film thickness) in accordance with specifications and manufacturer's printed procedures.

PART 3 EXECUTION:

The Contractor shall layout all work from the base line furnished by the Engineer. The base line will be the center of the pavement and will be marked at 200' intervals.

3.1 Weather Limitations:

The painting shall be performed only when the existing surface is dry and clean, when the atmospheric temperature is above forty degrees Fahrenheit (40°F), and when the weather is not excessively windy, dusty, or foggy. The suitability of the weather will be determined by the Owner's representative.

3.2 Equipment:

- A. All equipment for the work shall be approved by the Owner's representative and shall include the apparatus necessary to properly clean the existing surface, and mechanical marking machine, and such auxiliary hand painting equipment as may be necessary to satisfactorily complete the job.
- B. The mechanical marker shall be an approved atomizing spray-type marking machine suitable for application of traffic paint. It shall produce an even and uniform film thickness at the required coverage and shall be designed so as to apply markings of uniform cross sections and clear-out edges without running or spattering and within the limits of straightness set forth herein.
- C. Suitable adjustments shall be provided on the sprayer(s) of a single machine or by furnishing additional equipment for painting the width required.

3.3 Preparation of Existing Surface:

- A. Immediately before application of the paint, the existing surface shall be dry and entirely free from dirt, grease, oil, acids, laitance, or other foreign matter which would reduce the bond between the coat of paint and the pavement. The surface shall be thoroughly cleaned by sweeping and blow as required to remove all dirt, laitance, and loose materials.
- B. Areas which cannot be satisfactorily cleaned by brooming and blowing shall be scrubbed as directed with a water solution of trisodium phosphate (10% Na₃PO₄ by weight) or an

approved equal solution. After scrubbing, the solution shall be rinsed off and the surface dried prior to painting.

3.4 Layouts and Alignments:

- A. Suitable layouts and lines of proposed striped shall be spotted in advance of the paint application. Control points shall be spaced at such intervals as will insure accurate location of all markings.
- B. The Contractor shall provide an experienced technician to supervise the location, alignment, layout, dimensions, and application of the paint.

3.5 Application:

- A. Markings shall be applied at the locations and to the dimensions and spacing indicated on the plans or as specified. Paint shall not be applied until the layouts, indicated alignment, and the condition of the existing surface have been approved by the Owner's representative.
- B. The paint shall be mixed in accordance with the manufacturer's instructions before application. The paint shall be thoroughly mixed and applied to the surface of the pavement with the marking machine as its original consistency without the addition of thinner. If the paint is applied by brush, the surface shall receive two (2) coats; the first (1st) coat shall be thoroughly dry before the second (2nd) coat is applied.
- C. A period of three (3) weeks shall elapse between the placement of the bituminous surface course and the marking of the pavement. The paint shall not bleed excessively, curl, or discolor when applied to bituminous surfaces.
- D. In the application of straight stripes, any deviating of the edges exceeding one-half (1/2") in fifty feet (50') shall be obliterated and the marking corrected. The width of the markings shall be as designated within a tolerance of five percent (5%). All painting shall be performed to the satisfaction of the Owner's representative by competent and experienced equipment operators, laborers, and artisans in a neat and workmanlike manner.
- E. The Contractor shall furnish a certified report on the quality of materials ordered for the work. This report shall not be interpreted as a basis for final acceptance. The Owner's representative shall be notified upon arrival of shipment or inspecting and sampling of the materials. When required, all emptied containers shall be returned to the paint material storage or made available for tallying by the Owner's representative. The containers shall make an accurate accounting of the paint materials used in the accepted work.

3.6 Protection:

- A. After application of the paint, all markings shall be protected while the paint is drying. The fresh paint shall be protected from damage of any kind. The Contractor shall be directly responsible and shall erect or place suitable warning signs, flags or barricades, protective screens, or coverings as required. All surfaces shall be protected from disfiguration by spatter, splashes, spillage, drippings of paint or materials.

3.7 Defective Workmanship or Material:

- A. When any material not conforming to the requirement of the Specifications or Plans has been delivered to the Project or incorporated in the work or any work performed is of inferior quality, such material or work shall be corrected as directed by the Owner's representative, at the expense of the Contractor.

SECTION 32 18 23.33 - POST- TENSIONED CONCRETE BASKETBALL COURTS

PART 1 - GENERAL REQUIREMENTS

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SCOPE

- A. The contract work to be performed under this specification consists of furnishing all of the required labor, materials, equipment, implements, parts, and supplies necessary for, or appurtenant to the construction of post-tensioned concrete basketball court(s) in accordance with these specifications.

1.3 STANDARDS

- A. The work shall be performed in a thorough, workmanlike manner by experienced tennis court contractors. Contractor will provide proof of insurance and bonds as required by the owner.

1.4 SUBMITTAL

- A. Submit 3 copies of project specific court foundation, designed and sealed by a registered professional engineer in the state of Texas.

1.5 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design post-tensioned concrete basketball court foundation.

1.6 GUARANTEE

- A. The Contractor guarantees his respective work against defective materials and faulty workmanship for a period of one (1) year.

PART 2 - SITE PREPARATION

2.1 ROUGH GRADING

- A. Trees, bushes and other flora will be removed from the site. The area will be graded to provide a uniform one percent (1%) slope in a single plane. All fills will be placed in six inch (6") layers and will be compacted to ninety-five (95%) standard density at optimum moisture. The rough grade will be done so as to provide positive drainage away from the tennis court and, if needed, to provide intercepting swales to prevent drainage onto the court.

2.2 FINE GRADING

- A. Fine grading will be done with laser-controlled equipment capable of producing a true and accurate plane to within plus or minus one-fourth (+ 1/4").

2.3 BASE

- A. Place a minimum of four inches (4") of compacted sand, (P.I. +/- 9-18) with laser controlled equipment capable of producing a true and accurate plane to plus or minus one fourth inch (1/4"), while establishing a one inch (1 ") per each ten foot (10') slope.

PART 3 - FORMING AND CONCRETE PLACEMENT

3.1 POST TENSIONED SLAB

- A. Concrete forms will be placed to within one-fourth inch (1/4") of the finished grade, resulting in a 4" thick finished slab.
- B. Sheathed tensioning cables of one-half inch (1/2") will be placed at intervals no greater than four feet (4') in each different direction. The cables must be properly wired and chaired two inches (2") high at all intersections and four inches (4") below the top of the perimeter beam.
- C. A twelve inch (12") deep by twelve inch (12") wide perimeter beam will be placed and shall contain the stationary and pulling ends of the cables. The beam will have a tensioning cable through it's' center.
- D. The freshly placed five sack, three thousand pound per square inch (3000 p.s.i.) concrete will be leveled with a sixty foot (60') screed capable of producing a surface true to three-eighths inch (3/8") in sixty feet (60').
- E. Post-tensioning of the cables will occur seven (7) to ten (10) days after the pour.

PART 4 - SURFACING

- 4.1 Reference specification section 32 18 23.43 "Outdoor Basketball Court Surface Color Coating System".

END SECTION 32 18 23.33

SECTION 32 18 23.39 – SYNTHETIC RUNNING TRACK SURFACING - SPRAY SEALED STRUCTURAL SYSTEM
PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. A sealed polyurethane synthetic track system comprised of a base layer of polyurethane bound SBR rubber granules, a seal coat of a two-component urethane, and a top spray-applied coating of single-component polyurethane, and EPDM granules over an asphaltic-concrete base.
- B. The guidelines established in this Section are considered to be minimum acceptable standards for installing the sealed polyurethane synthetic track system. Standards meeting or exceeding the materials and rates of applications of materials established in published and distributed specifications by individual and separate track surface manufacturer's installers shall not preclude such manufacturers from submitting their running track surface system for consideration of the Architect as an approved equal to the specified system.

1.2 RELATED WORK

- A. Section 32 12 16.36 - Athletic Asphalt Paving

1.3 QUALITY ASSURANCE

- A. Subcontractor for Work of this Section shall be a firm specializing in track construction of the type required for this project.
- B. Submittals before Contract Award: To be submitted prior to installation of track surface.
 - 1. Tabulation of synthetic track surface system installations made within the past five (5) years in which the proposed materials for this project were used. State locations, name, title, address and telephone number of contract person at each installation.
 - 2. Manufacturer's technical specification for surfacing materials to be used, including rates of application and installation procedures.
 - 3. Manufacturer's manual for care and maintenance of the track surface system and a list of product accessories or other items of service to be included with warranty.
 - 4. Sample of track surface system. Mark sample with trade name or designation identification.
 - 5. Copy of warranty for this project.
- C. Submittals after Contract Award.
 - 1. Submit certificate, signed by track surface contractor, stating the asphaltic concrete pavement is acceptable and satisfactory for the installation of the track surface system.
 - 2. Submit certificate from a testing laboratory stating that the chemical composition of the isocyanate component of the proposed system (MDI/TDI) and stating percentage of free TDI monomer present in the MDI/TDI isocyanate and whether the percentage of TDI is to be considered "TDI Free", non-toxic.
 - 3. Submit certificate, signed by track surface contractor, that the track surface work, including every component, complies with the requirements of the Contract Documents, and that the installation methods were adequate and proper for the conditions of installation and use.
 - 4. Submit three (3) copies of a manual describing the materials, devices, and procedures to be followed for use and maintenance of the track surface system, including the cleaning, paint application, and removal techniques. Include any precautions required by warranty.
 - 5. Submit the warranty for the track surface system.

1.4 CONTRACTOR'S QUALIFICATIONS

- A. Contractors must be an experienced specialty firm, which shall have installed at least 10 polyurethane track surface systems of the type specified herein within the last five (5) years.
- B. Contractors wishing to be considered as an "or equivalent" must provide documentation to the Architect in accordance with requirements of Division 1. Information shall include the following:
 - 1. Test reports from an independent laboratory stating that the proposed product has been tested and meets the requirements of the International Amateur Athletic Federation (IAAF).
 - 2. A complete list of references with project name and contacts, with phone numbers, for each equal installation.
 - 3. Audited financial statements for the past three (3) fiscal years.

1.5 WEATHER CONDITIONS

- A. Place no primers or any component of the track surface system when the air temperature is below the minimum application temperature recommended by the track system manufacturer. Materials may be placed after the air temperature is above the track system manufacturer's recommended

minimum application temperature and rising. Take temperature readings in shade away from artificial heat. Place no component of track system when asphaltic concrete surface temperatures exceed the temperature recommended by the track system manufacturer for good application.

- B. Do not place any materials under wet or damp conditions.

1.6 DELIVERY AND STORAGE

- A. Deliver materials to project site in accordance with the construction progress schedule. Components shall be identified with manufacturers' original labeling and otherwise marked to indicate location of the work. Store in a dry location, protected against damage and according to manufacturers' recommendations.
- B. All of the component materials to be used in the track surfacing shall be on site and audited by the Architect before surfacing operations can begin.
- C. All empty containers and bags shall remain on site until all track surfacing operations are complete. A final audit of materials will be made by the Architect before empty containers and bags are removed and disposed of.

1.7 WARRANTY

- A. The track surface Contractor/Manufacturer shall submit to the Owner the manufacturer's warranty which guarantees the usability of the track surface system for its intended uses for a minimum period of five (5) years commencing with the date of its final acceptance. The warranty coverage shall not be prorated nor limited by the amount of usage and shall cover defects in materials and workmanship, significant color fade and granule loss.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Beynon BSS-200, 13mm Sealed Structural Spray Track Surfacing System or comparable product.

2.1 MATERIALS

- A. Primers: Primers must be polyurethane-based, specifically formulated to be compatible with the paved SBR base and track surfacing material.
- B. Black SBR Granules: The rubber granules for the base mat shall be recycled SBR rubber, processed and chopped to 1-3mm size, containing less than 4% dust.
- C. EPDM Granules: The rubber granules for the structural spray wearing coats shall be EPDM peroxide cured, synthetic rubber containing a minimum 20% EPDM resin, with a specific gravity of 1.5 ± 0.1 g/cm³. The EPDM rubber shall be the same color as chosen by the owner for the track surface.
- D. Polyurethane Binder: Binder for the black mat shall be an MDI-based single-component, polyurethane binding agent. The binder shall not have a free TDI monomer level above 0.2%, must be clear in color and must be solvent free. The binder must be specially formulated for compatibility with SBR rubber crumb.
- E. Structural Spray Coating: The spray coating shall be an MDI-based single-component, moisture cured, 100% solids, pigmented polyurethane, specifically formulated for compatibility with EPDM granules. The coating shall be the color specified by the owner. Pigment intergraded in the field shall not be allowed.
- F. Seal Coat: The two-component polyurethane resin for this application, shall be pigmented to match the color of the wear coat. The material shall be applied by a squeegee to insure that the black mat is sealed.
- G. Performance Standards: The new synthetic track surfacing system shall exhibit the following minimum performance standards (ASTM):
 - a. Thickness: (12-13mm) or as specified
 - b. Shore A Hardness: 55 ± 5 (ASTM D-2240)
 - c. Elongation at Break: ~90% (ASTM D-412)
 - d. Tensile Strength: 0.75 N/mm² (ASTM D-412)
 - e. Compression Set Recovery: 90%-95% over 24hr period (ASTM D-412)
 - f. Abrasion Resistance: 0.25 grams loss after 1000 cycles (ASTM D-501)
 - g. Coefficient of Friction: Dry: 0.7-0.75, Wet: 0.6-0.65 (ASTM D-1984)
 - h. Resilience: 37%-39% (ASTM D-2632)
 - i. Tear Resistance: 50-65 psi (ASTM D-624)

PART 3 - EXECUTION

3.1 WORKMANSHIP

- A. The track surfacing work shall be performed by an experienced specialty firm complying with Contractor's Qualifications Paragraph of this Section and as follows:
 - 1. Track surface Contractor shall use only full time company employees for installing track surfacing material. Subcontracting the installation of track surfacing material will not be allowed. Track striping work may be subcontracted to a qualified company that is acceptable to the Owner.
 - 2. Track surface Contractor shall have all of the component materials and equipment at the site prior to starting his operations so that there will not be any delays in the installation process.
- A. Pre-Installation Meeting: Prior to commencing installation of the work, and at the track surface Contractor's initiative, a meeting will be called at the project site to review material, installation procedures. Meeting shall include the track surface Contractor, General Contractor, Architect and the Owner.
- B. Surface Test: For NCAA certification the following criteria must be followed.
 - 1. The track surface i.e., asphalt substrate, shall not vary from planned cross slope by more than plus or minus 0.1 percent with a maximum lateral slope outside to inside of 1 percent and a maximum slope of 0.1 percent in any running direction. The finished asphalt shall not vary under a ten (10) feet straight edge more than 1/8 inch.
- D. Certificate: Upon completion of surface test and correction of any defects, track surface Contractor shall submit to Architect a signed certificate stating the existing surface is acceptable and satisfactory for the installation of his track surface system.

3.2 INSTALLATION

- A. Sub-base:
 - 1. The Track Surfacing System shall be laid on an approved sub-base. The General Contractor shall provide compaction test results of 95 percent or greater for the installed sub-base and asphalt surface.
 - 2. Comply with surface test as specified above.
 - 3. It shall be the responsibility of the asphalt-paving contractor to flood the surface immediately after the asphalt is capable of handling traffic, but within 24 hours. If, after 20 minutes of drying time, there are birdbaths evident, it shall be the responsibility of the Architect, in conjunction with the surfacing contractor to determine the method of correction. No cold tar patching, skin patching or sand mix patching will be acceptable.
 - 4. All oil spills (hydraulic, diesel, motor oil, etc.) shall be completely removed, either by chipping out or removing and replacing with new, keyed in asphalt. The minimum depth of any asphalt replacement shall be one (1) inch. The curing time for the asphalt base is 28 days. It shall be the responsibility of the surfacing contractor to determine if the asphalt substrate has cured sufficiently prior to the application of the polyurethane surfacing system.
 - 5. It shall be the responsibility of the General Contractor to determine if the asphalt substrate meets all design specifications, i.e. cross slopes, planarity and specific project criteria. After all the above conditions are met, the surfacing contractor shall, in writing, accept the planarity of the asphalt-receiving base, before work can commence.
- B. Cleaning: The area to be surfaced shall be clean and free of all loose or foreign substances (dirt, oil, etc.) prior to the commencement of the work. The surface is usually cleaned by use of a power blower and high-pressure washer.
- C. Thickness: The thickness of the Synthetic Track Surfacing System shall be 13 mm.
- D. Equipment: The Synthetic Track Surfacing System components shall be processed and installed by specially designed machinery and equipment. A mechanically operated paver with variable regulated speed and thermostatically controlled screed shall be used in the installation of the base mat and the wearing course shall be installed using automatic electronic portioning, which provides continuous mixing and feeding for an accurate, quality controlled installation.
- E. Installation:
 - 1. Base Course: The SBR granules and polyurethane binder shall be mixed together on site to regulate the ratio/quantity of SBR, not to exceed 82% in the base mat portion of the system. The polyurethane binder shall be mixed with the SBR rubber so that a minimum of 18%, by weight, exists in the final mixture. This mixture is then mechanically installed using the paver.

2. Seal Coat: The two-component polyurethane resin is mixed at the prescribed ratio homogeneously with a suitable mixing device. The coating is squeegee applied to the base mat, making it sealed.
3. Wearing Course: The 0.5 to 1.5mm EPDM granules shall be mixed with the single component structural spray coating. The structural spray shall be made in two uniform applications.

F. Site Conditions:

1. Installation shall not take place if adjacent or concurrent construction generates excessive dust, abrasives or any other by-product that, in the opinion of the installer, would be harmful to the track material, until completion of such works.
2. If, in the opinion of the installer of the synthetic material, the weather and/or climatic conditions are detrimental to the proper installation of the surfacing materials, work shall be delayed until conditions are acceptable. Preferred installation temperature is fifty degrees Fahrenheit and rising. Installation shall be executed only in dry conditions.

- C. Line Markings: All line and event markings shall be applied by experienced personnel utilizing polyurethane-based paint compatible with the synthetic track surfacing. All marking dimensions shall be certified in accordance with the specifications issued by the appropriate sanctioning or governing body such as IAAF, NCAA, NFHS, etc.

3.3 FINAL SURFACE TEST AND REPAIRS

- A. After completion of track surfacing and curing, track shall be flooded with water to determine areas that may hold water. All low areas holding water 30 minutes after rain or watering has stopped shall be clearly outlined so that the necessary repairs can be made.
- B. In areas holding water, the base mat shall be removed. The size of the area to be removed will be determined by the Architect. Surface layer shall be replaced and shall be made level with adjacent surfaces.
- C. The track surface may be randomly probed by the Architect in at least five (5) areas per 100 meter length of track to determine the finished thickness of track surface.
- D. When the probe measurements indicate a deficiency of not more than one (1) mm from the specified thickness, the track surface will be considered adequate. When the measurement is deficient by more than one (1) mm, two (2) additional probes will be taken at 25 foot intervals from the deficient probes and the average thickness of the three (3) probes will be determined.
- E. In calculating the average thickness of the track surface, measurements which are in excess of the specified thickness will be considered as specified thickness. Measurements which are deficient of the specified thickness will be considered as specified thickness less the deficiency. If the average measurement of the three (3) probes is not deficient more than one (1) mm from the specified thickness, additional exploratory probes at five (5) foot intervals parallel to the centerline of the track and in each direction from the deficient probe until in each direction a probe is taken that is not deficient by more than one (1) mm from the specified thickness. Exploratory probe measurements will not be used in averages for deficient track surfacing.
- F. Deficient areas in excess of one (1) mm of specified thickness will be resurfaced to obtain the specified thickness at the track surface contractor's sole expense.

END OF SECTION 32 18 23.39

SECTION 32 18 23.43 OUTDOOR BASKETBALL COURT SURFACE COLOR COATING SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Concrete exterior basketball & multi-purpose court surface color coating system.

1.2 RELATED REQUIREMENTS

- A. Section 03 30 00 – Cast-in-Place Concrete.
- B. Section 03 40 00 – Precast Concrete.

1.3 REFERENCE STANDARDS

- A. American Sports Builders Association (ASBA).
- B. United States Tennis Association (USTA) Rules of Tennis.
- C. National Basketball Association (NBA) Official Rules
- D. National Federation of State High School Associations (NFHS) Rule Book
- E. National Collegiate Athletic Association (NCAA) Rule Book

1.4 SUBMITTALS

- A. Comply with Section 01 33 00 – Submittal Procedures.
- B. Product Data: Submit manufacturer's product data, including surface and crack preparation and application instructions.
- C. Samples: Submit manufacturer's color samples of color coating.
- D. Test Reports:
 - 1. Submit independent test results for solar reflectance index.
 - 2. Submit independent test results for 2000 Hour ASTM G154, accelerated weathering UV test, to demonstrate long-term durability and fade resistance.
 - 3. Submit independent test results for 2000 Hour, accelerated weathering ASTM G155 Xenon Arc test, to demonstrate long-term fade resistance and quality of pigment.
- E. Manufacturer's Certification: Submit manufacturer's certification that materials comply with specified requirements and are suitable for intended application.
- F. Manufacturer's Project References: Submit manufacturer's list of successfully completed concrete basketball & multi-purpose court surface color coating system projects, including project name, location, and date of application.

- G. Applicator's Project References: Submit applicator's list of successfully completed concrete basketball & multi-purpose court surface color coating system projects, including project name, location, type and quantity of color coating system applied, and date of application.
- H. Warranty Documentation: Submit manufacturer's standard warranty.
- I. Authorized Installer Certificate: Submit manufacturer's authorized installer certificate.

1.5 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
 - 1. Manufacturer regularly engaged, for past 5 years, in manufacture of concrete basketball & multi-purpose court surface color coating systems of similar type to that specified.
 - 2. United States owned company.
 - 3. Member: ASBA.
- B. Applicator's Qualifications:
 - 1. Applicator regularly engaged, for past 3 years, in application of basketball & multi-purpose court surface color coating systems of similar type to that specified.
 - 2. Employ persons trained for application of basketball & multi-purpose court surface color coating systems.
 - 3. Applicator must be authorized installer of the surfacing brand used.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Acceptance Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage and Handling Requirements:
 - 1. Store and handle materials in accordance with manufacturer's instructions.
 - 2. Keep materials in manufacturer's original, unopened containers and packaging until application.
 - 3. Store materials in clean, dry area indoors.
 - 4. Store materials out of direct sunlight.
 - 5. Keep materials from freezing.
 - 6. Protect materials during storage, handling, and application to prevent contamination or damage.
 - 7. Close containers when not in use.
 - 8. Retain manufacturer batch codes on each container and application dates, for warranty purposes.

1.7 AMBIENT CONDITIONS

- A. Do not apply concrete basketball & multi-purpose court surface color coating system when air or surface temperatures are below 50°F (10°C) during application or within 24 hours after application.

- B. Do not apply concrete basketball & multi-purpose court surface color coating system when rain is expected during application or within 24 hours after application.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. SportMaster Sport Surfaces

All other brands must be pre-approved by the architect/owner, 7 days prior to the bid date. If submitting another brand, bidder must furnish copies of all submittal documents under section 1.4

2.2 MATERIALS

- A. Concrete Basketball & Multi-Purpose Court Surface Color Coating System: SportMaster Color Coating System.
- B. Crack Sealant: SportMaster "Crack Magic".
 - 1. 100 percent acrylic emulsion elastomeric crack sealant.
 - 2. Seals cracks and expansion joints up to 1/2 inch wide in concrete pavement.
 - 3. Weight per Gallon at 77 Degrees F: 8.8 lbs., plus or minus 0.5 lbs.
 - 4. Non-Volatile Material: 61 percent, plus or minus 5 percent.
- C. Crack Filler: SportMaster "Acrylic Crack Patch".
 - 1. 100 percent acrylic emulsion trowel-grade crack filler.
 - 2. Fills cracks in concrete pavement up to 1 inch wide.
 - 3. Chemical Characteristics, by Weight, Minimum:
 - a. Acrylic Emulsion: 10.0 percent.
 - b. Hiding Pigment: 0.2 percent.
 - c. Mineral Inert Fillers: 78.0 percent.
 - d. Film Formers, Additives: 1.8 percent.
 - e. Water: 8.5 percent.
 - 4. Weight per Gallon at 77 Degrees F: 15.2 lbs., plus or minus 1.0 lbs.
 - 5. Non-Volatile Material: 80 percent, plus or minus 5 percent.
 - 6. Color: Red or Blue.
- D. Patch Binder: SportMaster "Acrylic Patch Binder".
 - 1. 100 percent acrylic emulsion liquid binder.
 - 2. Mix on-site with sand and cement.
 - 3. Levels and repairs low spots and depressions up to 3/4 inch deep in concrete pavement.
 - 4. Weight per Gallon at 77 Degrees F: 8.8 lbs., plus or minus 0.5 lbs.
- E. Filler Course: SportMaster "Acrylic Resurfacer".
 - 1. 100 percent acrylic emulsion resurfacer.
 - 2. Mix on-site with silica sand.
 - 3. Apply to adhesion promoter or previously colored acrylic surfaces in preparation of color coating system.
 - 4. Chemical Characteristics, by Weight, Minimum:
 - a. Acrylic Emulsion: 44.0 percent.
 - b. Hiding Pigment: 2.0 percent.

- c. Mineral Inert Fillers: 5.0 percent.
 - d. Film Formers, Additives: 0.2 percent.
 - e. Water: 45.0 percent.
- 5. Weight per Gallon at 77 Degrees F: 8.5 lbs., plus or minus 0.5 lbs.
- 6. Non-Volatile Material: 27.5 percent, plus or minus 5.0 percent.
- 7. Color: Black or Neutral.

- F. Adhesion Promoter: SportMaster "Acrylic Adhesion Promoter".
 - 1. Acrylic emulsion primer.
 - 2. Primes concrete surface and promotes adhesion of color coating system materials.
 - 3. Weight per Gallon at 77 Degrees F: 8.7 lbs., plus or minus 0.5 lbs.

- G. Color Coating: SportMaster "ColorPlus System".
 - 1. 100 percent acrylic emulsion coating.
 - 2. Mix on-site with silica sand and water.
 - 3. Color coats basketball and multi-purpose courts.
 - 4. Weight per Gallon at 77 Degrees F: 9.2 lbs., plus or minus 0.5 lbs.
 - 5. Pattern & Colors: As indicated on drawings. If not indicated on drawings, provide the following:
 - Court: Blue.
 - Border: White
 - 3 Point Area: Ice Blue
 - Key: Bright Red
 - Top Key: Ice Blue
 - Center Court Circle: Ice Blue

- H. Line Markings Primer: SportMaster "Stripe-Rite".
 - 1. 100 percent acrylic emulsion primer, clear drying.
 - 2. Primes line markings and prevents bleed-under for sharp lines.
 - 3. Chemical Characteristics, by Weight, Nominal:
 - a. Acrylic Emulsion: 38.0 percent.
 - b. Hiding Pigment: 0.0 percent.
 - c. Mineral Inert Fillers: 7.0 percent.
 - d. Film Formers, Additives: 1.5 percent.
 - e. Water: 50.0 percent.
 - 4. Weight per Gallon at 77 Degrees F: 8.9 lbs., plus or minus 0.5 lbs.
 - 5. Non-Volatile Material: 29 percent, plus or minus 5 percent.

- I. Line Paint: SportMaster "Textured Line Paint".
 - 1. Pigmented, 100 percent acrylic emulsion line paint.
 - 2. Line marking on concrete basketball and multi-purpose courts.
 - 3. Chemical Characteristics, by Weight, Nominal:
 - a. Acrylic Emulsion: 25.89 percent.
 - b. Pigment: 14.90 percent.
 - c. Mineral Inert Fillers: 13.12 percent.
 - d. Additives: 4.73 percent.
 - e. Water: 41.36 percent.
 - 4. Weight per Gallon at 77 Degrees F: 10.65 lbs., plus or minus 0.75 lbs.
 - 5. Non-Volatile Material: 45.17 percent, plus or minus 5 percent.
 - 6. Color: White.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine concrete basketball and multi-purpose court surfaces to receive color coating system.
- B. Verify:
 - 1. **Suitable vapor barrier beneath concrete slab.**
 - 2. Perimeter drainage to prevent moisture accumulation beneath concrete surface.
 - 3. No curing compounds have been applied to surface.
 - 4. Concrete basketball and multi-purpose courts meet ASBA requirements.
- C. Notify Architect of conditions that would adversely affect application or subsequent use.
- D. Do not begin surface preparation or application until unacceptable conditions are corrected.

3.2 SURFACE PREPARATION

- A. Protection of In-Place Conditions: Protect adjacent surfaces and landscaping from contact with concrete basketball and multi-purpose court surface color coating system.
- B. Prepare surfaces in accordance with manufacturer's instructions.
- C. New Concrete:
 - 1. Cure new concrete surfaces a minimum of 28 days before application of concrete basketball and multi-purpose court surface color coating system.
 - 2. **Provide medium broom finish or similar roughened texture.**
 - 3. Do not steel trowel finish.
 - 4. Acid etch with phosphoric or muriatic acid and rinse thoroughly prior to application of color coating system.
- D. Existing Concrete:
 - 1. Sandblast, shotblast, or scarify smooth concrete surfaces to roughened texture similar to medium broom finish. If shot blasting, a shot blast profile of CSP3 or CSP4 is recommended.
 - 2. If existing concrete is uncoated, acid etch with phosphoric or muriatic acid and rinse thoroughly prior to application of color coating system.
- E. Remove dirt, dust, debris, oil, grease, sealers, curing compounds, vegetation, loose coatings, loose materials, and other surface contaminants which could adversely affect application of concrete basketball and multi-purpose court surface color coating system. Pressure wash entire surface.
- F. Repair cracks, depressions, and surface defects in accordance with manufacturer's instructions before application of color coating.
- G. Repair spalled areas and level depressions 1/8 inch and deeper with patch binder in accordance with manufacturer's instructions.

- H. Apply adhesion promoter over entire concrete surface in accordance with manufacturer's instructions.
- I. Apply 1 coat of filler course to provide smooth underlayment for application of color coating.
- J. Ensure surface repairs are flush and smooth to adjoining surfaces.

3.3 APPLICATION

- A. Apply concrete basketball and multi-purpose court surface color coating system in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Mix materials in accordance with manufacturer's instructions.
- C. Apply Filler Course and Color Coating with a 50-60 durometer, soft rubber squeegee.
- D. Filler Course:
 - 1. Apply 1 coat on new concrete or existing acrylic surfaces with minimal repairs.
 - 2. Apply 2 coats on existing acrylic surfaces with extensive cracks or low spot repair.
- E. Apply a minimum of 2 coats of color coating to prepared surfaces in accordance with manufacturer's instructions.
- F. Allow material drying times in accordance with manufacturer's instructions before applying other materials or opening completed surface to foot traffic.

3.4 LINE MARKINGS

- A. Lay out court line markings in accordance with appropriate governing body:
 - a. USTA Rules of Tennis.
 - b. NBA Official Rules for professional basketball
 - c. NFHS Rules for high school basketball
 - d. NCAA Rules for college basketball
 - e. Other required game layout
- B. Apply line markings primer, after masking tape has been laid, to seal voids between masking tape and court surface to prevent bleed-under when line paint is applied.
- C. Apply a minimum of 1 coat of line paint in accordance with manufacturer's instructions.

3.5 PROTECTION

- A. Allow a minimum of 24 hours curing time before opening courts for play.
- B. Protect applied concrete basketball and multi-purpose court surface color coating system to ensure that, except for normal weathering, coating system will be without damage or deterioration at time of Substantial Completion.

END OF SECTION 32 18 23.43

SECTION 323113 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Chain-link fences.
 - 2. Chain-link Swing gates.
 - 3. Tubular Barrier Single & Double Swing Gate Kits.
- B. Related Requirements:
 - 1. Section 033000 "Cast-in-Place Concrete" for cast-in-place concrete and post footings.
 - 2. Section 281500 "Access Control Hardware Devices" for gate controls.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site .
 - 1. Inspect and discuss electrical roughing-in, equipment bases, and other preparatory work specified elsewhere.
 - 2. Review coordination of interlocked equipment specified in this Section and elsewhere.
 - 3. Review required testing, inspecting, and certifying procedures.
 - 4. .

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
 - a. Fence and gate posts, rails, and fittings.
 - b. Chain-link fabric, reinforcements, and attachments.
 - c. Accessories: .
 - d. Gates and hardware.
- B. Shop Drawings: For each type of fence and gate assembly.
 - 1. Include plans, elevations, sections, details, and attachments to other work.
 - 2. Include accessories, hardware, gate operation, and operational clearances.
 - 3. Wiring Diagrams: For power, signal, and control wiring.
- C. Samples for Initial Selection: For each type of factory-applied finish.
- D. Delegated-Design Submittal: For structural performance of chain-link fence and gate frameworks, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For .
- B. Product Certificates: For each type of chain-link fence, and gate.
- C. Product Test Reports: For framework strength according to ASTM F 1043, for tests performed by manufacturer and witnessed by a qualified testing agency .
- D. Sample Warranty: For special warranty.

1.6 FIELD CONDITIONS

- A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

1.7 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure to comply with performance requirements.
 - b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CHAIN-LINK FENCE FABRIC

- A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist according to "CLFMI Product Manual" and requirements indicated below:
1. Fabric Height: As indicated on Drawings.
 2. Steel Wire for Fabric: Wire diameter of 9 gauge .
 - a. Mesh Size: 2.0 inches.
 - b. Zinc-Coated Fabric: ASTM A 392, Type II, Class 1, 2.0 oz./sq. ft. with zinc coating applied before weaving.
 - c. Coat selvage ends of metallic-coated fabric before the weaving process with manufacturer's standard clear protective coating.
 3. Selvage: Knuckled at both selvages .
- B. Privacy Slats:
1. Slat Height: As indicated on Drawings.
 2. Locking Type: Bottom Locking Double Wall Slats
 3. Material: High-Density Polyethylene (HDPE)
 - a. Colors: As selected by Architect from full range of industry colors.

2.2 FENCE FRAMEWORK

- A. Posts and Rails: ASTM F 1043 for framework, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 or ASTM F 1083 based on the following:
1. Fence Height: As indicated on drawings .
 2. Heavy-Industrial-Strength Material: Group IA, round steel pipe, Schedule 40 .
 - a. Line Post:
 - 1) Up to 6': 1.9 inches in diameter
 - 2) 6'-0" to 8'-0": 2.375 inches in diameter
 - 3) 8'-0" to 10'-0": 2.875 inches in diameter
 - 4) 10'-0" to 14'-0": 3.5 inches in diameter
 - 5) 14'-0" to 16'-0": 4.0 inches in diameter
 - b. End, Corner, and Pull Posts:
 - 1) All heights: 4.0 inches in diameter .
 3. Horizontal Framework Members: Intermediate top and bottom rails according to ASTM F 1043.
 - a. Top Rail: 1.66 inches in diameter.
 - b. Bottom Rail: 1.66 inches in diameter.
 - c. Intermediate Rail: 1.66 inches in diameter.
 4. Brace Rails: ASTM F 1043.
 5. Metallic Coating for Steel Framework:
 - a. Type A: Not less than minimum 2.0-oz./sq. ft. average zinc coating according to ASTM A 123/A 123M or 4.0-oz./sq. ft. zinc coating according to ASTM A 653/A 653M.

2.3 CHAIN LINK SWING GATES

- A. General: ASTM F 900 for gate posts and single swing gate types.
1. Gate Leaf Width: As indicated on drawings .
 2. Framework Member Sizes and Strength: Based on gate fabric height of 72 inches or less .

Gate fabric height up to and including 6 ft. (1.2m)	
Gate leaf width	Post Outside Diameter
up to 4 ft. (1.2 m)	2.375 in. (60.3 mm)
over 4 ft. to 10 ft. (1.2 to 3.05 m)	2.875 in. (73.0 mm)
over 10 ft. to 18 ft. (3.05 to 5.5 m)	4.000 in. (101.6 mm)
Gate fabric height over 6 ft. to 12 ft. (1.2 to 2.4m)	
Gate leaf width	
up to 6 ft. (1.8 m)	2.875 in. (73.0 mm)
over 6 ft. to 12 ft. (1.8 to 3.7 m)	4.000 in. (101.6 mm)
over 12 ft. to 18 ft. (2.4 to 5.5 m)	6.625 in. (168.3 mm)

over 18 ft. to 24 ft. (5.5 to 7.3 m)	8.625 in. (219.1 mm)
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- B. Pipe and Tubing:
 - 1. Zinc-Coated Steel: ASTM F 1043 and ASTM F 1083; protective coating and finish to match fence framework .
 - 2. Gate Posts: Round tubular steel .
 - 3. Gate Frames and Bracing: Round tubular steel .
- C. Frame Corner Construction: Welded .
- D. Hardware:
 - 1. Hinges: 360-degree inward and outward swing.
 - 2. Latch: Permitting operation from both sides of gate with provision for padlocking accessible from both sides of gate.
 - 3. Lock: Manufacturer's standard internal device.
 - 4. Padlock and Chain: .
 - 5. Closer: Manufacturer's standard.

2.4 TUBULAR BARRIER DOUBLE SWING GATE KITS:

- A. General: ASTM F 900 for gate posts and swing gate types.
- B. TUBULAR BARRIER DOUBLE GATE KITS – 26 (Ref. Gates G-4 and G-6 on the Arch Site Plan)
 - 1. S-Series Tubular Barrier Single Swing Gate Kit – Galvanized Steel Model # BARRIER-GATE-S-GALV-DBL by Hoover Fence Co. or equal.
 - a. Height: 4'-0"
 - b. Width: 26'-0"
- C. TUBULAR BARRIER DOUBLE GATE KITS - 28 (Reference Gates G-7 on the Arch Site Plan)
 - 1. S-Series Tubular Barrier Double Swing Gate Kit – Galvanized Steel Model # BARRIER-GATE-S-GALV-DBL by Hoover Fence Co. or equal.
 - a. Height: 4'-0"
 - b. Width: 28'-0"
- D. Pipe and Tubing:
 - 1. Zinc-Coated Steel: ASTM F 1043 and ASTM F 1083; protective coating and finish to match fence framework .
 - 2. Gate Posts: Round tubular steel .
 - 3. Gate Frames and Bracing: Round tubular steel .

- E. Frame Corner Construction: Welded .

2.5 FITTINGS

- A. Provide fittings according to ASTM F 626.
- B. Post Caps: Provide for each post.
 - 1. Provide line post caps with loop to receive tension wire or top rail.
- C. Rail and Brace Ends: For each gate, corner, pull, and end post.
- D. Rail Fittings: Provide the following:
 - 1. Top Rail Sleeves: Pressed-steel or round-steel tubing not less than 6 inches long.
 - 2. Rail Clamps: Line and corner boulevard clamps for connecting intermediate and bottom rails to posts.
- E. Tension and Brace Bands: Pressed steel.
- F. Tension Bars: Steel , length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.
- G. Tie Wires, Clips, and Fasteners: According to ASTM F 626.
 - 1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, according to the following:
 - a. Hot-Dip Galvanized Steel: 0.148-inch- diameter wire ; galvanized coating thickness matching coating thickness of chain-link fence fabric.
- H. Finish:
 - 1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 2.0 oz./sq. ft. of zinc.

2.6 CONCRETE

- A. Concrete for post footings shall have a 28-day compressive strength of 2,500 psi. (17.2MPa).

2.7 GROUT AND ANCHORING CEMENT

- A. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout, recommended in writing by manufacturer, for exterior applications.
- B. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating, and that is recommended in writing by manufacturer for exterior applications.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for a certified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.
 - 1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 CHAIN-LINK FENCE INSTALLATION

- A. Install chain-link fencing according to ASTM F 567 and more stringent requirements specified.
 - 1. Install fencing on established boundary lines inside property line.
- B. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.
- C. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 - 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 - 2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
 - a. Concealed Concrete: Place top of concrete 2 inches below grade to allow covering with surface material.
- D. Terminal Posts: Install terminal end, corner, and gate posts according to ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 30 degrees or more . For runs exceeding 500 feet, space pull posts an equal distance between corner or end posts.
- E. Line Posts: Space line posts uniformly at 96 inches o.c.
- F. Post Bracing and Intermediate Rails: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.
 - 1. Locate horizontal braces at midheight of fabric 72 inches or higher, on fences with top rail, and at two-third fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.
- G. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch- diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches o.c. Install tension wire in locations indicated before stretching fabric. Provide horizontal tension wire at the following locations:
 - 1. Shall be installed 4 in. (101.6 mm) up from the bottom of the fabric. Fences without top rail shall have a tension wire installed 4 in. (101.6 mm) down from the top of the fabric. Tension wire to be stretched taut, independently and prior to the fabric, between the terminal posts and secured to the terminal post using a brace band. Secure the tension wire to the chain link fabric with a 9 gauge hog rings 18 in. (457.2 mm) on center and to each line post with a tie wire..
- H. Top Rail: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.

- I. Intermediate and Bottom Rails: Secure to posts with fittings.
 - J. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1-inch bottom clearance between finish grade or surface and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.
 - K. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts, with tension bands spaced not more than 15 inches o.c.
 - L. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric according to ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.
 - 1. Maximum Spacing: Tie fabric to line posts at 12 inches o.c. and to braces at 24 inches o.c.
 - M. Fasteners: Install nuts for tension bands and carriage bolts on the side of fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.
- 3.4 GATE INSTALLATION
- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation.
- 3.5 ADJUSTING
- A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
 - B. Lubricate hardware and other moving parts.

END OF SECTION 323113

PEDESTRIAN SECTION 32 31 19 – DECORATIVE PEDESTRIAN EGRESS GATE SYSTEM

PART 1 - GENERAL

1.01 WORK INCLUDED

The contractor shall provide all labor, materials, and appurtenances necessary for installation of the egress gate system defined herein.

1.02 RELATED WORK

Section 31 22 00 - Earthwork

Section 03 30 00 - Concrete

Section 32 31 19.13 - Decorative Metal Fence & Gates (Steel)

1.03 SYSTEM DESCRIPTION

The manufacturer shall supply a total egress gate system of the Ameristar® Exodus® with Surface Plate Mount installation method and 1" picket w/ expanded metal infill. The system shall include all components (i.e., gate, jamb frame, infill, and hardware) required.

1.04 QUALITY ASSURANCE

Pre-hung gate system produced by a manufacturer with minimum 10 years' experience in gate manufacturing. The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1.05 REFERENCES

- ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
- ASTM B117 - Practice for Operating Salt-Spray (Fog) Apparatus.
- ASTM D523 - Test Method for Specular Gloss.
- ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint.
- ASTM D822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.
- ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
- ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
- ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
- ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.
- ASTM F2408 – Ornamental Fences Employing Galvanized Steel Tubular Pickets.
- IBC Group I-2 Egress Requirements

1.06 SUBMITTAL

The manufacturer's submittal package shall be provided prior to installation.

1.07 PRODUCT HANDLING AND STORAGE

Upon receipt at the job site, all materials shall be checked to ensure that no damages occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism, and theft.

1.08 PRODUCT WARRANTY

Gate system (i.e., gate, jamb frame, and infill) shall be warranted within specified limitations, by the manufacturer for a period of three (3) years from date of original purchase. Warranty shall cover any defects in workmanship and material finish, including cracking, peeling, chipping, blistering, or corroding. See full product warranty online or request from Ameristar.

PART 2 - MATERIALS

2.01 MANUFACTURER

The gate system shall conform to the Ameristar Exodus Egress Gate with Surface Plate Mount installation method and 1" picket w/ expanded metal infill, manufactured by Ameristar Perimeter Security or equivalent product from a different approved manufacturer through the substitution procedures SECTION 01 25 00.

2.02 MATERIAL

A. Steel material for gate framework (i.e., jamb frame & gate), shall be galvanized prior to forming in accordance with the requirements of ASTM A653/A653M, with minimum yield strength of 45,000 psi (310 MPa). The steel shall be hot-dip

galvanized to meet the requirements of ASTM A653/A653M with a minimum zinc coating weight of 0.90 oz/ft² (276 g/m²), Coating Designation G-90.

B. Infill frame shall be 12ga steel.

C. Ornamental picket infill material shall consist of 1" square x 14 Ga. tubing for pickets. Pickets shall be spaced no greater than 5" o.c. Infill frame shall be 12ga steel. Expanded metal mesh shall be ¾" x #9 flattened.

D. Gate shall be 1.75" x 14ga steel reinforced structural design with ¼" plate reinforced hinge mounting.

E. Hinges shall be stainless steel five knuckle bearing hinges with non-removable pin and stainless-steel fasteners.

2.03 FABRICATION

A. Gate shall be pre-drilled to accept appropriate hardware set. Infill frames shall be fabricated as a single unit. Frame shall be of welded construction inset with mesh filler, attachment to gate frame by means of security fasteners.

B. Gate jamb frame shall be fully welded consisting of 3" x 12ga square tubing for main jamb, 1" square gate stop, and strike mounting block, with gate stop bumpers. Jamb to include an electrical access point with conduit point of connection. Electrical connection to gate by means of Power Transfer connection mounted in jamb and gate. Gate shall be pre-assembled.

C. Gate threshold to be mounted with fasteners allowing for placement below grade or removal after gate installation.

D. Gate shall have minimum clear opening (from gate stop to face of gate open to 90 degrees) of 41.5" meeting IBC Group I-2 Egress requirements.

E. Gate hardware to consist of exterior rated devices. Gate and hardware to be pre-assembled prior to shipping.

F. The manufactured galvanized gate shall be subjected to a multi-stage pretreatment/wash, followed by a dual stage coating process consisting of a cathodic electro-coat epoxy primer base coat and an electrostatic spray topcoat application, a PermaCoat® powder coat system. Steel framework is subjected to a six-stage pretreatment/wash followed by an electrostatic spray application of PermaCoat Color System, a two-coat powder system. The base coat is a thermosetting epoxy powder coating (gray in color). The topcoat is a "no-mar" TGIC polyester powder coat finish with a minimum thickness of 2 mils (0.0508mm). The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in Table 2.

PART 3 - EXECUTION

3.01 PREPARATION

All new installation shall be laid out by the contractor in accordance with the construction plans.

3.02 GATE INSTALLATION

Post installation for flange mount systems shall be spaced according to Table 1. Posts set in concrete footers shall have a minimum depth of 36". The "Earthwork" and "Concrete" sections of this specification shall govern material requirements for the concrete footer. Posts setting by other methods such as flanged, plated posts or grouted core-drilled footers are permissible only if shown by engineering analysis to be sufficient in strength for the intended application.

3.03 GATE INSTALLATION MAINTENANCE

When cutting/drilling gate components or posts adhere to the following steps to seal the exposed steel surfaces; 1) Remove all metal shavings from cut area. 2) Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry. 3) Apply 2 coats of custom finish paint matching fence color. Failure to seal exposed surfaces per steps 1-3 above will negate warranty. Ameristar spray cans or paint pens shall be used to prime and finish exposed surfaces; it is recommended that paint pens be used to prevent overspray. Use of non-Ameristar parts or components will negate the manufactures' warranty.

3.05 CLEANING

The contractor shall clean the jobsite of excess materials.

Table 1 – Exodus Egress Gate – Flange Mounting Option

Post Type	Square				
Post Size	2.5"	3"	4"	6"	8"
Post Setting on Center	58.5"	59"	60"	62"	64"

Inside Post Spacing	56"	56"	56"	56"	56"
Post Type	I-Beam				
Post Size	3"		4"		
Post Setting on Center	60.25"		60.25"		
Inside Post Spacing	58.75"		58.75"		

Table 2 – Coating Performance Requirements		
<u>Quality Characteristics</u>	<u>ASTM Test Method</u>	<u>Performance Requirements</u>
Adhesion	D3359 – Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117, D714 & D1654	Corrosion Resistance over 3,500 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters).
Impact Resistance	D2794	Impact Resistance over 60-inch lb. (Forward impact using 0.625" ball).
Weathering Resistance	D822 D2244, D523 (60° Method)	Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).

END OF SECTION 32 31 19

SECTION 32 31 19.13 - DECORATIVE METAL FENCES AND GATES (STEEL)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - A. Decorative steel fences.
 - B. Swing gates.
 - C. Horizontal-slide gates.
 - D. Gate operators, including controls.
- B. Related Requirements:
 - A. Section 03 30 53 "Miscellaneous Cast-in-Place Concrete" for concrete bases for gate operators, drives, and controls and post concrete fill.
 - B. Division 26 Sections for electrical service and connections for system disconnect switches and powered devices including, but not limited to, motor operators, controls, and limit switches.
 - C. Section 32 31 19 "Decorative Egress Gate System".

1.3 PREINSTALLATION MEETINGS

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For fencing and gates.
 - A. Include plans, elevations, sections, gate locations, post spacing, and mounting attachment details.
 - B. Gate Operator: Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.
 - C. Wiring Diagrams: Include diagrams for power, signal, and control wiring.
- C. Samples: For each fence material and for each color specified.
 - A. Provide Samples 12 inches in length for linear materials.
 - B. Provide Samples 12 inches square for bar grating.

1.5 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For decorative metallic-coated-steel tubular picket fences, including finish, indicating compliance with referenced standard and other specified requirements.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For gate operators to include in maintenance manuals.

1.7 QUALITY ASSURANCE

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Wind Loading:
 - A. Fence Height: 0 to 15 feet.
 - B. Wind Exposure Category: C.
 - C. Design Wind Speed: 120 mph .
 - D. Design Wind Pressure: as indicated on drawings .

2.2 DECORATIVE STEEL FENCES

- A. Decorative Steel Fences: Fences made from steel tubing bars and shapes , hot-dip galvanized.
 - A. Basis-of-Design Product: Subject to compliance with requirements, provide Ameristar Fence Products; an ASSA ABLOY company, Aegis II, Majestic Style, 3-Rail System or comparable product by one of the following:
 - a. Ametco Manufacturing Corporation.
 - b. Metalco Fence & Railing Systems; Atlantis Products, Inc.
- B. Posts: Square steel tubing.
 - A. Line Posts: 3 by 3 inches with 1/8-inch wall thickness.
 - B. End and Corner Posts: 4 by 4 inches with 3/16-inch wall thickness.
 - C. Swing Gate Posts: 4 by 4 inches with 3/16-inch wall thickness.
 - D. Horizontal-Slide Gate Post, Openings Wider Than 12 Feet: 4 by 4 inches with 3/16-inch wall thickness.
 - E. Guide Posts for Class 1 Horizontal-Slide Gates: 4 by 4 inches with 3/16-inch wall thickness; installed adjacent to gate post to permit gate to slide in space between.
- C. Post Caps: Formed from steel sheet and hot-dip galvanized after forming.
- D. Rails:
 - A. Steel Channel Rails: Steel channels 1-1/2 by 3/4 inch.
- E. Pickets: 1 inch square by 0.065-inch steel tubes.

- A. Extend pickets beyond top rail as indicated and mill ends to pyramid-shaped points Extend pickets beyond top rail as indicated and press flat and trim to produce spear point shape.
 - B. Picket Spacing: 4 inches clear, maximum.
 - F. Fasteners: Stainless-steel carriage bolts and tamperproof nuts.
 - G. Fabrication: Assemble fences into sections by welding pickets to rails.
 - A. Fabricate sections with clips welded to rails for field fastening to posts.
 - B. Drill posts and clips for fasteners before finishing to maximum extent possible.
 - H. Finish exposed welds to comply with NOMMA Guideline 1, Finish #2 - completely sanded joint, some undercutting and pinholes okay.
 - I. Galvanizing: For items other than hardware that are indicated to be galvanized, hot-dip galvanize to comply with ASTM A 123/A 123M. For hardware items, hot-dip galvanize to comply with ASTM A 153/A 153M.
 - A. Hot-dip galvanize posts and rails.
 - B. Hot-dip galvanize rail and picket assemblies after fabrication.
 - J. Finish for Metallic-Coated-Steel Items: High-performance coating.
- 2.3 VEHICULAR SWING GATES
 - A. Decorative Steel Gates: Gates made from steel tubing bars and shapes , hot-dip galvanized.
 - A. Basis-of-Design Product: Subject to compliance with requirements, provide Ameristar Fence Products; an ASSA ABLOY company, Aegis II, Majestic Style, 3-Rail System or comparable product by one of the following:
 - a. Ametco Manufacturing Corporation.
 - b. Metalco Fence & Railing Systems; Atlantis Products, Inc.
 - B. Gate Configuration: Majestic Style, 3-Rail.
 - C. Gate Frame Height: match height of adjacent fence.
 - D. Gate Opening Width: As indicated on drawings.
 - E. Galvanized-Steel Frames and Bracing: Fabricate members from square tubes 2 by 2 inches formed from 0.108-inch nominal-thickness, metallic-coated steel sheet or formed from 0.105-inch nominal-thickness steel sheet and hot-dip galvanized after fabrication.
 - F. Frame Corner Construction: Welded or assembled with corner fittings and 5/16-inch- diameter, adjustable truss rods for panels 5 feet wide or wider.
 - G. Additional Rails: Provide 3-rail system.
 - H. Infill: Comply with requirements for adjacent fence.
 - I. Picket Size, Configuration, and Spacing: Comply with requirements for adjacent fence.
 - J. Hardware:
 - A. Type and quantity of gate hinges shall be based on the application; weight, height, and number of gate cycles. The manufacturers' gate drawings shall identify the necessary gate hardware required for the application. Gate hardware shall be provided by the manufacture of the gate and shall be installed per manufacturer's recommendations.
 - B. Cane Bolts: Provide for inactive leaf of pairs of gates. Fabricated from 3/4-inch-(19-mm-) diameter, round steel bars, hot-dip galvanized after fabrication. Finish to match gates. Provide galvanized-steel pipe strikes to receive cane bolts in both open and closed positions.
 - K. Finish exposed welds to comply with NOMMA Guideline 1, Finish #2 - completely sanded joint, some undercutting and pinholes okay.
 - L. Galvanizing: For items other than hardware that are indicated to be galvanized, hot-dip galvanize to comply with ASTM A 123/A 123M. For hardware items, hot-dip galvanize to comply with ASTM A 153/A 153M.
 - M. Metallic-Coated-Steel Finish: High-performance coating.
- 2.4 PEDESTRIAN SWING GATES
 - A. Reference Section 32 31 19 "Decorative Pedestrian Egress Gate System".
- 2.5 HORIZONTAL-SLIDE GATES
 - A. Decorative Steel Fences: Fences made from steel tubing bars and shapes , hot-dip galvanized.
 - A. Basis-of-Design Product: Subject to compliance with requirements, provide Ameristar Fence Products; an ASSA ABLOY company, Transport II, Majestic Style, 4-Rail System, or comparable product by one of the following:
 - a. Ametco Manufacturing Corporation.
 - b. Metalco Fence & Railing Systems; Atlantis Products, Inc.
 - B. Gate Configuration: As indicated.
 - A. Type: Cantilever slide, with internal roller assemblies.
 - C. Gate Frame Height: match adjacent fence.
 - D. Gate Opening Width: As indicated.
 - E. Automated vehicular gates shall comply with ASTM F 2200, Class I.
 - F. Galvanized-Steel Frames and Bracing: Fabricate members from square tubing.

- A. Frame Members: Square tubes 2 by 2 inches formed from 0.108-inch nominal-thickness, metallic-coated steel sheet or formed from 0.105-inch nominal-thickness steel sheet and hot-dip galvanized after fabrication.
 - B. Bracing Members: Square tubes 2 by 2 inches formed from 0.108-inch nominal-thickness, metallic-coated steel sheet or formed from 0.105-inch nominal-thickness steel sheet and hot-dip galvanized after fabrication.
 - G. Frame Corner Construction:
 - A. Welded frame with panels assembled with bolted or riveted corner fittings and 5/16-inch- diameter, adjustable truss rods for panels 5 feet wide or wider.
 - H. Additional Rails: Provide as indicated, complying with requirements for fence rails.
 - I. Infill: Comply with requirements for adjacent fence.
 - J. Picket Size, Configuration, and Spacing: Comply with requirements for adjacent fence.
 - A. Treillage: Provide iron castings of pattern indicated between each pair of pickets. Finish as specified for adjacent fence gates.
 - K. Hardware: Latches permitting operation from both sides of gate, and stops fabricated from
 - L. Finish exposed welds to comply with NOMMA Guideline 1, .
 - M. Galvanizing: For items other than hardware that are indicated to be galvanized, hot-dip galvanize to comply with ASTM A 123/A 123M. For hardware items, hot-dip galvanize to comply with ASTM A 153/A 153M.
 - N. Metallic-Coated-Steel Finish: High-performance coating.
- 2.6 VEHICULAR GATE OPERATORS FOR HORIZONTAL SLIDE GATES
- A. Vehicular Gate Operators for Horizontal Slide Gates:
 - A. Basis-of-Design Product: Subject to compliance with requirements, provide DoorKing 9150 or comparable product by one of the following:
 - a. Eagle Access Control Systems, Inc.
 - b. HySecurity.
 - B. Provide factory-assembled automatic operating system designed for gate size, type, weight, and operation frequency. Provide operation control system with characteristics suitable for Project conditions, with remote-control stations, safety devices, and weatherproof enclosures; coordinate electrical requirements with building electrical system.
 - A. Provide operator designed so motor may be removed without disturbing limit-switch adjustment and without affecting auxiliary emergency operator.
 - B. Provide operator with UL approval .
 - C. Provide electronic components with built-in troubleshooting diagnostic feature.
 - D. Provide unit designed and wired for both right-hand/left-hand opening, permitting universal installation.
 - C. Comply with NFPA 70.
 - D. UL Standard: Manufacturer and label gate operators to comply with UL 325.
 - E. Emergency Access Requirements: Comply with requirements of authorities having jurisdiction for automatic gate operators on gates that must provide emergency access.
 - F. Motor Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, within installed environment, with indicated operating sequence, and without exceeding nameplate rating or considering service factor. Comply with NEMA MG 1 and the following:
 - A. Voltage: NEMA standard voltage selected to operate on nominal circuit voltage to which motor is connected.
 - B. Horsepower: Not less than 1 HP.
 - C. Enclosure: Totally enclosed.
 - D. Duty: Continuous duty at ambient temperature of 105 deg F and at altitude of 3300 feet above sea level.
 - E. Service Factor: 1.15 for open drip proof motors; 1.0 for totally enclosed motors.
 - F. Phase: One.
 - G. Gate Operators: Concrete base mounted and as follows:
 - A. Slide Gate Operators:
 - a. Duty: Heavy duty, commercial/industrial.
 - b. Gate Speed: Minimum 45 feet per minute.
 - c. Maximum Gate Weight: 1500 lb.
 - d. Frequency of Use: Continuous duty.
 - e. Operating Type: Wheel-and-rail drive with manual release.
 - f. Drive Type: Enclosed worm gear and chain-and-sprocket reducers, roller-chain drive.
 - H. Remote Controls: Electric controls separated from gate and motor and drive mechanism, with enclosure for mounting, and with space for additional optional equipment. Provide the following remote-control device(s):
 - A. Digital Keypad Entry Unit: Programmable, multiple-code capability of not less than 500 possible individual codes, consisting of 1 to 7-digit codes, and permitting four different access periods.

- a. Face-lighted unit with keypad fully visible at night.
 - B. Card Reader: Functions only when authorized card is presented. Programmable, multiple-code system, permitting four different access periods; face-lighted unit fully visible at night.
 - a. Reader Type: Proximity.
 - b. Features: Timed anti-pass back, Capable of monitoring and auditing gate activity.
 - I. Vehicle Presence Detector: System includes automatic closing timer with adjustable time delay , timer cutoff switch, and presence detector designed to open and close gate hold gate open until traffic clears reverse gate. System includes retroreflective emitter/receiver detector with adjustable detection zone pattern and sensitivity, designed to detect the presence or transit of a vehicle in gate pathway when infrared beam in zone pattern is interrupted, and to emit a signal activating the gate operator.
 - J. Obstruction Detection Devices: Provide each motorized gate with automatic safety sensor(s). Activation of sensor(s) causes operator to immediately function as follows:
 - A. Action: Reverse gate in both opening and closing cycles, and hold until clear of obstruction.
 - B. Action: Stop gate in opening cycle and reverse gate in closing cycle, and hold until clear of obstruction.
 - C. Internal Sensor: Built-in torque or current monitor senses gate is obstructed.
 - D. Sensor Edge: Contact-pressure-sensitive safety edge, profile, and sensitivity designed for type of gate and component indicated, in locations as follows. Connect to control circuit using .
 - a. Along entire gate leaf leading edge.
 - b. Along entire gate leaf trailing edge.
 - E. Photoelectric/Infrared Sensor System: Designed to detect an obstruction in gate's path when infrared beam in the zone pattern is interrupted.
 - K. Limit Switches: Adjustable switches, interlocked with motor controls and set to automatically stop gate at fully retracted and fully extended positions.
 - L. Emergency Release Mechanism: Quick-disconnect release of operator drive system of the following type, permitting manual operation if operator fails. Design system so control-circuit power is disconnected during manual operation.
 - A. Type: Mechanical device, key, or crank-activated release.
 - M. Operating Features:
 - A. Digital Microprocessor Control: Electronic programmable means for setting, changing, and adjusting control features. Provide unit that is isolated from voltage spikes and surges.
 - B. Automatic Closing Timer: With adjustable time delay before closing.
 - C. Clock Timer: 24-hour programmable for regular events.
 - N. Accessories:
 - A. Warning Module: Audio and Visual, strobe-light alarm sounding three to five seconds in advance of gate operation and continuing until gate stops moving; compliant with the United States Access Board's ADA-ABA Accessibility Guidelines.
 - B. Battery Backup System: Battery-powered drive and access-control system, independent of primary drive system.
 - a. Fail-Safe: Gate opens and remains open until power is restored.
 - b. Fail-Secure: Gate cycles on battery power, then fail-safe when battery is discharged.
 - C. External electric-powered solenoid lock with delay timer allowing time for lock to release before gate operates.
 - D. Fire box.
 - E. Instructional, Safety, and Warning Labels and Signs: In accordance with UL 325.
 - F. Equipment Bases/Pads: Precast concrete, depth not less than 12 inches, dimensioned and reinforced in accordance with gate operator component manufacturer's written instructions and as indicated on Drawings.
- 2.7 VEHICULAR GATE OPERATORS FOR SWING GATES
- A. Vehicular Gate Operators for Swing Gates:
 - A. Basis-of-Design Product: Subject to compliance with requirements, provide Doorking 6550 or comparable product by one of the following:
 - a. Eagle Access Control Systems, Inc.
 - b. HySecurity.
 - B. Provide factory-assembled automatic operating system designed for gate size, type, weight, and operation frequency. Provide operation control system with characteristics suitable for Project conditions, with remote-control stations, safety devices, and weatherproof enclosures; coordinate electrical requirements with building electrical system.
 - A. Provide operator designed so motor may be removed without disturbing limit-switch adjustment and without affecting auxiliary emergency operator.
 - B. Provide operator with UL approval .
 - C. Provide electronic components with built-in troubleshooting diagnostic feature.

- D. Provide unit designed and wired for both right-hand/left-hand opening, permitting universal installation.
- C. Comply with NFPA 70.
- D. UL Standard: Manufacturer and label gate operators to comply with UL 325.
- E. Emergency Access Requirements: Comply with requirements of authorities having jurisdiction for automatic gate operators on gates that must provide emergency access.
- F. Motor Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, within installed environment, with indicated operating sequence, and without exceeding nameplate rating or considering service factor. Comply with NEMA MG 1 and the following:
 - A. Voltage: NEMA standard voltage selected to operate on nominal circuit voltage to which motor is connected.
 - B. Horsepower: Not less than 1 HP.
 - C. Enclosure: Totally enclosed.
 - D. Duty: Continuous duty at ambient temperature of 105 deg F and at altitude of 3300 feet above sea level.
 - E. Service Factor: 1.15 for open drip proof motors; 1.0 for totally enclosed motors.
 - F. Phase: One.
- G. Gate Operators: Concrete base mounted and as follows:
 - A. Swing Gate Operators:
 - a. Duty: Heavy duty, commercial/industrial.
 - b. Rotation Time from 0 to 90 degrees: 12-14 seconds.
 - c. Maximum Gate Weight: 1500 lb.
 - d. Frequency of Use: Continuous duty.
 - e. Operating Type: Pulley & belt drive with manual release.
 - f. Drive Type: Enclosed 60:1 worm gear reduction system running in a continuous oil bath.
- H. Remote Controls: Electric controls separated from gate and motor and drive mechanism, with enclosure for mounting, and with space for additional optional equipment. Provide the following remote-control device(s):
 - A. Digital Keypad Entry Unit: Programmable, multiple-code capability of not less than 500 possible individual codes, consisting of 1 to 7-digit codes, and permitting four different access periods.
 - a. Face-lighted unit with keypad fully visible at night.
 - B. Card Reader: Functions only when authorized card is presented. Programmable, multiple-code system, permitting four different access periods; face-lighted unit fully visible at night.
 - a. Reader Type: Proximity.
 - b. Features: Timed anti-pass back, Capable of monitoring and auditing gate activity.
- I. Vehicle Presence Detector: System includes automatic closing timer with adjustable time delay, timer cutoff switch, and presence detector designed to open and close gate hold gate open until traffic clears reverse gate. System includes retroreflective emitter/receiver detector with adjustable detection zone pattern and sensitivity, designed to detect the presence or transit of a vehicle in gate pathway when infrared beam in zone pattern is interrupted, and to emit a signal activating the gate operator.
- J. Obstruction Detection Devices: Provide each motorized gate with automatic safety sensor(s). Activation of sensor(s) causes operator to immediately function as follows:
 - A. Action: Reverse gate in both opening and closing cycles, and hold until clear of obstruction.
 - B. Action: Stop gate in opening cycle and reverse gate in closing cycle, and hold until clear of obstruction.
 - C. Internal Sensor: Built-in torque or current monitor senses gate is obstructed.
 - D. Sensor Edge: Contact-pressure-sensitive safety edge, profile, and sensitivity designed for type of gate and component indicated, in locations as follows. Connect to control circuit using .
 - a. Along entire gate leaf leading edge.
 - b. Along entire gate leaf trailing edge.
 - E. Photoelectric/Infrared Sensor System: Designed to detect an obstruction in gate's path when infrared beam in the zone pattern is interrupted.
- K. Limit Switches: Adjustable switches, interlocked with motor controls and set to automatically stop gate at fully retracted and fully extended positions.
- L. Emergency Release Mechanism: Quick-disconnect release of operator drive system of the following type, permitting manual operation if operator fails. Design system so control-circuit power is disconnected during manual operation.
 - A. Type: Mechanical device, key, or crank-activated release.
- M. Operating Features:
 - A. Digital Microprocessor Control: Electronic programmable means for setting, changing, and adjusting control features. Provide unit that is isolated from voltage spikes and surges.
 - B. Automatic Closing Timer: With adjustable time delay before closing.
 - C. Clock Timer: 24-hour programmable for regular events.

- N. Accessories:
- A. Warning Module: Audio and Visual, strobe-light alarm sounding three to five seconds in advance of gate operation and continuing until gate stops moving; compliant with the United States Access Board's ADA-ABA Accessibility Guidelines.
 - B. Battery Backup System: Battery-powered drive and access-control system, independent of primary drive system.
 - a. Fail-Safe: Gate opens and remains open until power is restored.
 - b. Fail-Secure: Gate cycles on battery power, then fail-safe when battery is discharged.
 - C. External electric-powered solenoid lock with delay timer allowing time for lock to release before gate operates.
 - D. Fire box.
 - E. Instructional, Safety, and Warning Labels and Signs: In accordance with UL 325.
 - F. Equipment Bases/Pads: Precast concrete, depth not less than 12 inches, dimensioned and reinforced in accordance with gate operator component manufacturer's written instructions and as indicated on Drawings.

2.8 STEEL AND IRON

- A. Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Bars (Pickets): Hot-rolled, carbon steel complying with ASTM A 29/A 29M, Grade 1010.
- C. Tubing: ASTM A 500/A 500M, cold-formed steel tubing.
- D. Bar Grating: NAAMM MBG 531.
 - A. Bars: Hot-rolled steel strip, ASTM A 1011/A 1011M, Commercial Steel, Type B.
 - B. Wire Rods: ASTM A 510/A 510M.
- E. Galvanized-Steel Sheet: ASTM A 653/A 653M, structural quality, Grade 50, with coating.
- F. Castings: Either gray or malleable iron unless otherwise indicated.
 - A. Gray Iron: ASTM A 48/A 48M, Class 30.
 - B. Malleable Iron: ASTM A 47/A 47M.

2.9 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
 - A. For aluminum, provide type and alloy as recommended by producer of metal to be welded and as required for strength and compatibility in fabricated items.
- B. Concrete: Normal-weight, air-entrained, ready-mix concrete complying with requirements in Section 033000 "Cast-in-Place Concrete" with a minimum 28-day compressive strength of 3000 psi, 3-inch slump, and 1-inch maximum aggregate size or dry, packaged, normal-weight concrete mix complying with ASTM C 387/C 387M mixed with potable water according to manufacturer's written instructions.
- C. Non-shrink Grout: Factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M and specifically recommended by manufacturer for exterior applications.

2.10 STEEL FINISHES

- A. Surface Preparation: Clean surfaces according to After cleaning, apply a conversion coating compatible with the organic coating to be applied over it.
- B. Powder Coating: Immediately after cleaning, apply manufacturer's standard two-coat finish consisting of epoxy primer and TGIC polyester topcoat to a minimum total dry film thickness of not less than 8 mils. Comply with coating manufacturer's written instructions.
 - A. Color and Gloss: As selected by Architect from manufacturer's full range.

2.11 METALLIC-COATED-STEEL FINISHES

- A. Galvanized Finish: Clean welds, mechanical connections, and abraded areas and repair galvanizing to comply with ASTM A 780/A 780M.
- B. Surface Preparation: Clean surfaces of oil and other contaminants. Use cleaning methods that do not leave residue. After cleaning, apply a conversion coating compatible with the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas and apply galvanizing repair paint, complying with SSPC-Paint 20, to comply with ASTM A 780/A 780M.
- C. Powder Coating: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat finish consisting of epoxy prime coat and TGIC polyester topcoat to a minimum dry film thickness of 2 mils. Comply with coating manufacturer's written instructions to achieve a minimum total dry film thickness of 4 mils.
 - A. Color and Gloss: .
 - B. Comply with surface finish testing requirements in ASTM F 2408.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, construction layout, and other conditions affecting performance of the Work.
- B. Do not begin installation before final grading is completed unless otherwise permitted by Architect.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

A. Construction layout and field engineering are specified in Section 017300 "Execution."

3.3 DECORATIVE FENCE INSTALLATION

- A. Install fences according to manufacturer's written instructions.
- B. Install fences by setting posts as indicated and fastening rails and infill panels to posts. Peen threads of bolts after assembly to prevent removal.
- C. Post Excavation: Drill or hand-excavate holes for posts in firm, undisturbed soil. Excavate holes to a diameter of not less than 4 times post size and a depth of not less than 24 inches plus 3 inches for each foot or fraction of a foot that fence height exceeds 4 feet.
- D. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 - A. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 - B. Concrete Fill: Place concrete around posts and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
 - a. Exposed Concrete: Extend 2 inches above grade. Finish and slope top surface to drain water away from post.
 - b. Concealed Concrete: Top 2 inches below grade to allow covering with surface material. Slope top surface of concrete to drain water away from post.
 - C. Posts Set in Concrete: Extend post to within 6 inches of specified excavation depth, but not closer than 3 inches to bottom of concrete.
 - D. Posts Set into Concrete in Sleeves: Use galvanized-steel pipe sleeves with inside diameter at least 3/4 inch larger than outside diagonal dimension of post, preset and anchored into concrete for installing posts.
 - a. Extend posts at least 5 inches into sleeve.
 - b. After posts have been inserted in sleeves, fill annular space between post and sleeve with non-shrink grout, mixed and placed to comply with grout manufacturer's written instructions; shape and smooth to shed water. Finish and slope top surface of grout to drain water away from post.
- E. Space posts uniformly at 6 feet o.c.

3.4 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

3.5 GATE OPERATOR INSTALLATION

- A. General: Install gate operators according to manufacturer's written instructions, aligned and true to fence line and grade.
- B. Excavation for Concrete Bases: Hand-excavate holes for bases in firm, undisturbed soil to dimensions and depths and at locations as required by gate operator component manufacturer's written instructions and as indicated.
- C. Concrete Bases: Cast-in-place or precast concrete, depth not less than 12 inches, dimensioned and reinforced according to gate operator component manufacturer's written instructions and as indicated on Drawings.
- D. Vehicle Loop Detector System: Cut grooves in pavement and bury and seal wire loop according to manufacturer's written instructions. Connect to equipment operated by detector.
- E. Comply with NFPA 70 and manufacturer's written instructions for grounding of electric-powered motors, controls, and other devices.

3.6 ADJUSTING

- A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Automatic Gate Operators: Energize circuits to electrical equipment and devices. Adjust operators, controls, safety devices, alarms, and limit switches.
 - A. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
 - B. Test and adjust controls, alarms, and safeties. Replace damaged and malfunctioning controls and equipment.
- C. Lubricate hardware, gate operators, and other moving parts.

3.7 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's personnel to adjust, operate, and maintain gates.

END OF SECTION 32 31 19.13

Drawing Conventions

	PROPERTY LINE
	NEW CONTOURS
	EXISTING CONTOURS
	TEST BORING
	AREA DRAIN
	EXISTING ELEVATION
	FINISH GRADE ELEVATION
	NORTH SYMBOL
	COLUMN LINE
	FLOOR LINE
	MATCH LINE
	ELEVATION SYMBOL
	DOOR DESIGNATION
	WINDOW DESIGNATION
	PARTITION TYPE
	REVISION NUMBER
	PLAN OR DETAIL ENLARGED
	DETAIL AND VERTICAL SECTIONS
	DIMENSIONS - ALL DIMENSIONS TO FACE OF STUD UNLESS OTHERWISE NOTED

Abbreviations

A/C	AIR CONDITIONING	FB.	FACE BRICK	N.D.	NAPKIN DISPOSAL	SQ.	SQUARE
ACP.	ACOUSTICAL PANEL	FD.	FLOOR DRAIN	N.I.C.	NOT IN CONTRACT	SS.	SOUND STRIP
ACT.	ACOUSTICAL TILE	F.E.	FIRE EXTINGUISHER	NO.	NUMBER	S.S., ST. STL.	STAINLESS STEEL
A.D.	AREA DRAIN	F.E.C.	FIRE EXTINGUISHER CABINET	N.T.S.	NOT TO SCALE	STL.	STEEL
A.D.A.	AMERICANS WITH DISABILITIES ACT	F.H.C.	FIRE HOSE CABINET	N.V.	NAPKIN VENDOR	STR.	STRUCTURAL
ADJ.	ADJUSTABLE	FIN.	FINISH	O.C.	ON CENTER	SUSP.	SUSPENDED
A.F.F.	ABOVE FINISH FLOOR	FIXT.	FIXTURE	O.C.E.W.	ON CENTER EACH WAY	SVF	SHEET VINYL FLOORING
A.F.G.	ABOVE FINISH GRADE	FLR.	FLOOR	O.D.	OUTSIDE DIAMETER	SVDF	SHEET VINYL DANCE FLOORING
A.H.J.	ATHORITY HAVING JURISDICTION	FLSHG.	FLASHING	O.F.C.I.	OWNER FURNISHED, CONTRACTOR INSTALLED	T.A.S.	TEXAS ACCESSIBILITY STANDARDS
ALUM	ALUMINUM	FLUOR	FLUORESCENT	O.H.	OPPOSITE HAND	T.B.	TACK BOARD
ALT.	ALTERNATE	GA.	GAUGE	OPNG.	OPENING	T.D.R.	TOWEL DISPENSER & RECEPT.
ASPH.	ASPHALT	G.B.	GLAZED CONCRETE MASONRY UNIT	OPP.	OPPOSITE	TEL	TELEPHONE
BD.	BOARD	GEN.	GENERAL	P.C.	PRECAST	THK.	THICK
BLDG.	BUILDING	G.I.	GALVANIZED IRON	P.H.	PAPER HOLDER	T.O.	TOP OF
BLK.	BLOCK	GL.	GLASS	PL.	PLATE	T.O.B.	TOP OF (WOOD) BLOCKING
BM.	BEAM	GR.	GRADE	P.L.	PROPERTY LINE	T.O.M.	TOP OF MASONRY
B.U.R.	BUILT-UP ROOF	GTP.	GLAZED TILE PAVER	P. LAM.	PLASTIC LAMINATE	T.O.S.	TOP OF STEEL
		GYP.	GYPSPUM	PLUMB.	PLUMBING	T.T.D.	TOILET TISSUE DISPENSER
C	CHANNEL			PLWD.	PLYWOOD	TYP.	TYPICAL
CAB, CABT	CABINET	HC	HANDICAPPED ACCESSIBLE	POL.	POLISHED	U.N.O.	UNLESS NOTED OTHERWISE
CFMF	COLD FORMED METAL FRAMING	HT.	HEIGHT	P.P.	POWER POLE	UR.	URINAL
CL	CONTROL JOINT	HORIZ	HORIZONTAL	PR.	PAIR		
CLG.	CENTER LINE	HM	HOLLOW METAL FRAME	PREFIN.	PREFINISHED	V	VENT
C.M.U.	CONCRETE MASONRY UNIT	H.W.	HOT WATER	PT.	POINT	V.C.T.	VINYL COMPOSITE TILE
COL.	COLUMN	I.D.	INSIDE DIAMETER	PTD.	PAINTED	VER.	VERIFY
COMP.	COMPRESSIBLE	INT.	INTERIOR	P.W.B.	PAINTED WALL BOARD	VERT.	VERTICAL
CONC.	CONCRETE	I.P.S.	IRON PIPE SIZE	QT.	QUARRY TILE	VGB	VERIFIED
COND.	CONDITION	JT.	JOINT	R	RADIUS	V.I.F.	VERIFY IN FIELD
CONT.	CONTINUOUS	LAM.	LAMINATE	RD.	ROOF DRAIN	VWC	VINYL WALL COVERING
CORR.	CORROD	LAV.	LAVATORY	RD, REF.	REFERENCE	W	WASHING MACHINE
CPT.	CARPET	L.P.	LIGHT POLE	RECP.	RECEPACLE	W/	WITH
CT.	CERAMIC TILE	LT.	LIGHT	REINF.	REINFORCE	W.C.	WATER CLOSET
CTSK.	COUNTERSINK	LT. WT.	LIGHT WEIGHT	RES.	RESILIENT	WD.	WOOD
C.W.	COLD WATER			REQ., REQ'D.	REQUIRED	WDW.	WINDOW
D	DRYER			REV.	REVISION, REVISED	W.P.	WATERPROOFING
D.F.	DRINKING FOUNTAIN			RF	RECREATIONAL RESILIENT FLOOR	WT.	WEATHERSTRIP
DIA.	DIAMETER	MANUF., MFR.	MANUFACTURER	RP.G.	RELOCATABLE PAINTED GYP. BD.	W.W.	WATER WELL
DIM.	DIMENSION	MAS.	MASONRY	RSS.	ROD STOCK AND SEALANT	W.W.F.	WELDED WIRE FABRIC
D.P.	DAMPPOOFING	MATL.	MATERIAL				
DTL	DETAIL	MAX.	MAXIMUM	S.C.	SEALED CONCRETE		
D.S.	DOWN SPOUT	MB.	MARKER BOARD	SCH., SCHED.	SCHEDULED		
DWG.	DRAWING	MECH.	MECHANICAL	SCPL	SOLID CORE PLASTIC LAMINATE		
		MEM.	MEMBRANE	SEC.	SECTION		
EA.	EACH	MEM. WP.	MEMBRANE WATERPROOFING	SHT.	SHEET		
EDF	ELECTRIC DRINKING FOUNTAIN	MEP	MECHANICAL, ELECTRICAL AND PLUMBING	SIM.	SIMILAR		
EL.	ELEVATION (HEIGHT)			SPC.	SPECIAL COATING SYSTEM		
ELEC., ELECT.	ELECTRICAL	MEZZ.	MEZZANINE	SPEC., SPECS.	SPECIFICATIONS		
ELEV.	ELEVATION (DRAWING)	M.H.	MAN HOLE				
E.J.	EXPANSION JOINT	MIN.	MINIMUM				
EQ.	EQUAL	MISC.	MISCELLANEOUS				
EQUIP.	EQUIPMENT	M.O.	MASONRY OPENING				
EXIST.	EXISTING	MOD.	MODULE				
EXP.	EXPANSION	MTL.	METAL				
EXT.	EXTERIOR	MTP.	METAL TOILET PARTITION				

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G-003 CODE REVIEW	A-308 WALL SECTIONS & DETAILS
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ARCHITECTURE SITE	A-311 TYPICAL EIFS DETAILS
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S-2.5 PARTIAL FOUNDATION PLAN AREA D	M6.29 MECHANICAL SCHEDULES
S-2.6 PARTIAL FOUNDATION PLAN AREA E	M6.30 MECHANICAL SCHEDULES
S-2.7 PARTIAL FOUNDATION PLAN AREA F	M6.31 MECHANICAL SCHEDULES
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S-8.5 PARTIAL FOUNDATION PLAN AREA BK	M6.88 MECHANICAL SCHEDULES
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S-8.8 PARTIAL FOUNDATION PLAN AREA BN	M6.91 MECHANICAL SCHEDULES
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S-10.5 PARTIAL FOUNDATION PLAN AREA CE	M6.108 MECHANICAL SCHEDULES
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S-11.7 PARTIAL FOUNDATION PLAN AREA CQ	M6.120 MECHANICAL SCHEDULES
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S-12.2 PARTIAL FOUNDATION PLAN AREA CV	M6.125 MECHANICAL SCHEDULES
S-12.3 PARTIAL FOUNDATION PLAN AREA CW	M6.126 MECHANICAL SCHEDULES
S-12.4 PARTIAL FOUNDATION PLAN AREA CX	M6.127 MECHANICAL SCHEDULES
S-12.5 PARTIAL FOUNDATION PLAN AREA CY	M6.128 MECHANICAL SCHEDULES
S-12.6 PARTIAL FOUNDATION PLAN AREA CZ	M6.129 MECHANICAL SCHEDULES
S-12.7 PARTIAL FOUNDATION PLAN AREA DA	M6.130 MECHANICAL SCHEDULES
S-12.8 PARTIAL FOUNDATION PLAN AREA DB	M6.131 MECHANICAL SCHEDULES
S-12.9 PARTIAL FOUNDATION PLAN AREA DC	M6.132 MECHANICAL SCHEDULES
S-13.0 PARTIAL FOUNDATION PLAN AREA DD	M6.133 MECHANICAL SCHEDULES
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S-13.2 PARTIAL FOUNDATION PLAN AREA DF	M6.135 MECHANICAL SCHEDULES
S-13.3 PARTIAL FOUNDATION PLAN AREA DG	M6.136 MECHANICAL SCHEDULES
S-13.4 PARTIAL FOUNDATION PLAN AREA DH	M6.137 MECHANICAL SCHEDULES
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S-13.6 PARTIAL FOUNDATION PLAN AREA DJ	M6.139 MECHANICAL SCHEDULES
S-13.7 PARTIAL FOUNDATION PLAN AREA DK	M6.140 MECHANICAL SCHEDULES
S-13.8 PARTIAL FOUNDATION PLAN AREA DL	M6.141 MECHANICAL SCHEDULES
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S-14.0 PARTIAL FOUNDATION PLAN AREA DN	M6.143 MECHANICAL SCHEDULES
S-14.1 PARTIAL FOUNDATION PLAN AREA DO	M6.144 MECHANICAL SCHEDULES
S-14.2 PARTIAL FOUNDATION PLAN AREA DP	M6.145 MECHANICAL SCHEDULES
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S-14.6 PARTIAL FOUNDATION PLAN AREA DT	M6.149 MECHANICAL SCHEDULES
S-14.7 PARTIAL FOUNDATION PLAN AREA DU	M6.150 MECHANICAL SCHEDULES
S-14.8 PARTIAL FOUNDATION PLAN AREA DV	M6.151 MECHANICAL SCHEDULES
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S-15.0 PARTIAL FOUNDATION PLAN AREA DX	M6.153 MECHANICAL SCHEDULES
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S-15.3 PARTIAL FOUNDATION PLAN AREA EA	M6.156 MECHANICAL SCHEDULES
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S-15.5 PARTIAL FOUNDATION PLAN AREA EC	M6.158 MECHANICAL SCHEDULES
S-15.6 PARTIAL FOUNDATION PLAN AREA ED	M6.159 MECHANICAL SCHEDULES
S-15.7 PARTIAL FOUNDATION PLAN AREA EE	M6.160 MECHANICAL SCHEDULES
S-15.8 PARTIAL FOUNDATION PLAN AREA EF	M6.161 MECHANICAL SCHEDULES
S-15.9 PARTIAL FOUNDATION PLAN AREA EG	M6.162 MECHANICAL SCHEDULES
S-16.0 PARTIAL FOUNDATION PLAN AREA EH	M6.163 MECHANICAL SCHEDULES
S-16.1 PARTIAL FOUNDATION PLAN AREA EI	M6.164 MECHANICAL SCHEDULES
S-16.2 PARTIAL FOUNDATION PLAN AREA EJ	M6.165 MECHANICAL SCHEDULES
S-16.3 PARTIAL FOUNDATION PLAN AREA EK	M6.166 MECHANICAL SCHEDULES
S-16.4 PARTIAL FOUNDATION PLAN AREA EL	M6.167 MECHANICAL SCHEDULES
S-16.5 PARTIAL FOUNDATION PLAN AREA EM	M6.168 MECHANICAL SCHEDULES
S-16.6 PARTIAL FOUNDATION PLAN AREA EN	M6.169 MECHANICAL SCHEDULES
S-16.7 PARTIAL FOUNDATION PLAN AREA EO	M6.170 MECHANICAL SCHEDULES
S-16.8 PARTIAL FOUNDATION PLAN AREA EP	M6.171 MECHANICAL SCHEDULES
S-16.9 PARTIAL FOUNDATION PLAN AREA EQ	M6.172 MECHANICAL SCHEDULES
S-17.0 PARTIAL FOUNDATION PLAN AREA ER	M6.173 MECHANICAL SCHEDULES
S-17.1 PARTIAL FOUNDATION PLAN AREA ES	M6.174 MECHANICAL SCHEDULES
S-17.2 PARTIAL FOUNDATION PLAN AREA ET	M6.175 MECHANICAL SCHEDULES
S-17.3 PARTIAL FOUNDATION PLAN AREA EU	M6.176 MECHANICAL SCHEDULES
S-17.4 PARTIAL FOUNDATION PLAN AREA EV	M6.177 MECHANICAL SCHEDULES
S-17.5 PARTIAL FOUNDATION PLAN AREA EW	M6.178 MECHANICAL SCHEDULES
S-17.6 PARTIAL FOUNDATION PLAN AREA EX	M6.179 MECHANICAL SCHEDULES
S-17.7 PARTIAL FOUNDATION PLAN AREA EY	M6.180 MECHANICAL SCHEDULES
S-17.8 PARTIAL FOUNDATION PLAN AREA EZ	M6.181 MECHANICAL SCHEDULES
S-17.9 PARTIAL FOUNDATION PLAN AREA FA	M6.182 MECHANICAL SCHEDULES
S-18.0 PARTIAL FOUNDATION PLAN AREA FB	M6.183 MECHANICAL SCHEDULES
S-18.1 PARTIAL FOUNDATION PLAN AREA FC	M6.184 MECHANICAL SCHEDULES
S-18.2 PARTIAL FOUNDATION PLAN AREA FD	M6.185 MECHANICAL SCHEDULES
S-18.3 PARTIAL FOUNDATION PLAN AREA FE	M6.186 MECHANICAL SCHEDULES
S-18.4 PARTIAL FOUNDATION PLAN AREA FF	M6.187 MECHANICAL SCHEDULES
S-18.5 PARTIAL FOUNDATION PLAN AREA FG	M6.188 MECHANICAL SCHEDULES
S-18.6 PARTIAL FOUNDATION PLAN AREA FH	M6.189 MECHANICAL SCHEDULES
S-18.7 PARTIAL FOUNDATION PLAN AREA FI	M6.190 MECHANICAL SCHEDULES
S-18.8 PARTIAL FOUNDATION PLAN AREA FJ	M6.191 MECHANICAL SCHEDULES
S-18.9 PARTIAL FOUNDATION PLAN AREA FK	M6.192 MECHANICAL SCHEDULES
S-19.0 PARTIAL FOUNDATION PLAN AREA FL	M6.193 MECHANICAL SCHEDULES
S-19.1 PARTIAL FOUNDATION PLAN AREA FM	M6.194 MECHANICAL SCHEDULES
S-19.2 PARTIAL FOUNDATION PLAN AREA FN	M6.195 MECHANICAL SCHEDULES
S-19.3 PARTIAL FOUNDATION PLAN AREA FO	M6.196 MECHANICAL SCHEDULES
S-19.4 PARTIAL FOUNDATION PLAN AREA FP	M6.197 MECHANICAL SCHEDULES
S-19.5 PARTIAL FOUNDATION PLAN AREA FQ	M6.198 MECHANICAL SCHEDULES
S-19.6 PARTIAL FOUNDATION PLAN AREA FR	M6.199 MECHANICAL SCHEDULES
S-19.7 PARTIAL FOUNDATION PLAN AREA FS	M6.200 MECHANICAL SCHEDULES
S-19.8 PARTIAL FOUNDATION PLAN AREA FT	M6.201 MECHANICAL SCHEDULES
S-19.9 PARTIAL FOUNDATION PLAN AREA FU	M6.202 MECHANICAL SCHEDULES
S-20.0 PARTIAL FOUNDATION PLAN AREA FV	M6.203 MECHANICAL SCHEDULES
S-20.1 PARTIAL FOUNDATION PLAN AREA FW	M6.204 MECHANICAL SCHEDULES
S-20.2 PARTIAL FOUNDATION PLAN AREA FX	M6.205 MECHANICAL SCHEDULES
S-20.3 PARTIAL FOUNDATION PLAN AREA FY	M6.206 MECHANICAL SCHEDULES
S-20.4 PARTIAL FOUNDATION PLAN AREA FZ	M6.207 MECHANICAL SCHEDULES
S-20.5 PARTIAL FOUNDATION PLAN AREA GA	M6.208 MECHANICAL SCHEDULES
S-20.6 PARTIAL FOUNDATION PLAN AREA GB	M6.209 MECHANICAL SCHEDULES
S-20.7 PARTIAL FOUNDATION PLAN AREA GC	M6.210 MECHANICAL SCHEDULES
S-20.8 PARTIAL FOUNDATION PLAN AREA GD	M6.211 MECHANICAL SCHEDULES
S-20.9 PARTIAL FOUNDATION PLAN AREA GE	M6.212 MECHANICAL SCHEDULES
S-21.0 PARTIAL FOUNDATION PLAN AREA GF	M6.213 MECHANICAL SCHEDULES
S-21.1 PARTIAL FOUNDATION PLAN AREA GH	M6.214 MECHANICAL SCHEDULES
S-21.2 PARTIAL FOUNDATION PLAN AREA GI	M6.215 MECHANICAL SCHEDULES
S-21.3 PARTIAL FOUNDATION PLAN AREA GJ	M6.216 MECHANICAL SCHEDULES
S-21.4 PARTIAL FOUNDATION PLAN AREA GK	M6.217 MECHANICAL SCHEDULES
S-21.5 PARTIAL FOUNDATION PLAN AREA GL	M6.218 MECHANICAL SCHEDULES
S-21.6 PARTIAL FOUNDATION PLAN AREA GM	M6.219 MECHANICAL SCHEDULES
S-21.7 PARTIAL FOUNDATION PLAN AREA GN	M6.220 MECHANICAL SCHEDULES
S-21.8 PARTIAL FOUNDATION PLAN AREA GO	M6.221 MECHANICAL SCHEDULES
S-21.9 PARTIAL FOUNDATION PLAN AREA GP	M6.222 MECHANICAL SCHEDULES
S-22.0 PARTIAL FOUNDATION PLAN AREA GQ	M6.223 MECHANICAL SCHEDULES
S-22.1 PARTIAL FOUNDATION PLAN AREA GR	M6.224 MECHANICAL SCHEDULES
S-22.2 PARTIAL FOUNDATION PLAN AREA GS	M6.225 MECHANICAL SCHEDULES
S-22.3 PARTIAL FOUNDATION PLAN AREA GT	M6.226 MECHANICAL SCHEDULES
S-22.4 PARTIAL FOUNDATION PLAN AREA GU	M6.227 MECHANICAL SCHEDULES
S-22.5 PARTIAL FOUNDATION PLAN AREA GV	M6.228 MECHANICAL SCHEDULES
S-22.6 PARTIAL FOUNDATION PLAN AREA GW	M6.229 MECHANICAL SCHEDULES
S-22.7 PARTIAL FOUNDATION PLAN AREA GX	M6.230 MECHANICAL SCHEDULES
S-22.8 PARTIAL FOUNDATION PLAN AREA GY	M6.231 MECHANICAL SCHEDULES
S-22.9 PARTIAL FOUNDATION PLAN AREA GZ	M6.232 MECHANICAL SCHEDULES
S-23.0 PARTIAL FOUNDATION PLAN AREA HA	M6.233 MECHANICAL SCHEDULES
S-23.1 PARTIAL FOUNDATION PLAN AREA HB	M6.234 MECHANICAL SCHEDULES
S-23.2 PARTIAL FOUNDATION PLAN AREA HC	M6.235 MECHANICAL SCHEDULES
S-23.3 PARTIAL FOUNDATION PLAN AREA HD	M6.236 MECHANICAL SCHEDULES
S-23.4 PARTIAL FOUNDATION PLAN AREA HE	M6.237 MECHANICAL SCHEDULES
S-23.5 PARTIAL FOUNDATION PLAN AREA HF	M6.238 MECHANICAL SCHEDULES
S-23.6 PARTIAL FOUNDATION PLAN AREA HG	M6.239 MECHANICAL SCHEDULES
S-23.7 PARTIAL FOUNDATION PLAN AREA HH	M6.240 MECHANICAL SCHEDULES
S-23.8 PARTIAL FOUNDATION PLAN AREA HI	M6.241 MECHANICAL SCHEDULES
S-23.9 PARTIAL FOUNDATION PLAN AREA HJ	M6.242 MECHANICAL SCHEDULES
S-24.0 PARTIAL FOUNDATION PLAN AREA HK	M6.243 MECHANICAL SCHEDULES
S-24.1 PARTIAL FOUNDATION PLAN AREA HL	M6.244 MECHANICAL SCHEDULES
S-24.2 PARTIAL FOUNDATION PLAN AREA HM	M6.245 MECHANICAL SCHEDULES
S-24.3 PARTIAL FOUNDATION PLAN AREA HN	M6.246 MECHANICAL SCHEDULES
S-24.4 PARTIAL FOUNDATION PLAN AREA HO	M6.247 MECHANICAL SCHEDULES
S-24.5 PARTIAL FOUNDATION PLAN AREA HP	M6.248 MECHANICAL SCHEDULES
S-24.6 PARTIAL FOUNDATION PLAN AREA HQ	M6.249 MECHANICAL SCHEDULES
S-24.7 PARTIAL FOUNDATION PLAN AREA HR	M6.250 MECHANICAL SCHEDULES
S-24.8 PARTIAL FOUNDATION PLAN AREA HS	M6.251 MECHANICAL SCHEDULES
S-24.9 PARTIAL FOUNDATION PLAN AREA HT	M6.252 MECHANICAL SCHEDULES
S-25.0 PARTIAL FOUNDATION PLAN AREA HU	M6.253 MECHANICAL SCHEDULES
S-25.1 PARTIAL FOUNDATION PLAN AREA HV	M6.254 MECHANICAL SCHEDULES
S-25.2 PARTIAL FOUNDATION PLAN AREA HW	M6.255 MECHANICAL SCHEDULES
S-25.3 PARTIAL FOUNDATION PLAN AREA HX	M6.256 MECHANICAL SCHEDULES
S-25.4 PARTIAL FOUNDATION PLAN AREA HY	M6.257 MECHANICAL SCHEDULES
S-25.5 PARTIAL FOUNDATION PLAN AREA HZ	M6.258 MECHANICAL SCHEDULES
S-25.6 PARTIAL FOUNDATION PLAN AREA IA	M6.259 MECHANICAL SCHEDULES
S-25.7 PARTIAL FOUNDATION PLAN AREA IB	M6.260 MECHANICAL SCHEDULES
S-25.8 PARTIAL FOUNDATION PLAN AREA IC	M6.261 MECHANICAL SCHEDULES
S-25.9 PARTIAL FOUNDATION PLAN AREA ID	M6.262 MECHANICAL SCHEDULES
S-26.0 PARTIAL FOUNDATION PLAN AREA IE	M6.263 MECHANICAL SCHEDULES
S-26.1 PARTIAL FOUNDATION PLAN AREA IF	M6.264 MECHANICAL SCHEDULES
S-26.2 PARTIAL FOUNDATION PLAN AREA IG	M6.265 MECHANICAL SCHEDULES
S-26.3 PARTIAL FOUNDATION PLAN AREA IH	M6.266 MECHANICAL SCHEDULES
S-26.4 PARTIAL FOUNDATION PLAN AREA II	M6.267 MECHANICAL SCHEDULES
S-26.5 PARTIAL FOUNDATION PLAN AREA IJ	M6.268 MECHANICAL SCHEDULES
S-26.6 PARTIAL FOUNDATION PLAN AREA IK	M6.269 MECHANICAL SCHEDULES
S-26.7 PARTIAL FOUNDATION PLAN AREA IL	M6.270 MECHANICAL SCHEDULES
S-26.8 PARTIAL FOUNDATION PLAN AREA IM	M6.271 MECHANICAL SCHEDULES
S-26.9 PARTIAL FOUNDATION PLAN AREA IN	M6.272 MECHANICAL SCHEDULES
S-27.0 PARTIAL FOUNDATION PLAN AREA IO	M6.273 MECHANICAL SCHEDULES
S-27.1 PARTIAL FOUNDATION PLAN AREA IP	M6.274 MECHANICAL SCHEDULES
S-27.2 PARTIAL FOUNDATION PLAN AREA IQ	M6.275 MECHANICAL SCHEDULES
S-27.3 PARTIAL FOUNDATION PLAN AREA IR	M6.276 MECHANICAL SCHEDULES
S-27.4 PARTIAL FOUNDATION PLAN AREA IS	M6.277 MECHANICAL SCHEDULES
S-27.5 PARTIAL FOUNDATION PLAN AREA IT	M6.278 MECHANICAL SCHEDULES
S-27.6 PARTIAL FOUNDATION PLAN AREA IU	M6.279 MECHANICAL SCHEDULES
S-27.7 PARTIAL FOUNDATION PLAN AREA IV	M6.280 MECHANICAL SCHEDULES
S-27.8 PARTIAL FOUNDATION PLAN AREA IW	M6.281 MECHANICAL SCHEDULES
S-27.9 PARTIAL FOUNDATION PLAN AREA IX	M6.282 MECHANICAL SCHEDULES
S-28.0 PARTIAL FOUNDATION PLAN AREA IY	M6.283 MECHANICAL SCHEDULES
S-28.1 PARTIAL FOUNDATION PLAN AREA IZ	M6.284 MECHANICAL SCHEDULES
S-28.2 PARTIAL FOUNDATION PLAN AREA JA	M6.285 MECHANICAL SCHEDULES
S-28.3 PARTIAL FOUNDATION PLAN AREA JB	M6.286 MECHANICAL SCHEDULES
S-28.4 PARTIAL FOUNDATION PLAN AREA JC	M6.287 MECHANICAL SCHEDULES
S-28.5 PARTIAL FOUNDATION PLAN AREA JD	M6.288 MECHANICAL SCHEDULES
S-28.6 PARTIAL FOUNDATION	

1

ALL PERMIT SUBMITTALS ARE COMPLIANT WITH THE FOLLOWING CODES, RELATED MUNICIPAL ORDINANCES, AMENDMENTS, AND REQUIREMENTS:

2021 IBC, IPC, IMC
2021 NEC
2021 IFC, IECC
2012 TAS (ADA)

2

13. REQUIRED EGRESS WIDTHS:

MINIMUM CORRIDOR WIDTH ALLOWANCE:
(GROUP E OCCUPANCY):

(SEC 1020.2, TABLE 1020.2) - NOT LESS THAN 44" MIN.
(SEC 1020.2) 6'-0" MIN. W/ 100+ OCC.

3

REQUIRED EGRESS CAPACITY BASED ON OCCUPANT LOAD

NUMBER OF EXITS REQUIRED:

MINIMUM TOTAL EXIT WIDTH REQUIRED:

EXIT WIDTH PROVIDED TO CORRIDOR:
EXIT WIDTH PROVIDED TO CORRIDOR:
EXIT WIDTH PROVIDED TO EXTERIOR:
EXIT WIDTH PROVIDED TO EXTERIOR:

MAXIMUM TRAVEL DISTANCE TO AN EXIT:
MAXIMUM LENGTH OF DEAD END CORRIDORS:

EXITS THROUGH ADJOINING ROOMS:

(SEC 1005.3.1) - FOR STAIRWAYS: .37/OCC
(SEC 1005.3.2) - FOR OTHER: .27/OCC
(TABLE 1006.2.1) - 1(1-49), 'E' OCC
(TABLE 1006.3.1) - 2(1-500), 3(501-1000), 4(1000+)
DINING - 309 (OCC) x .2 = 62"
GYMNASIUM - 322 (OCC) x .2 = 64"
DINING: 180"
GYMNASIUM: 144"
DINING: 144"
GYMNASIUM: 144"
(TABLE 1017.2) - 200' (W/ SPRINKLERS - 250')
(SEC 1020.4) - 20' (W/ SPRINKLERS - 50')
(SEC 1016.2) PERMITTED AT ACCESSORY ROOMS TO ONE ANOTHER, NOT GROUP H OCCUPANCY AND PROVIDE DISCERNIBLE PATH OF EGRESS TRAVEL TO AN EXIT
(NOT PERMITTED THROUGH KITCHEN, STORAGE, CLOSETS, AND SIMILAR ROOMS)
F.E. TYPE - 10" ABC, AMEREX MODEL #419 OR EQUAL. INSTALL IN SEMI-RECESSED CABINET. CONFIRM FINAL LOCATION WITH ARCHITECT.
LOCATED WITHIN 75'-0" (MAX.) OF EACH OTHER

4

15. FIRE WALLS & TRAVEL DISTANCE TO EXIT

TRAVEL DISTANCE TO EXIT
1HR FIRE RATED WALL (UL U419 - US WALL ASSEMBLIES)
2HR FIRE SEPARATION WALL TO DECK (UL U419 - US WALL ASSEMBLIES) WITH 90MIN. DOORS
2HR FIRE WALL TO DECK (UL U419 - US WALL ASSEMBLIES) WITH 90MIN. DOORS @ ERRS ROOM

OCC./EGRESS LEGEND/NOTES:

EXTERIOR, HORIZONTAL & ASSEMBLY EXITS (TAB 1003.2.3)

1 3'-0" DOOR (33.2" CLR.) @ .2/PERSON = 166 PERSONS
2 PAIR 3'-0" DOOR (66.4" CLR.) @ .2/PERSON = 332 PERSONS

16. MARKING OF FIRE RATED AND SMOKE STOP PARTITIONS:
ALL SMOKE STOP PARTITIONS, HORIZONTAL EXIT ENCLOSURES, AND FIRE WALLS MUST BE PERMANENTLY MARKED ABOVE CEILINGS AS FOLLOWS:
"FIRE AND SMOKE BARRIER-PROTECT ALL OPENINGS".
LETTERS SHALL BE MINIMUM 2 1/2" IN HEIGHT AND PAINTED RED. PROVIDE ON EACH SIDE OF PARTITION.
KITCHEN EXHAUST HOOD & LIFE SKILLS LAB EXHAUST HOOD:
PROVIDE 1 HR FIREPROOFING FOR HOOD EXHAUST DUCT AS REQUIRED BY IMC SEC. 507.8/506.12 AND IBC TABLE 714.2

5

BUILDING AREA BASED ON FIRE SEPARATION

AREA #1 (SECTION A, B, C, E AND F) = 63,524 SQFT
AREA #2 (SECTION D) = 16,121 SQFT

6

GENERAL NOTES

1. SEPARATE REVIEW, APPROVAL, AND PERMITS ARE REQUIRED FOR GRADING, ACCESSORY BUILDINGS AND STRUCTURES, SIGNS, TRASH ENCLOSURES, BLOCK WALLS, RETAINING WALLS NOT SUPPORTING BUILDINGS, AND DEMOLITION WORK. CONTACT CITY FOR PROCEDURAL INFORMATION.

2. OVERALL PLAN SHEET ARE INTENDED FOR CODE COMPLIANCE SUCH AS OVERALL OCCUPANCY, EGRESS INFORMATION, FIRE SEPARATION AND GENERAL INFORMATION ONLY.

3. REFER TO PLAN AREA SHEETS FOR WALLS, DOORS, WINDOWS, AND ROOM LOCATIONS, AS WELL AS, MORE DETAILED PLAN INFORMATION, TYP.

4. A FIRE SYSTEM APPROVED BY THE FIRE MARSHAL SHALL BE PROVIDED. AUDIBLE ALARM DEVICES SHALL BE USED IN ALL AREAS.

5. AN OCCUPANT LOAD SIGN SHALL BE POSTED IN ANY ROOM WITH AN OCCUPANT LOAD OVER 50. THE SIGN IS REQUIRED TO BE POSTED AT OR NEAR THE MAIN EXIT.

6. PROVIDE PANIC HARDWARE FOR GROUP A OCCUPANCIES WITH AN OCCUPANT LOAD OF 50 OR MORE.

7. ACCESSIBILITY STANDARDS FOLLOWED ARE THE 'ADA ACCESSIBILITY GUIDELINES' (ADAAG) AND THE 'TEXAS ACCESSIBILITY STANDARDS'.

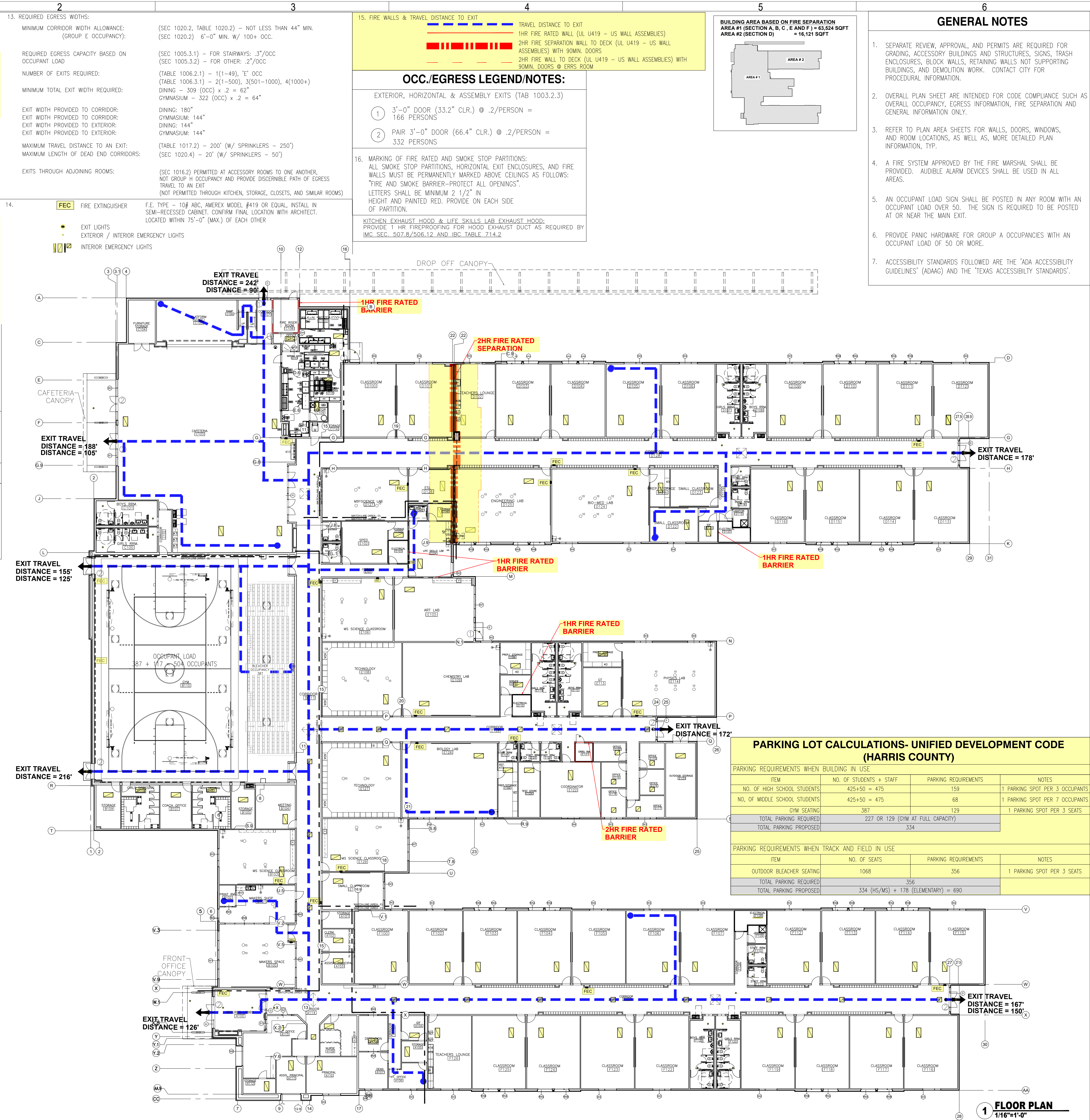
C

PLUMBING FIXTURE COUNT					
TYPE OF OCCUPANCY: EDUCATIONAL			TOTAL # OCCUPANTS: 1,966		
# OF MALES: 983			# OF FEMALES: 983		
REQ'D. 1/50		PROV'D.	REQ'D. 1/50		PROV'D.
TLTS.	19.66	12	TLTS.	19.66	20
URIN.	(8) SUBST. FOR 8 TLTS.	-	-	-	-
LAVS.	9.83	17	LAVS.	9.83	17
TYPE OF OCCUPANCY: STORAGE			TOTAL # OCCUPANTS: 76		
# OF MALES: 38			# OF FEMALES: 38		
REQ'D.		PROV'D.	REQ'D.		PROV'D.
TLTS.	0.380	1	TLTS.	0.380	1
URIN.	-	-	-	-	-
LAVS.	0.380	1	LAVS.	0.380	1
TYPE OF OCCUPANCY: BUSINESS			TOTAL # OCCUPANTS: 41		
# OF MALES: 20.5			# OF FEMALES: 20.5		
REQ'D.		PROV'D.	REQ'D.		PROV'D.
TLTS.	0.82	1	TLTS.	0.82	1
URIN.	-	-	-	-	-
LAVS.	0.50	1	LAVS.	0.50	1
TYPE OF OCCUPANCY: ASSEMBLY			TOTAL # OCCUPANTS: 504		
# OF MALES: 252			# OF FEMALES: 252		
REQ'D.		PROV'D.	REQ'D.		PROV'D.
TLTS.	2.01	2	TLTS.	3.87	5
URIN.	2	-	-	-	-
LAVS.	2.52	3	LAVS.	2.52	3
BUILDING TOTALS					
MALES			FEMALES		
REQ'D.		PROV'D.	REQ'D.		PROV'D.
TLTS.	22.87	20	TLTS.	24.73	20
URIN.	(7) SUBST. FOR 7 TLTS.	-	-	-	-
LAVS.	14.80	16	LAVS.	14.80	16
DRINKING FOUNTAINS REQ'D.: 5.99			PROV'D.: 20		
SERVICE SINK REQ'D.: 1			PROV'D.: 1		

B

A

PLUMBING FIXTURE COUNT				TRACK AND FIELD TOTALS			
TYPE OF OCCUPANCY: ACCESSORY A-5 (WHEN TRACK AND FIELD IN USE)		TOTAL # OCCUPANTS: 1,068					
# OF MALES: 534		# OF FEMALES: 534					
REQ'D. 1/75		PROV'D.		REQ'D. 1/40		PROV'D.	
TLTS.	7.09	12		TLTS.	13.35	20	
URIN.		8		-	-	-	
LAVS.	2.67	17		LAVS.	2.67	17	
DRINKING FOUNTAINS REQUIRED : 2.13				PROVIDED : 20			



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FOOD SERVICE DESIGN:
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HARMONY PUBLIC SCHOOLS

SCIENCE ACADEMY HS/MS
CITY PLACE
PHASE 2
22000 SPRINGWOODS
VILLAGE PKWY, SPRING ,
TEXAS 77379

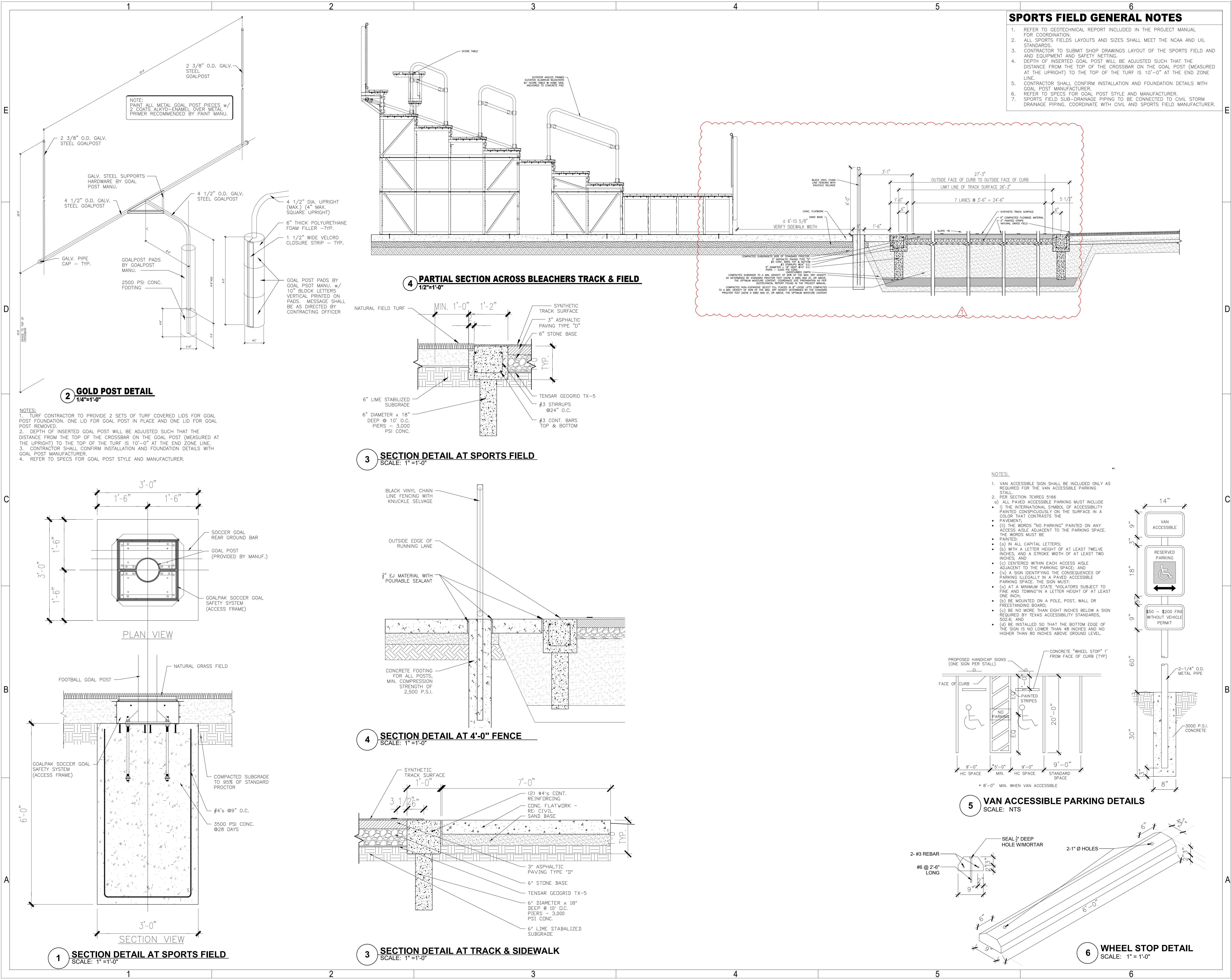
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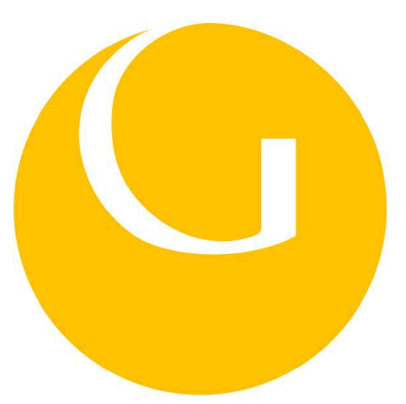
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Drawing Date: 11/20/2025
Drawn: RD
Checked: RG
Revisions:
No. Description Date
1 ADDENDUM #1 7/24/2026

Sheet Title:

CODE REVIEW

G-003





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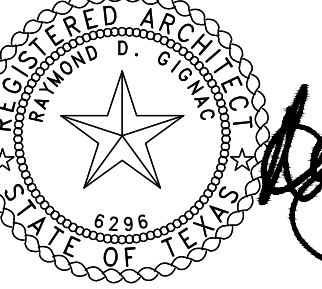
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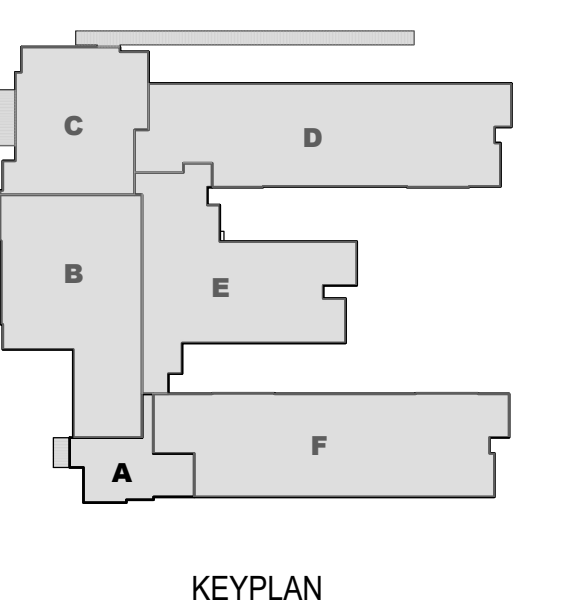


EXPIRATION DATE
11/30/2026

SIGNED ON
6/28/2026



HARMONY PUBLIC SCHOOLS
SCIENCE ACADEMY HS/MS
CITY PLACE
PHASE 2
22000 SPRINGWOODS
VILLAGE PKWY, SPRING ,
TEXAS 77379



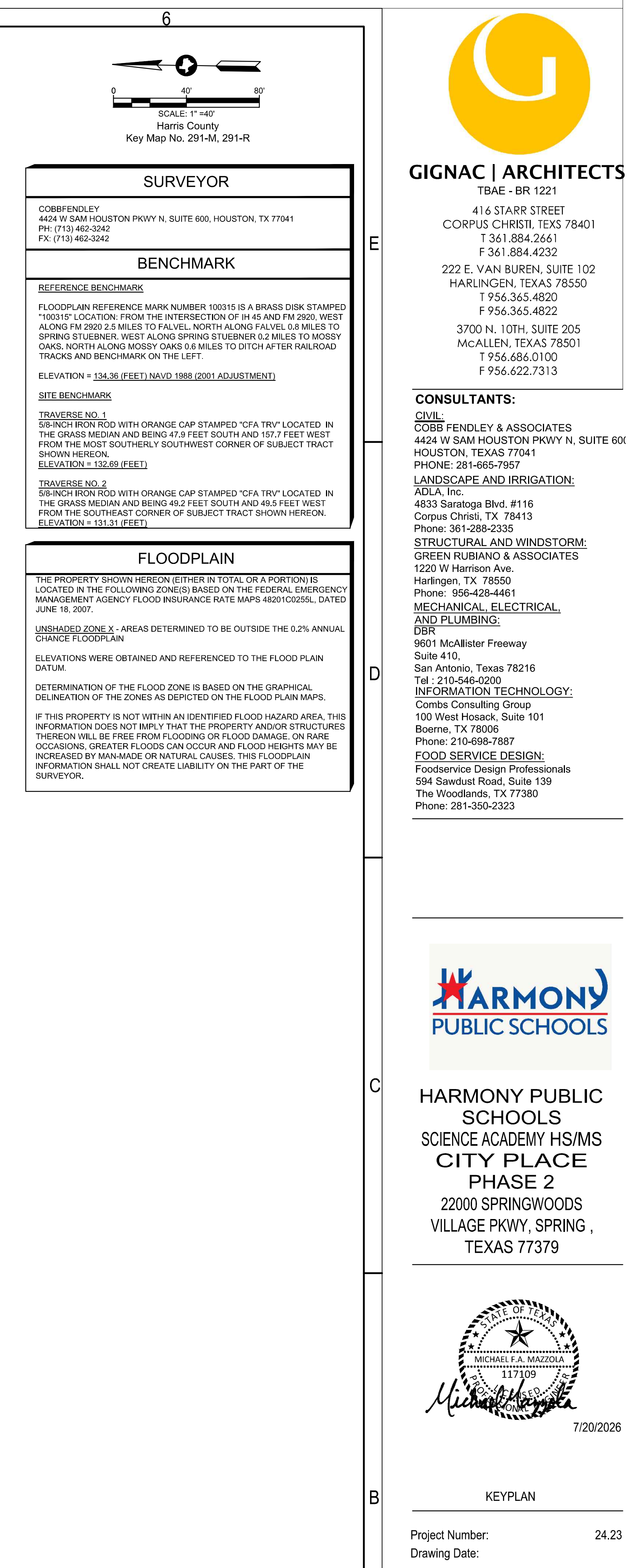
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Drawing Date: 11/20/2025		
Drawn: RD		
Checked: RG		
Revisions:		
No.	Description	Date
1	ADDENDUM #1	7/24/2026

Sheet Title:
SITE TRACK AND FIELD DETAILS

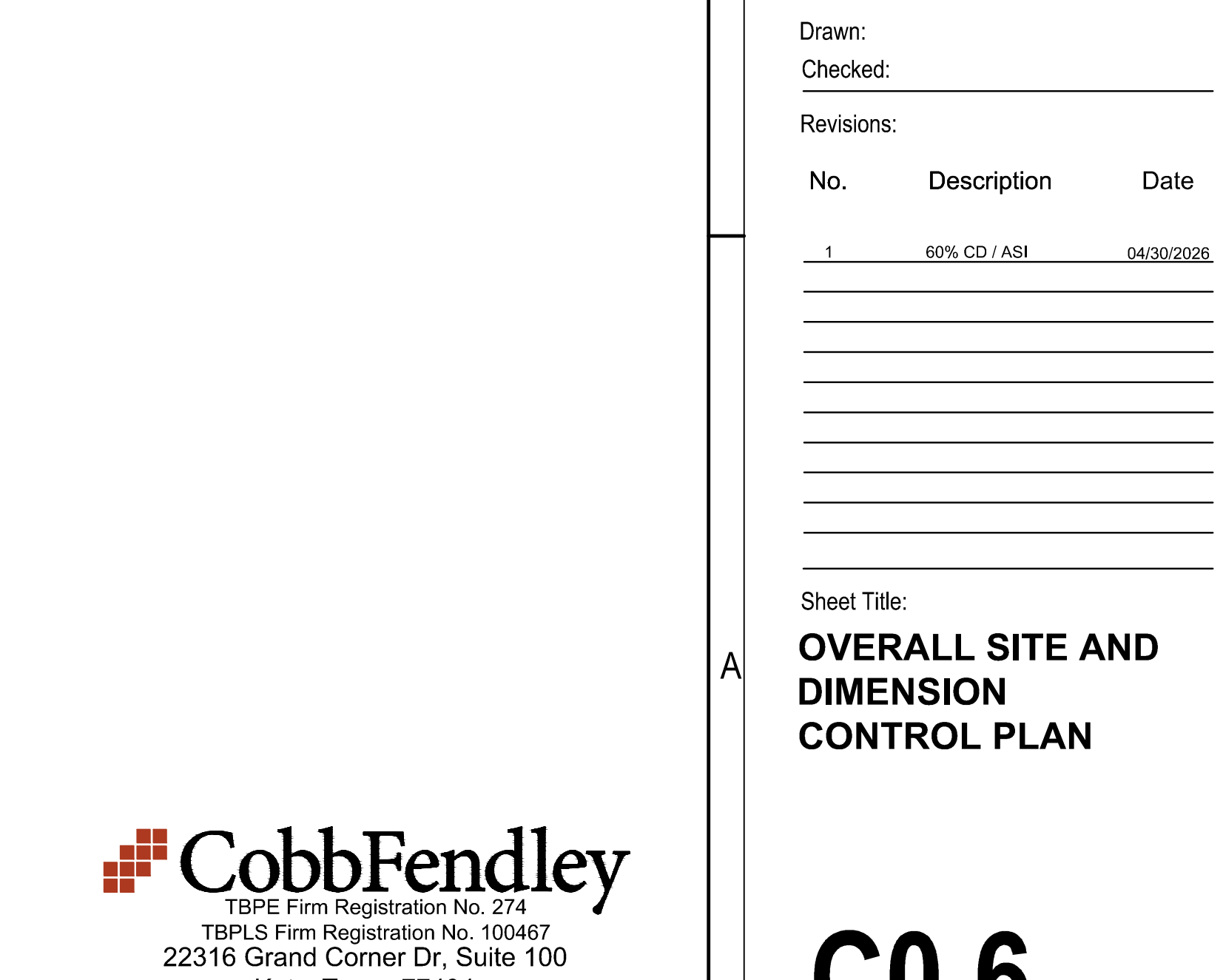
VERSION 21.0 FEBRUARY 20, 2025 **REVIEW SHEET** HC PROJECT NO. 2512150121 HCFCO PROJECT NO. 2512150124 SHEET NUMBER 3 OF 33



CO.3

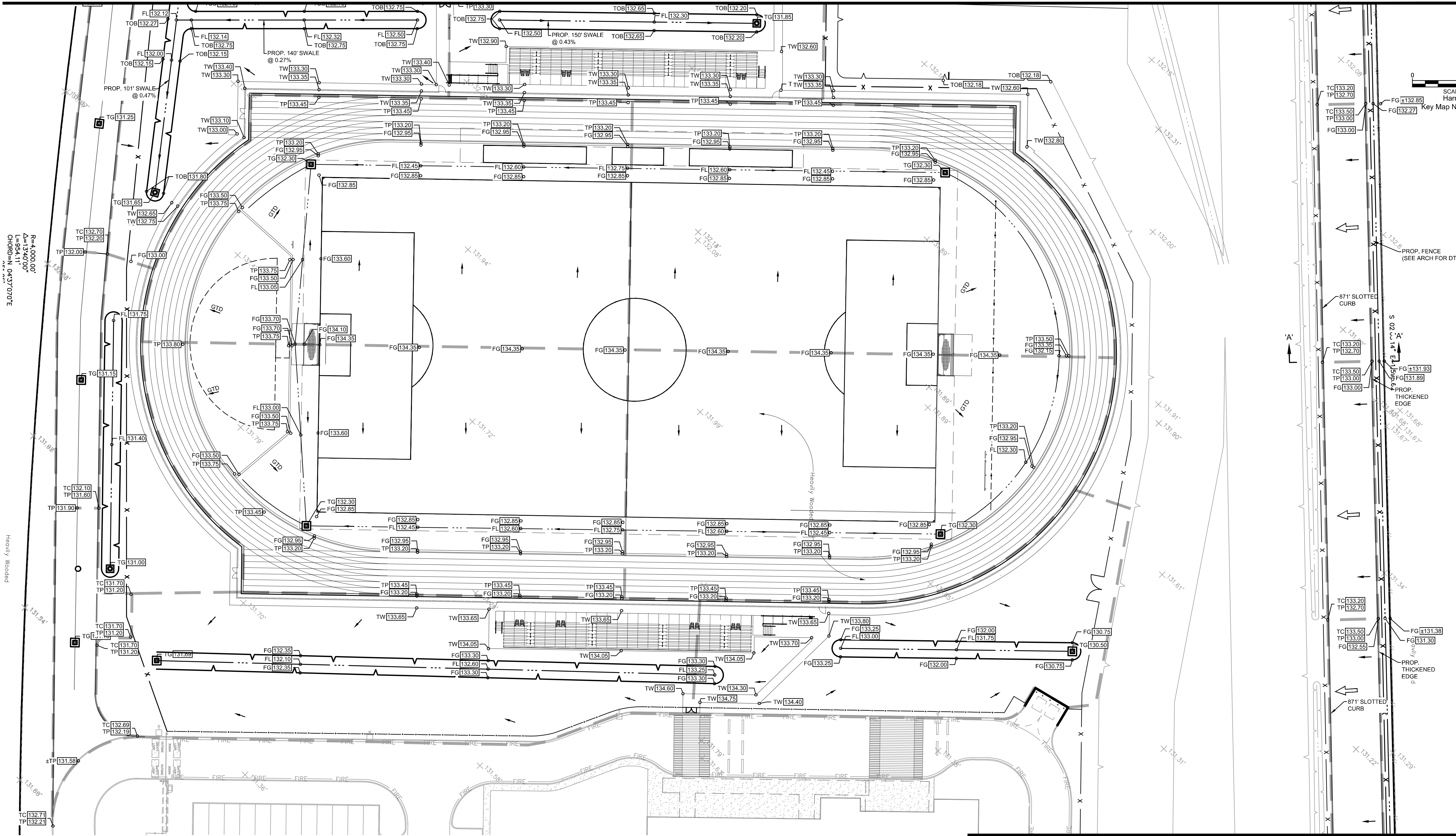


. A Notification issued by HC Infrastructure Department-Permits Office- is required for proposed work within Harris county Right-of-Way. The project must be approved prior to obtain the required Notification. A Notification must be obtained separately from site development permit package. For additional information please visit: http://hcpid.org/permits/pr_notification_of_construction.html or contact Public Review Inspections Department @ (713)274-3931



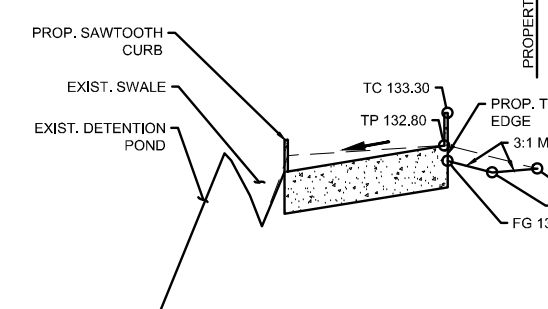
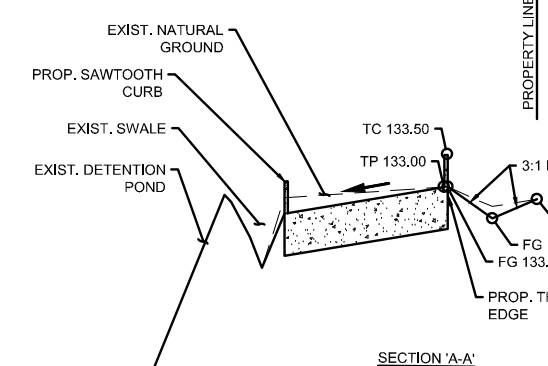
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MATCHLINE - SEE SHEET C1.0 FOR CONTINUATION



MATCHLINE - SEE SAME SHEET

NOTE:
IN AREAS WHERE THE PROJECT DESIGN INCORPORATES FILL ADJACENT TO NEIGHBORING LANDOWNERS, THE CONTRACTOR SHALL IMPLEMENT GRADING AND/OR PERIMETER RUNOFF CATCHMENT DEVICES (E.G. PERIMETER DITCHES) DURING CONSTRUCTION TO ENSURE THAT ADJACENT PARCELS BORDERING THE PROJECT SITE DO NOT EXPERIENCE INTERIM DRAINAGE FLOWS THAT EXCEED PRE-DEVELOPMENT CONDITIONS FOR STORM EVENTS UP TO AND INCLUDING THE CURRENT STORM DRAINAGE DESIGN CRITERIA AT THE TIME OF PERMIT OR CARRY-SEMENT GENERATED AS PART OF CONSTRUCTION ACTIVITIES, WHERE APPLICABLE. THESE PRACTICES ARE IN ADDITION TO THE STANDARD STORM WATER POLLUTION PREVENTION DESIGN AND SHALL INCLUDE ADDITIONAL DITCHES REDIRECTING SITE DRAINAGE OR TEMPORARY PIPING. THIS NOTE IS NOT INTENDED TO ADDRESS ANY LIABILITY OR RESPONSIBILITY UNDER TEXAS WATER CODE 11.086.



MATCHLINE - SEE SAME SHEET

SURVEYOR
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BENCHMARK
REFERENCE BENCHMARK
FLOODPLAIN REFERENCE MARK NUMBER 100315 IS A BRASS DISK STAMPED "100315" LOCATION: FROM THE INTERSECTION OF IH 45 AND FM 2920, WEST ALONG FM 2920 2.5 MILES TO FALVEL, NORTH ALONG FALVEL 0.8 MILES TO SPRING STUEBNER, WEST ALONG SPRING STUEBNER 0.2 MILES TO MOSSY OAKS, NORTH ALONG MOSSY OAKS 0.6 MILES TO DITCH AFTER RAILROAD TRACKS AND BENCHMARK ON THE LEFT.
ELEVATION = 134.36 (FEET) NAVD 1988 (2001 ADJUSTMENT)

SITE BENCHMARK
TRAVERSE NO. 1
5/8" INCH IRON ROD WITH ORANGE CAP STAMPED "CFA TRV" LOCATED IN THE GRASS MEDIAN AND BEING 47.8 FEET SOUTH AND 157.7 FEET WEST FROM THE MOST SOUTHERLY SOUTHWEST CORNER OF SUBJECT TRACT SHOWN HEREON.
ELEVATION = 132.69 (FEET)
TRAVERSE NO. 2
5/8" INCH IRON ROD WITH ORANGE CAP STAMPED "CFA TRV" LOCATED IN THE GRASS MEDIAN AND BEING 49.2 FEET SOUTH AND 45.5 FEET WEST FROM THE SOUTHEAST CORNER OF SUBJECT TRACT SHOWN HEREON.
ELEVATION = 131.31 (FEET)

FLOODPLAIN
THE PROPERTY SHOWN HEREON (EITHER IN TOTAL OR A PORTION) IS LOCATED IN THE FOLLOWING ZONE(S) BASED ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAPS (FIRM), DATED JUNE 18, 2007.
UNSHADED ZONE X - AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN
ELEVATIONS WERE OBTAINED AND REFERENCED TO THE FLOOD PLAIN DATUM.
DETERMINATION OF THE FLOOD ZONE IS BASED ON THE GRAPHICAL DELINEATION OF THE ZONES AS DEPICTED ON THE FLOOD PLAIN MAPS.
IF THIS PROPERTY IS NOT WITHIN AN IDENTIFIED FLOOD HAZARD AREA, THIS INFORMATION DOES NOT IMPLY THAT THE PROPERTY AND/OR STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. ON RARE OCCASIONS, GREATER FLOODS CAN OCCUR AND FLOOD HEIGHTS MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOODPLAIN INFORMATION SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

PROP. LEGEND
○ PROP STORM MANHOLE
■ PROP LANDSCAPE INLET
■ PROP 24" INLET (UNLESS NOTED)
--- PROP SWALE
--- EXIST ELEVATION
--- PROP TOP OF GRATE INLET
--- PROP TOP OF PAVEMENT ELEVATION
--- PROP TOP OF CURB ELEVATION
--- PROP FLOW LINE ELEVATION
--- PROP TOP OF RIM ELEVATION
--- PROP TOP OF WALK
--- PROP FINISHED GRADE
--- MATCH EXISTING GRADE
--- GRADE TOWARD DRAINAGE
--- DIRECTION OF FLOW ARROW
--- PROP DRAINAGE AREA BOUNDARY
--- DIRECTION OF EXTREME EVENT FLOW

GRADING NOTES
CONTRACTOR SHALL ENSURE THAT CONSTRUCTED SLOPES AND ELEVATIONS COMPLY WITH TEXAS DEPARTMENT OF LICENSING AND REGULATION REQUIREMENTS FOR ACCESSIBILITY. GRADES SHOWN HEREON HAVE BEEN CAREFULLY SELECTED TO COMPLY WITH ACCESSIBILITY REQUIREMENTS. THE FOLLOWING SHALL BE CONSIDERED DURING CONSTRUCTION.
1. TOP OF WALK OR TOP OF LANDING ELEVATIONS AT BUILDING ENTRANCES/EXITS SHALL BE THE SAME ELEVATION ON EACH SIDE OF THE DOOR.
2. ACCESSIBLE ROUTE CROSS SLOPE SHALL BE 2% MAXIMUM.
3. WHERE AN ACCESSIBLE ROUTE CHANGES DIRECTION AND AT ALL POINTS OF BUILDING EGRESS, A 5'x5' MAXIMUM LANDING SHALL BE PROVIDED WITH MAXIMUM 2% SLOPE IN ANY DIRECTION.
4. NO PORTION OF THE ACCESSIBLE PARKING AREA SHALL EXCEED 2% SLOPE.
5. ACCESSIBLE ROUTES MAY HAVE LONGITUDINAL SLOPES UP TO 5% (SEE NOTE 6 FOR SLOPES GREATER THAN 5%).
6. ALL RAMP SLOPES SHALL BE MAXIMUM 1 VERTICAL UNIT FOR EVERY 12 HORIZONTAL UNITS (8.33%). ALL RAMP SLOPES SHALL BE 5'x5' LANDING WITH MAXIMUM 2% SLOPE AT THE TOP AND BOTTOM. RAMP RISES RISING MORE THAN 6 INCHES VERTICAL REQUIRE HANDRAILS.
7. THE FINISHED GRADES SHOWN ON THIS PLAN REPRESENT FINAL ELEVATIONS. CARE SHOULD BE TAKEN BY THE CONTRACTOR NOT TO INCREASE THESE FINISHED GRADES WITH LANDSCAPING OR OTHER ALTERATIONS. THE THICKNESS OF SOIL, GRASS AND LANDSCAPING MATERIALS SHOULD BE DEDUCTED FROM THE FINISHED GRADE ELEVATIONS IN THESE PLANS IN ORDER TO DETERMINE THE GROUND ELEVATIONS DURING CONSTRUCTION.
8. ALL PROPOSED TOP OF CURB ELEVATIONS SHALL BE 6" ABOVE TOP OF PAVEMENT ELEVATION UNLESS OTHERWISE NOTED.
9. ALL PAVEMENT SHOWN ON THIS PLAN TO HAVE 6" CURBING AT EDGES OF PAVEMENT UNLESS OTHERWISE NOTED.
10. ALL INLETS AND JUNCTION BOXES SHALL HAVE A TRAFFIC DUTY GRATE OR COVER UNLESS OTHERWISE NOTED.
11. AREA TO BE HYDROMULCH SEEDING AT CONCLUSION OF CONSTRUCTION ACTIVITIES.
12. AREAS INDICATED AS GRADE TO DRAIN SHALL HAVE A MINIMUM SLOPE OF 1% TOWARDS AN INLET OR SWALE.

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HARMONY PUBLIC SCHOOLS
SCIENCE ACADEMY HS/MS
CITY PLACE
PHASE 2
22000 SPRINGWOODS
VILLAGE PKWY, SPRING,
TEXAS 77379

KEYPLAN
Project Number: 24.23
Drawing Date:
Drawn:
Checked:
Revisions:

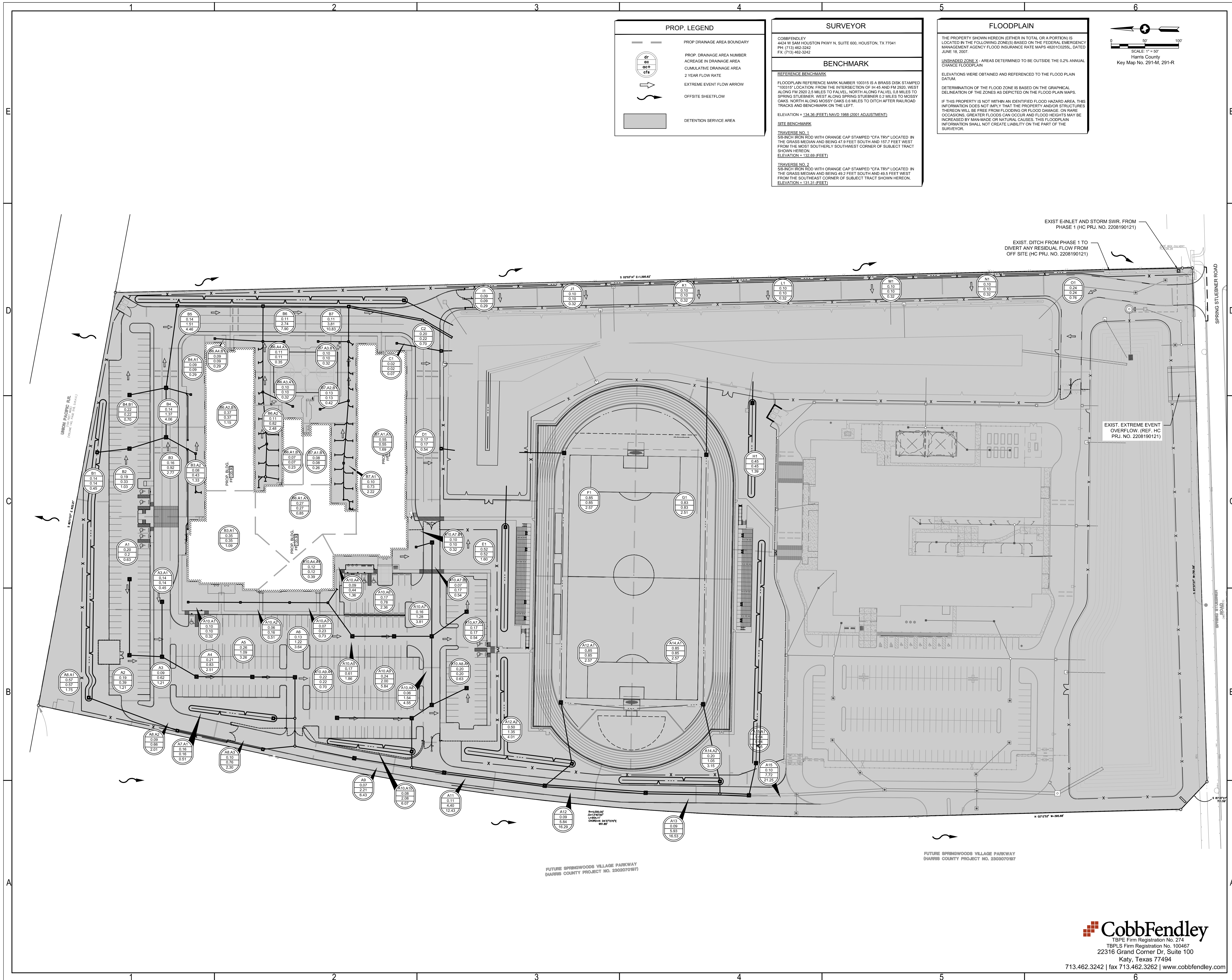
No.	Description	Date
1	60% CD / ASI	04/30/2026

Sheet Title:
GRADING AND DRAINAGE PLAN (2 OF 2)

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C1.1

C:\Users\jg\Documents\2024\10047_Gignac\01_Harmony_City_Phase_2_IL_MiddleHigh_School\400_CAD\410_Land\DWG\341004701-C3.0_DRAINAGE AREA MAP.dwg
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PROP. LEGEND

PROP. DRAINAGE AREA BOUNDARY

PROP. DRAINAGE AREA NUMBER

ACREAGE IN DRAINAGE AREA

CUMULATIVE DRAINAGE AREA

2 YEAR FLOW RATE

EXTREME EVENT FLOW ARROW

OFFSITE SHEETFLOW

DETENTION SERVICE AREA

SURVEYOR

COBB FENDLEY
4424 W SAM HOUSTON PKWY N, SUITE 600, HOUSTON, TX 77041
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BENCHMARK

REFERENCE BENCHMARK

FLOODPLAIN REFERENCE MARK NUMBER 100315 IS A BRASS DISK STAMPED "100315" LOCATION: FROM THE INTERSECTION OF IH 45 AND FM 2920, WEST ALONG FM 2920 2.9 MILES TO PALVEL, NORTH ALONG PALVEL 0.8 MILES TO SPRING STUEBNER, WEST ALONG SPRING STUEBNER 0.2 MILES TO MOSSEY OAKS, NORTH ALONG MOSSEY OAKS 0.6 MILES TO DITCH AFTER RAILROAD TRACKS AND BENCHMARK ON THE LEFT.

ELEVATION = 134.36 (FEET) NAVD 1988 (2001 ADJUSTMENT)

SITE BENCHMARK

TRAVERSE NO. 1
5/8-INCH IRON ROD WITH ORANGE CAP STAMPED "CFA TRV" LOCATED IN THE GRASS MEDIAN AND BEING 47.9 FEET SOUTH AND 157.7 FEET WEST FROM THE MOST SOUTHERLY SOUTHWEST CORNER OF SUBJECT TRACT SHOWN HEREON.
ELEVATION = 132.89 (FEET)

TRAVERSE NO. 2
5/8-INCH IRON ROD WITH ORANGE CAP STAMPED "CFA TRV" LOCATED IN THE GRASS MEDIAN AND BEING 49.2 FEET SOUTH AND 49.5 FEET WEST FROM THE SOUTHEAST CORNER OF SUBJECT TRACT SHOWN HEREON.
ELEVATION = 131.31 (FEET)

FLOODPLAIN

THE PROPERTY SHOWN HEREON (EITHER IN TOTAL OR A PORTION) IS LOCATED IN THE FOLLOWING ZONE(S) BASED ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAPS 4801022K, DATED JUNE 18, 2007.

UNSHADED ZONE X - AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN

ELEVATIONS WERE OBTAINED AND REFERENCED TO THE FLOOD PLAIN DATUM.

DETERMINATION OF THE FLOOD ZONE IS BASED ON THE GRAPHICAL DELINEATION OF THE ZONES AS DEPICTED ON THE FLOOD PLAIN MAPS.

IF THIS PROPERTY IS NOT WITHIN AN IDENTIFIED FLOOD HAZARD AREA, THIS INFORMATION DOES NOT IMPLY THAT THE PROPERTY AND/OR STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE, ON RARE OCCASIONS, GREATER FLOODS CAN OCCUR AND FLOOD HEIGHTS MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOODPLAIN INFORMATION SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

0 50' 100'

SCALE: 1" = 50'

Harris County
Key Map No. 291-M, 291-R

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HARMONY PUBLIC SCHOOLS

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VILLAGE PKWY, SPRING,
TEXAS 77379

STATE OF TEXAS
MICHAEL F. A. MAZZOLA
117109
Michael F. A. Mazzola
7/20/2026

KEYPLAN

Project Number: 24.23
Drawing Date:
Drawn:
Checked:
Revisions:
No. Description Date

No.	Description	Date
1	60% CD / ASI	04/30/2026

Sheet Title:
**PHASE 2
DRAINAGE
AREA MAP**

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C3.1

1

2

3

4

5

6

ROOM FINISH SCHEDULE

ROOM #	ROOM NAME	FLOOR	BASE	NORTH WALL	SOUTH WALL	EAST WALL	WEST WALL	CEILING	CEILING HEIGHT	REMARKS
A100	SECURED LOBBY	STONE	STONE	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	ACP-2/PAINTED EXPOSED STRUCTURE	RE: RCP	NOTES 4, 5, 6,
A101	STORAGE	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
A102	CLERK	MODULAR CARPET	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
A103	ASSIST. PRINCIPAL	MODULAR CARPET	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
A104	IDF	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
A105	STORAGE	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
A106	I.T. OFFICE	MODULAR CARPET	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
A107	DEAN	MODULAR CARPET	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
A108	DETENTION	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
A109	NURSE	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
A110	PRINCIPAL	MODULAR CARPET	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
A111	ASSIS. PRINCIPAL	MODULAR CARPET	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
A112	STORAGE	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
A113	FRONT OFFICE	MODULAR CARPET	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
A114	CORRIDOR	VCT	CERAMIC TILE	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	PAINTED GYP. BD./PAINTED EXPOSURE STRUCTURE	RE: RCP	NOTES 1, 4, 6, 7, 9
A115	CORRIDOR	VCT	CERAMIC TILE	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	APC-2/PAINTED GYP. BD.	11'-0"	---

ROOM FINISH SCHEDULE

ROOM #	ROOM NAME	FLOOR	BASE	NORTH WALL	SOUTH WALL	EAST WALL	WEST WALL	CEILING	CEILING HEIGHT	REMARKS
B100	MAKERS SPACE	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED EXPOSED STRUCTURE/PAINTED GYP. BD.	RE: RCP	NOTE 15
B101	MAKERS SHOP	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED EXPOSED STRUCTURE	VARIES	RE: RCP
B102	PRINT RM.	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED EXPOSED STRUCTURE	VARIES	RE: RCP
B103	MS SCIENCE CLASSROOM	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
B104	MEETING	MODULAR CARPET	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
B105	STORAGE	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
B106	BOYS DRESSING	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
B107	COACH OFFICE	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
B108	GIRLS DRESSING	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
B109	STORAGE	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
B110	GYM	GYM FLOORING	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED EXPOSED STRUCTURE	VARIES	NOTES 2, 3, 6, 8, 10, 15
B111	CORRIDOR	VCT	CERAMIC TILE	CERAMIC TILE WAINSCOT/ PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/ PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/ PAINTED GYP. BD.	APC-2/PAINTED GY. BD.	11'-0"	NOTES 1, 4, 6, 7, 9

ROOM FINISH SCHEDULE

ROOM #	ROOM NAME	FLOOR	BASE	NORTH WALL	SOUTH WALL	EAST WALL	WEST WALL	CEILING	CEILING HEIGHT	REMARKS
C100	GIRLS RRM.	EPOXY/RESIN	EPOXY/RESIN/CERAMIC TILE	EPOXY/RESIN/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	PAINTED GYP. BD.	10'-0"	---
C101	BOYS RRM.	EPOXY/RESIN	EPOXY/RESIN/CERAMIC TILE	EPOXY/RESIN/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	EPOXY/RESIN/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	PAINTED GYP. BD.	10'-0"	---
C102	CORRIDOR	VCT	CERAMIC TILE	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	APC-2	11'-0"	NOTES 1, 7, 9
C103	CAFETERIA	VCT	RUBBER	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	APC-2/PAINTED GY. BD./PAINTED EXPOSED STRUCTURE	RE: RCP	NOTES 1, 4, 6,
C104	STORAGE	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	ACOUSTICAL CEILING TILE	10'-0"	---
C105	PLATFORM(STAGE)	WOOD	WOOD	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED EXPOSED STRUCTURE	VARIES	NOTES 8 (SIM), 10 (SIM), 14
C106	RAMP	WOOD	WOOD	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED EXPOSED STRUCTURE	VARIES	NOTES 10 (SIM)
C107	CORRIDOR	VCT	CERAMIC TILE	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	PAINTED GYP. BD.	11'-0"	NOTES 1, 4, 6, 7, 9
C108	FIRE RISER RM	SEALED CONCRETE	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	EXPOSED TO STRUCTURE	---	---
C109	JANITOR	QUARRY TILE	QUARRY TILE COVE	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	APC-3	10'-0"	NOTE 7, 12,
C110	WALK-IN FREEZER/COOLER	QUARRY TILE	QUARRY TILE COVE	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-3	10'-0"	NOTES 12, 13
C111	SERVING KIOSK	QUARRY TILE	QUARRY TILE COVE	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	APC-3	10'-0"	NOTES 7, 11, 12, 13
C112	OFFICE	QUARRY TILE	QUARRY TILE COVE	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-3	10'-0"	NOTE 7
C113	DRY STORAGE	QUARRY TILE	QUARRY TILE COVE	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	APC-3	10'-0"	NOTES 7, 11
C114	STORAGE	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-3	---	RE: RCP

ROOM FINISH SCHEDULE

ROOM #	ROOM NAME	FLOOR	BASE	NORTH WALL	SOUTH WALL	EAST WALL	WEST WALL	CEILING	CEILING HEIGHT	REMARKS
D100	CLASSROOM	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D101	CLASSROOM	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D102	TEACHERS LOUNGE	VCT/MODULAR CARPET	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
D103	CLASSROOM	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D104	CLASSROOM	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D105	CLASSROOM	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D106	CLASSROOM	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D107	GIRLS RRM.	EPOXY/RESIN	EPOXY/RESIN/CERMIC TILE	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	EPOXY/RESIN/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/ PAINTED GYP. BD.	PAINTED GYP. BD.	10'-0"	---
D108	BOYS RRM.	EPOXY/RESIN	EPOXY/RESIN/CERAMIC TILE	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	EPOXY/ RESIN/PAINTED GYP. BD.	PAINTED GYP. BD.	10'-0"	---
D109	CLASSROOM	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D110	CLASSROOM	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D111	CLASSROOM	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D112	CLASSROOM	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D113	CLASSROOM	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D114	CLASSROOM	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D115	CLASSROOM	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D116	CLASSROOM	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D117	STAFF RRM	PORCELAIN TILE	CERAMIC TILE	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	PAINTED GYP., BD.	10'-0"	---
D118	STAFF RRM	PORCELAIN TILE	CERAMIC TILE	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	PAINTED GYP. BD.	10'-0"	---
D119	JANITOR	QUARRY TILE	QUARRY TILE COVE	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	APC-3	10'-0"	---
D120	ELECTRICAL	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	EXPOSED TO STRUCTURE	---	---
D121	IDF	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
D122	SMALL CLASSROOM	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D123	SMALL CLASSROOM	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D124	BIO-MED LAB	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D124A	PREP/STORAGE	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-2	10'-0"	---
D125	ENGINEERING LAB	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D126	ESL	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D127	MS SCIENCE LAB	VCT	RUBBER	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	PAINTED GYP. BD.	APC-1	10'-0"	---
D128	CORRIDOR	VCT	CERAMIC TILE	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	APC-2/PAINTED GY. BD.	11'-0"	NOTES 1, 4, 6, 7, 9
D129	CORRIDOR	VCT	CERAMIC TILE	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	CERAMIC TILE WAINSCOT/PAINTED GYP. BD.	APC-2	11'-0"	NOTES 1, 4, 6, 7, 9

INTERIOR FINISH MATERIAL TABLE PER CHAPTER 8 OF THE INTERNATIONAL BUILDING CODE

Spec Section	Section Description	Application	Code Section Reference	Code Classification	Classification Specified	Spec Reference	Remarks
09 29 00	Gypsum Board	Wall & Ceiling	803 Wall & Ceiling Finishes	N/A-Non-Combustible Materials	---	---	---
093013	Ceramic Tiling	Wall	803 Wall & Ceiling Finishes	N/A-Non-Combustible Material	---	---	---
093013.13	Porcelain Ceramic Tiling	Floor	8041 Interior Floor Finish	N/A-Non-Combustible Material	---	---	---
093013.13	Porcelain Ceramic Tiling	Wall	803 Wall & Ceiling Finishes	N/A-Non-Combustible Material	---	---	---
09 30 33	Stone Tiling	Floor	8041 Interior Floor Finish	N/A-Non-Combustible Material	---	---	---
09 5113	Acoustical Panel Ceilings	Ceiling	803 Wall & Ceiling Finishes	Min. Class B, ASTM E84 or UL723	Class A, ASTM E84	Part 2.1.A	---
09 6400	Wood Flooring	Floor	805 Combustibles Materials	Permitted with Fire-Rated Subfloor	---	---	Fire-rated sub-flooring detailed in drawings.
09 6513.13	Resilient Base	Floor-Wall Base	806 Decorative Materials & Trim	Class 1 or 11, ASTM E648 or NFPA 253	Class 11, NFPA 253	Part 1.6.B	Min. Class II applies to Groups A, B & E.
09 6519.19	Vinyl Composition Tile Flooring (VCT)	Floor	8041 Interior Floor Finish	Class 1 or 11, ASTM E648 or NFPA 253	Class I, NFPA 253	Part 2.1.A	---
09 6519.23	Solid Vinyl Tile Flooring (LVT)	Floor	8041 Interior Floor Finish	Class 1 or 11, ASTM E648 or NFPA 253	Class I, NFPA 253	Part 2.1.A	---
09 67 66	Fluid-Applied Athletic Flooring	Floor	8041 Interior Floor Finish	Class 1 or 11, ASTM E648 or NFPA 253	Class I, NFPA 253	Part 2.1.A	---
09 6813	Carpet Tile	Floor	8041 Interior Floor Finish	Class 1 or 11, ASTM E648 or NFPA 253	Class 11, NFPA 253	Part 1.6.B	Min. Class II applies to Groups A, B & E.
09 7213.13	Vinyl Wall Graphics	Wall	803 Wall & Ceiling Finishes	Min. Class B, ASTM E84 or UL723	Class A, ASTM E84	Part 2.1.A	---
09 84 33	Sound Absorbing Wall Units	Wall	803 Wall & Ceiling Finishes	Min. Class B, ASTM E84 or UL723	Class A, ASTM E84	Part 2.1.A	---
10 2113	Toilet Compartments	Wall	803 Wall & Ceiling Finishes	Min. Class B, ASTM E84 or UL723	Class B, ASTM E84	Part 2.1.A	---
10 2123	Cubicle Curtains & Track	Curtain	806 Decorative Materials & Trim	NFPA 701	NFPA 701	Part 1.4.C	---
10 26 23.13	Impact Resistant Wall Protection	Wall	803 Wall & Ceiling Finishes	Min. Class B, ASTM E84 or UL723	Class A, ASTM E84	Part 2.1.A	---
116143	Stage Curtains	Curtain	806 Decorative Materials & Trim	NFPA 701	NFPA 701	Part 2.1.C	---

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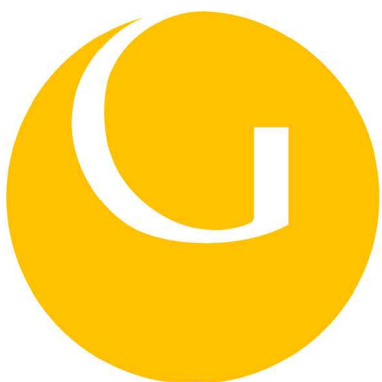
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ROOM FINISHED SCHEDULE NOTES:

1. GLAZED PORCELAIN WAINSCOT, REFER TO WALL FINISH PLANS.
2. GYMNASIUM ACOUSTICAL WALL PANELS LAYOUT PER INTERIOR ELEVATIONS AND "CS SERIES" SHEETS.
3. GYMNASIUM PROTECTION WALL PADS PER INTERIOR ELEVATIONS AND "CS SERIES" SHEETS.
4. DTIGAL VINYL WALL GRAPHICS PER INTERIOR ELEVATIONS AND "CS SERIES" SHEETS.
5. PLASTIC LAMINATE WALL PROTECTION AT STAGE WALL SURROUND AND "SECURE LOBBY" INTERIOR ELEVATIONS AND "CS SERIES" SHEETS.
6. REFER TO REFLECTED CEILING PLANS FOR EXPOSED STRUCTURAL LOCATIONS.
7. IMPACT RESISTANT GYPSUM BOARD ABOVE TILE WAINSCOT.
8. IMPACT RESISTANT GYPSUM BOARD UP TO 12'-0" A.F.F.
9. EPOXY WALL PAINT ABOVE TILE WAINSCOT AT ALL CORRIDORS.
10. EPOXY WALL PAINT AT GYM WALLS.
11. 7'-2" A.F.F TILE WAINSCOT WITH EPOXY WALL PAINT ABOVE TILE.
12. RE: KITCHEN DRAWINGS FOR ADDITIONAL INFORMATION ON THE WALK-IN COOLER AND FREEZER.
13. PROVIDE CONCRETE TOPPING FOR QUARRY TILE FLOOR FINISH KITCHEN DRAWINGS.
14. STAGE RAISED WOOD FLOORING PLATFORM, RE: DETAIL 6/A-312 SIM.
15. PAINTED WALL GRAPHICS PER INTERIOR ELEVATIONS AND "CS SERIES" SHEETS.

ROOM FINISHED GENERAL NOTES:

1. ALL FINISHED MATERIALS MUST MEET THE FLAME SPREAD RATINGS PER THE BUILDING CODE.
2. REFER TO INTERIOR ELEVATIONS AND SHEET CS-700 - C703 FOR SPECIFIC MATERIAL LOCATIONS.
3. REFER TO SHEET CS-700 FOR FLOOR FINISH PLAN.
4. REFER TO SHEET CS-701 FOR WALL PAINT PLAN.
5. PAINT ALL EXPOSED DUCTWORK, CONDUIT, ELECTRICAL EQUIPMENTS, ETC. TO MATCH ADJACENT SURFACES.
6. PAINT ALL NON-FACTORY FINISHED EXPOSED METAL.
7. FLOORING TRANSITIONS AT DOORS SHOULD BE LOCATED UNDER THE DOOR IN THE CLOSED POSITION, UNLESS NOTED OTHERWISE.
8. CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING FINISHED FLOORING SURFACES FROM DAMAGE DURING ALL CONSTRUCTION PHASES.
9. ALL HOLLOW METAL DOOR FRAMES TO BE PAINTED TO MATCH ADJACENT WALL COLOR. VERIFY FINAL COLOR WITH ARCHITECT.
10. PROVIDE SCHLUTER TRIM AT TRANSITIONS FROM WALL TILE TO GYPSUM BOARD WALL, UNLESS NOTED OTHERWISE.
11. PROVIDE SCHLUTER TRIM AT TRANSITIONS FROM EPOXY/RESIN WALL FINISH TO GYPSUM BOARD WALL, UNLESS NOTED OTHERWISE.
12. PROVIDE SCHLUTER TRIM AT TRANSITION FROM VCT FLOORING TO WALL TILE, UNLESS NOTED OTHERWISE.



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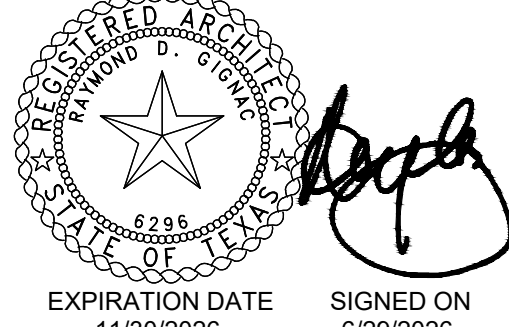
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EXPIRATION DATE

11/30/2026

SIGNED ON

6/29/2026



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SCIENCE ACADEMY HS/MS

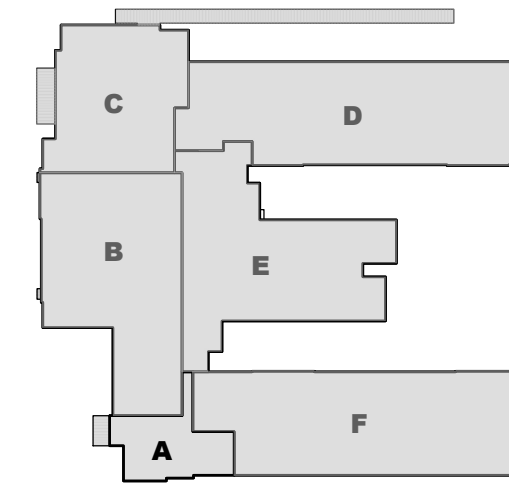
CITY PLACE

PHASE 2

22000 SPRINGWOODS

VILLAGE PKWY, SPRING ,

TEXAS 77379



KEYPLAN

Project Number: 24.23

Drawing Date: 11/20/2025

Drawn: RD

Checked: RG

Revisions:

No. Description Date

1 ADDENDUM #1 7/24/2026

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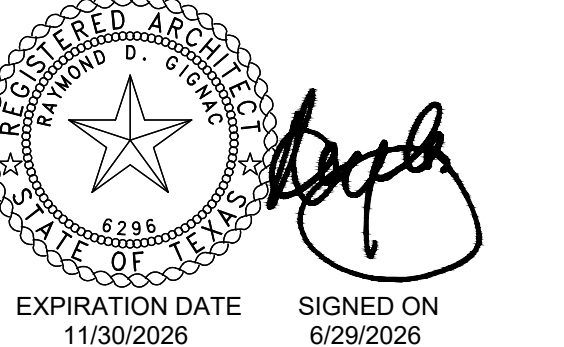
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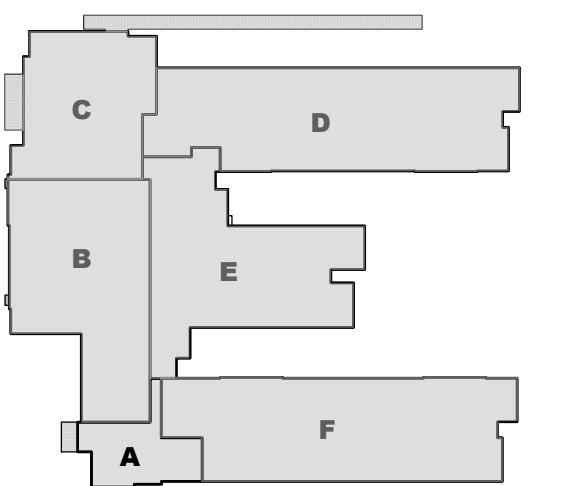
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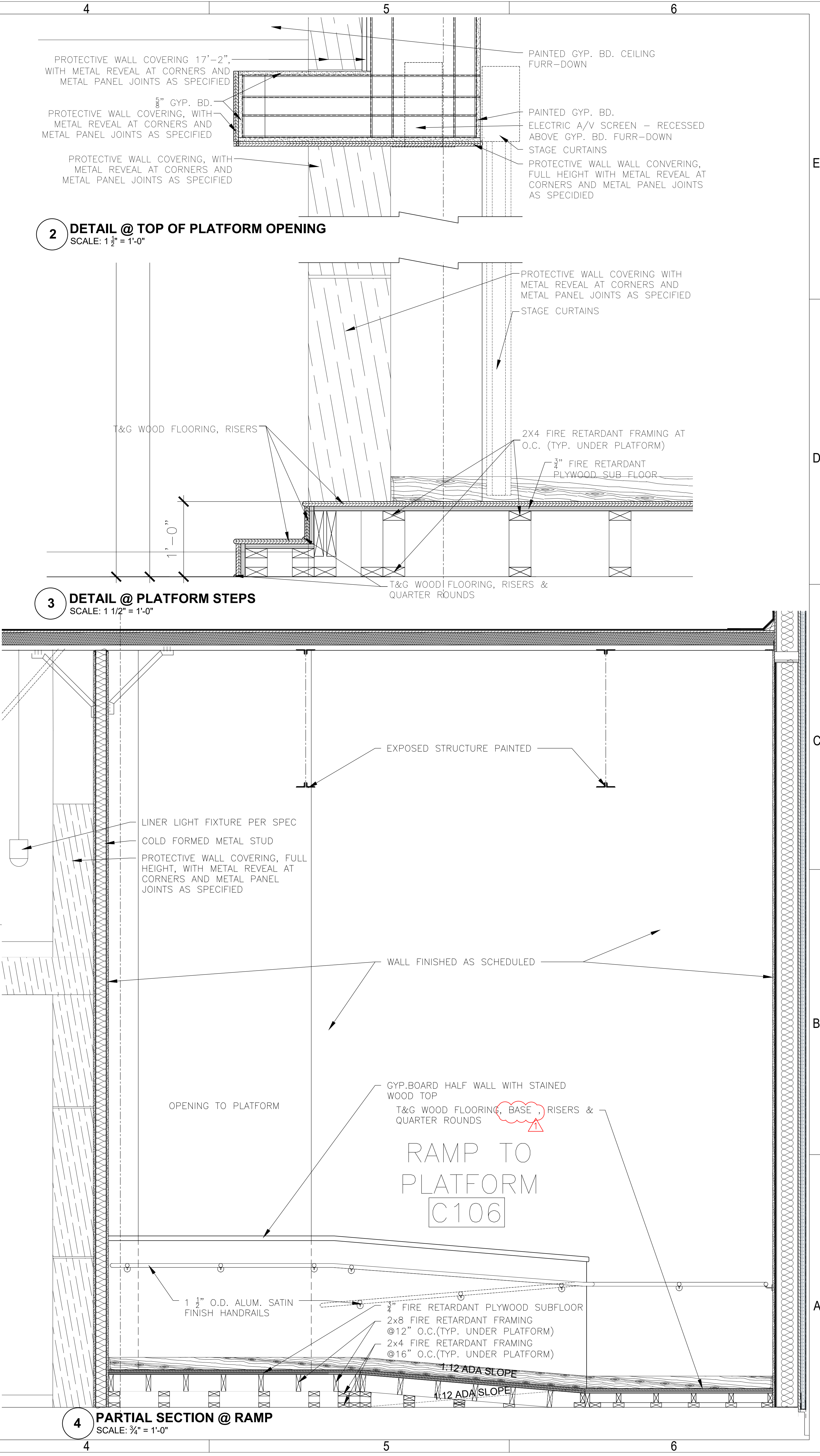
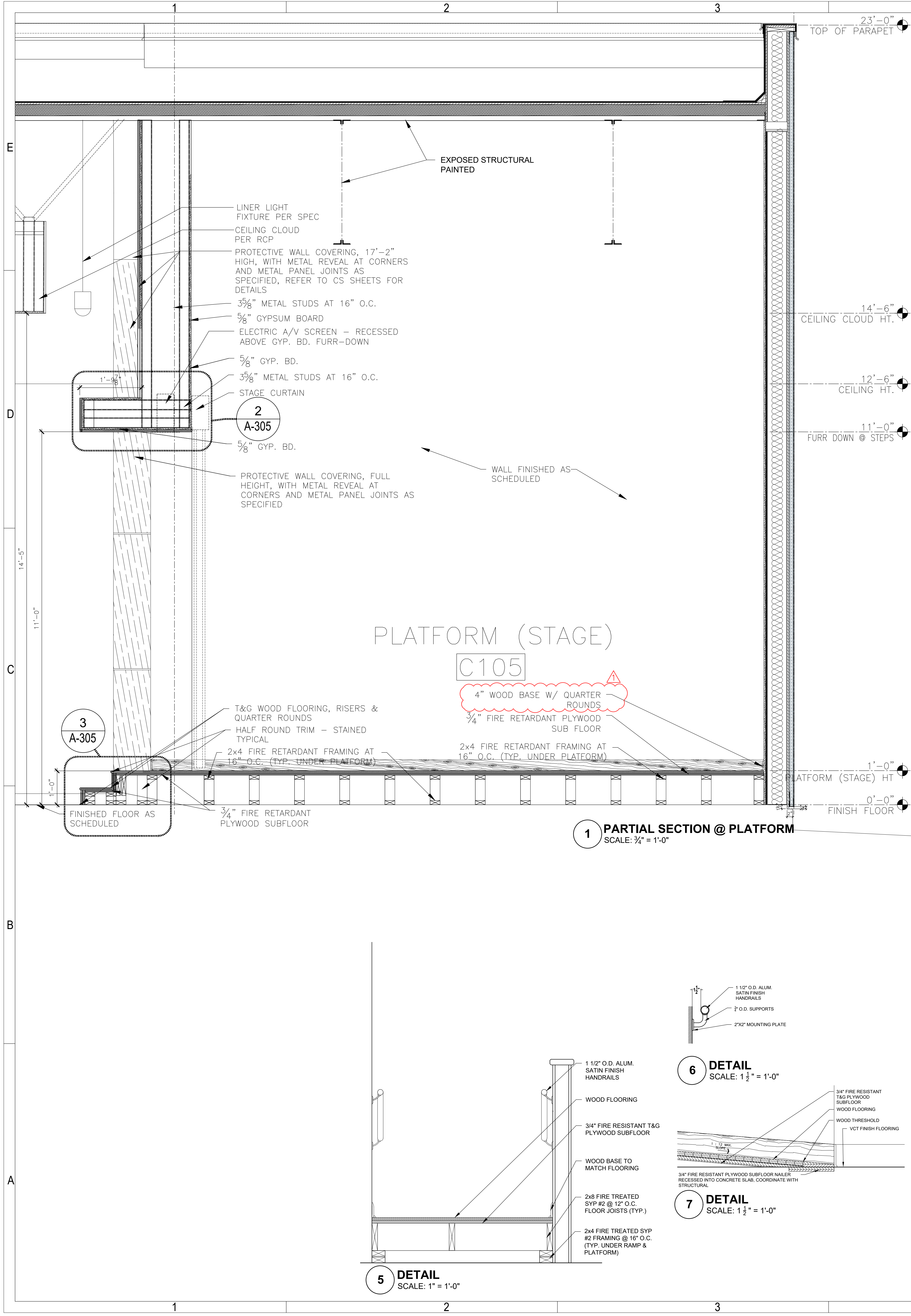
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No.	Description	Date
1	ADDENDUM #1	7/24/2026

Sheet Title:
**PLATFORM & RAMP
SECTIONS & DETAILS**

A-305





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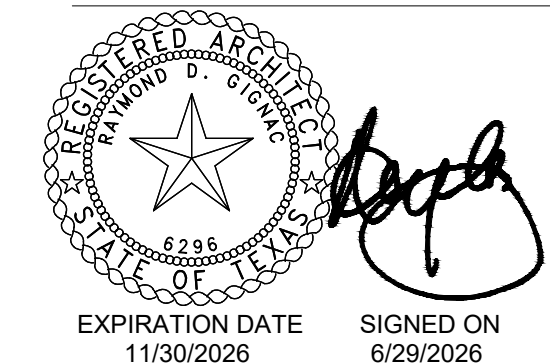
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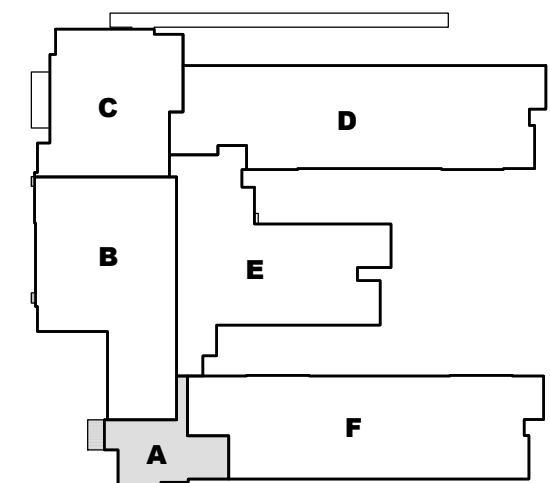
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KEYPLAN

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Sheet Title:

**PARTIAL ROOF
PLAN - AREAS
A / B**

A-401

LEGEND:

- AREA OF TAPERED INSULATION - INDICATES INTENT OF POSITIVE DRAINAGE TO GUTTER/DOWNSPOUTS/ROOF DRAINS
- INDICATES INTENDED DIRECTION OF WATER DRAINAGE
- PRE-FINISHED SHEET METAL DOWNSPOUT AND GUTTER ASSEMBLY - TIED INTO UNDERGROUND STORM DRAIN PIPING - TYPICAL
- PRE-FINISHED SHEET METAL DOWNSPOUT AND GUTTER ASSEMBLY - PROVIDE A CONCRETE SPLASH BLOCK AT EACH LOCATION AS INDICATED (PROVIDE ADDITIONAL ROOF MEMBRANE LAYER, PER ROOF MANUFACTURER RECOMMENDATIONS)
- ALTERNATE BID ITEM - TUBULAR DAYLIGHTING DEVICE DETAIL 9/A-407
- SKYLIGHT RE: DETAILS 4/A-407
- ROOF DRAIN AND OVERFLOW ROOF DRAIN RE: SHEET A-407 AND PLUMBING DRAWINGS

GENERAL PLAN NOTES:

- CONTRACTOR SHALL REVIEW AND COORDINATE WITH ARCHITECTURAL, MEP & STRUCTURAL PLANS TO ASCERTAIN EXACT CONDITIONS AND COMPONENTS RELATED TO THE WORK DESCRIBED BY THESE DOCUMENTS. ALL WORK SHALL BE IN ACCORDANCE AND NRCA STANDARDS.
- DIMENSIONS, DETAILS, EQUIPMENT SIZE AND LOCATION SHOWN ON THESE ROOF PLAN AND ROOF DETAILS ARE FOR INFORMATION AND REFERENCE ONLY. EXACT SIZE, LOCATION, TYPE OF MATERIAL AND TYPE OF CONSTRUCTION ARE RESPONSIBILITY OF THE SUBCONTRACTOR TO CONFIRM AND GENERAL CONTRACTOR TO COORDINATE.
- REFER TO NOMENCLATURE FOR TYPE OF ROOF SYSTEM. AREAS ARE MARKED WITH DESIGNATED LETTER, SEE ROOF PLAN AND NOMENCLATURE.
- MINIMUM SLOP ALLOWANCE ON THE ROOF SHALL BE NO LESS THAN 1/4" PER FOOT. CRICKET UP SLOPE SIDE OF ALL SQUARE CURBS AND PROJECTIONS OVER 20" WIDE.
- ALL NEW CRICKET AND TAPERED INSULATION SHALL BE INSTALLED WITH A FINISH 1" PER FOOT MIN. SLOPE. CRICKET THE UP SLOPED SIDE OF ALL SQUARE CURBS AND PROJECTIONS.
- ALL PIPING/CONDUITS/ETC. SHALL BE A MIN. 12" ABOVE ROOF SURFACE. PROVIDE PORTABLE PIPE HANGERS WITH PROTECTION PADS. COORDINATE TYPE THE MEP DRAWINGS. MEP CONTRACTOR SHALL PROVIDE SUPPORTS FOR NEW LINES.
- PROVIDE 22 GA. STAINLESS STEEL, 2D FINISH, TREATED WOOD CURB AND BOX HOOD AT ALL WATER/ELECTRICAL LINE ROOF PENETRATIONS (RE: GENERAL DETAILS)
- ISOLATED ALL HEAT PIPE/FLUES AS RECOMMENDED & OUTLINED IN THE NRCA MANUAL FOR ISOLATED STACK FLASHING. (RE: GENERAL DETAILS)
- REFER TO MEP DRAWINGS FOR SIZE AND LOCATION OF NEW DECK PENETRATIONS AND ROOF TOP EQUIPMENT.
- PROVIDE WALKWAY PROTECTION PADS AROUND ALL ROOF HATCHES, ROOF MOUNTED EQUIPMENT, AND LADDERS (TOP & BOTTOM)
- REFER TO GENERAL DETAILS FOR TYPICAL SPLASH PAN, ROOF DRAIN AND OVERFLOW DRAIN DETAILS, COORDINATE WITH PLUMBING.
- GENERAL CONTRACTOR TO ENSURE ALL ROOFTOP PENETRATIONS (EQUIPMENT, SOIL STACKS, ETC.) ARE INSTALLED MIN. 2'-0" FROM OTHER DECK PENETRATIONS, RISE WALLS, AND ROOF EDGE.
- THROUGH WALL BASE FLASHING MIN. HEIGHT 10" AND MAX. HEIGHT 20" FROM FINISH DECK. DO NOT STEP THROUGH WALL FLASHING CLOSER THAN 5'-0" FROM CORNERS.
- LOCATE PERIMETER DRAINS MAX. 6'-0" FROM EDGE TYPICAL UNLESS SHOWN OTHERWISE. (GENERAL CONTRACTOR TO COORDINATE WITH ROOFING AND PLUMBING CONTRACTOR).
- PERIMETER ROOF DRAINS AT GYMNASIUM SHOULD BE LOCATED MAXIMUM 4'-0" FROM FINISHED EDGE TO ALLOW MINIMUM CRICKET BACK SLOPE AT LOCATIONS WITH NO OVERFLOW ROOF DRAINS.
- UPON SUBSTANTIAL COMPLETION THE GENERAL CONTRACTOR SHALL EXAMINE AND ENSURE DRAIN LINES, GUTTERS AND DOWNSPOUTS ARE FREE OF DEBRIS AND BLOCKAGE. FLUSH WITH WATER TO ENSURE THAT DRAINS FLOW FREELY, WHERE APPLICABLE.
- REFER TO SHEET A-407 AND A-408 FOR SLOPING CANOPIES AND PRE-ENGINEERED CANOPIES LAYOUT AND DETAILS.

3" DIA. DOWNSPOUT PIPING WITH DOWNSPOUT AND NOZZLE, RE: DETAILS ON THIS SHEET AND PLUMBING DRAWINGS - TYPICAL

COORD. W/ SLOPE

CONTINUOUS GUTTER

STRUCTURAL SLOPE

POSITIVE DRAIN SLOPE

POSITIVE DRAIN SLOPE

PRE-FINISHED SHEET METAL ROOF PANELS AND FASCIA TRIM

3" DIA. DOWNSPOUT PIPING WITH DOWNSPOUT AND NOZZLE, RE: DETAILS ON THIS SHEET AND PLUMBING DRAWINGS - TYPICAL

3 CANOPY AT SECURE CAFETERIA
1/4"=1'-0"

COORD. W/ SLOPE

FACE OF WALL FINISH

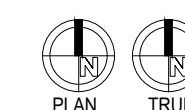
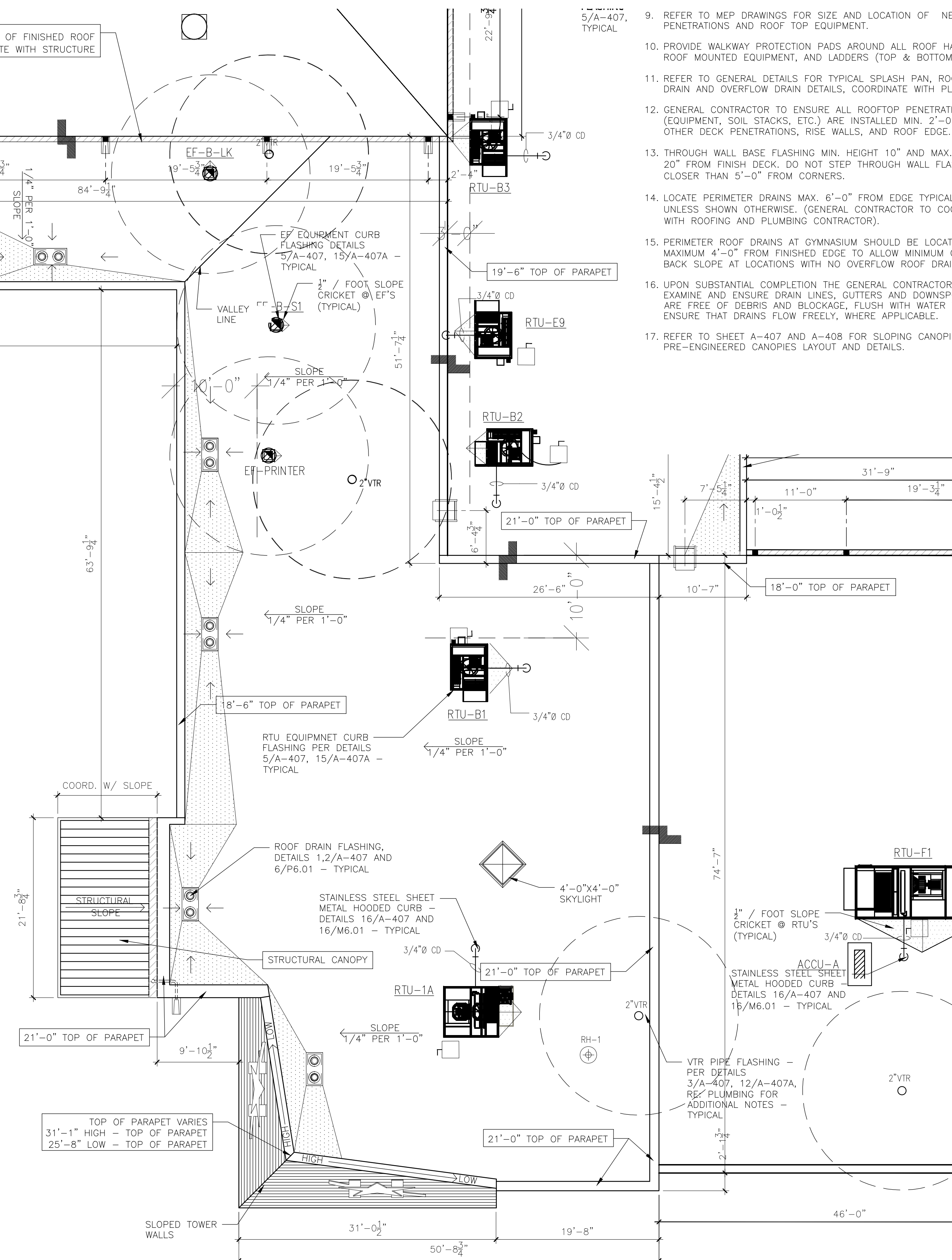
STRUCTURAL SLOPE

POSITIVE DRAIN SLOPE

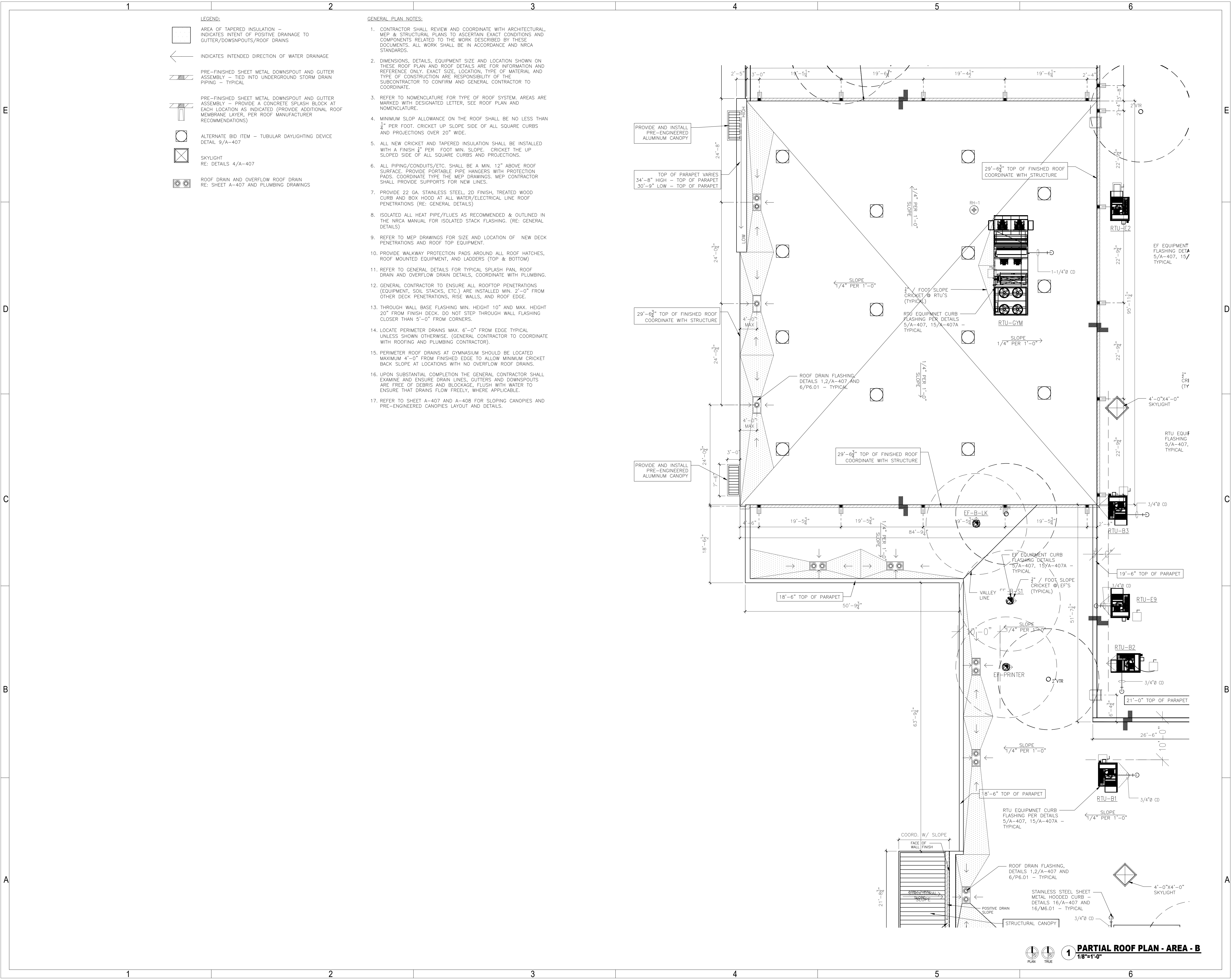
CONTINUOUS GUTTER

3" DIA. DOWNSPOUT PIPING WITH DOWNSPOUT AND NOZZLE, RE: DETAILS ON THIS SHEET AND PLUMBING DRAWINGS - TYPICAL

2 CANOPY AT SECURE LOBBY
1/4"=1'-0"



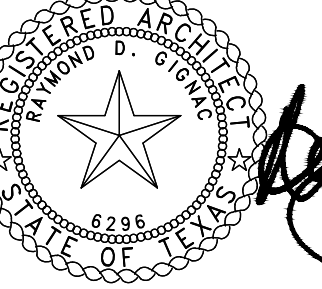
1 PARTIAL ROOF PLAN - AREAS - A / B
1/8\"=1'-0"





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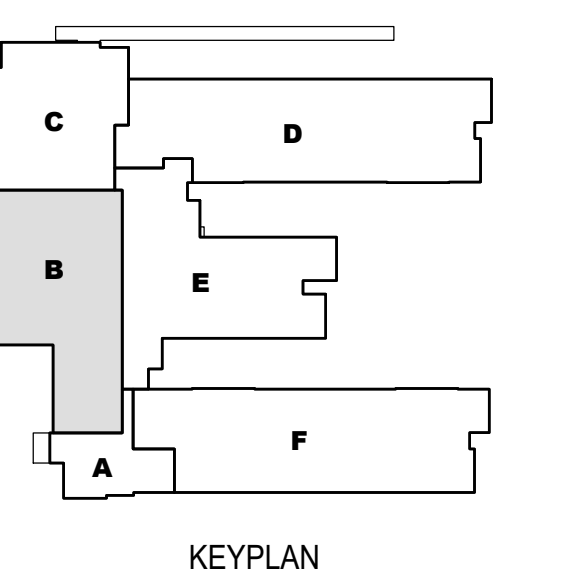
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HARMONY PUBLIC SCHOOLS
SCIENCE ACADEMY HS/MS
CITY PLACE
PHASE 2
22000 SPRINGWOODS
VILLAGE PKWY, SPRING ,
TEXAS 77379

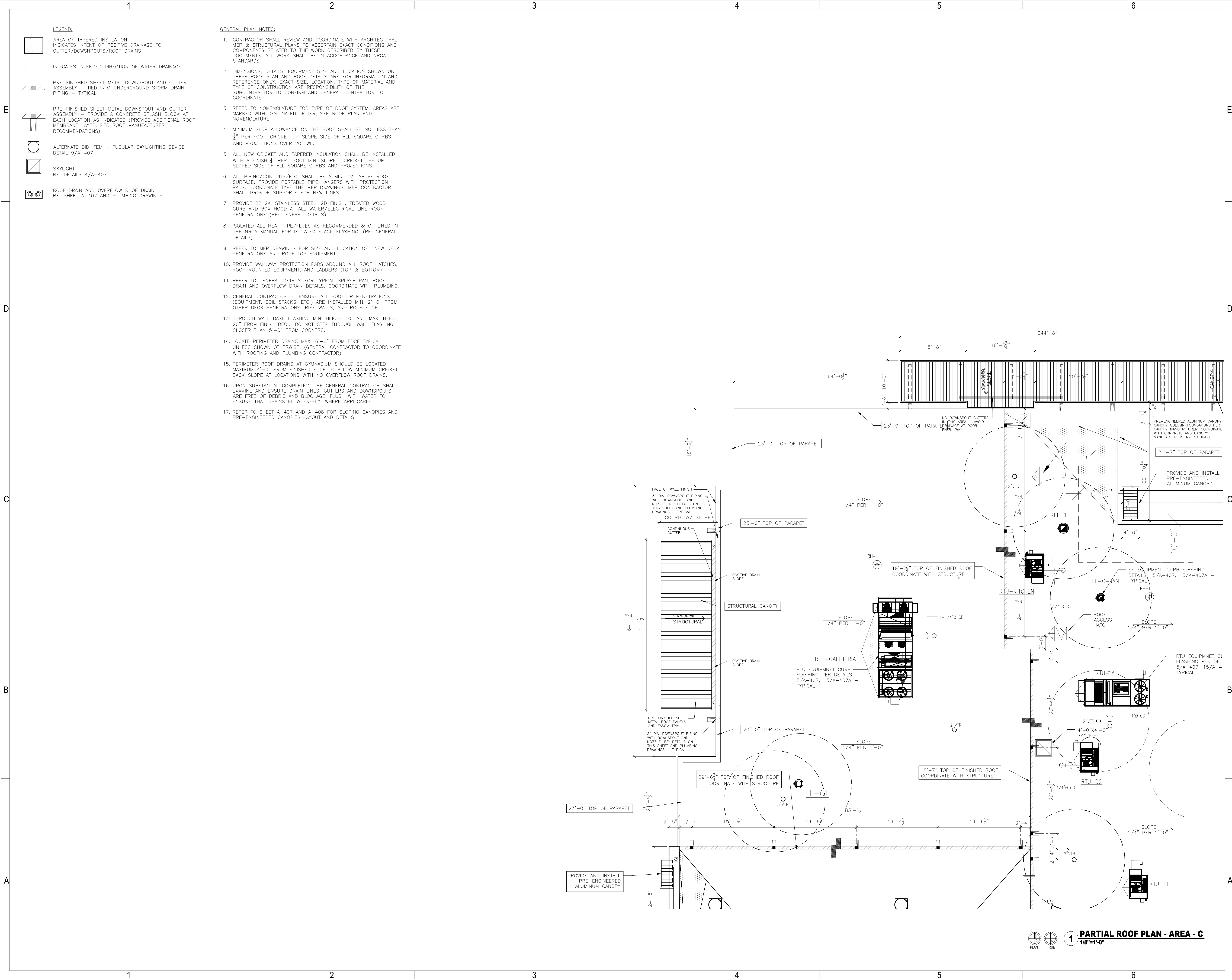


Project Number:	24.23
Drawing Date:	11/20/2025
Drawn:	RD
Checked:	RG

Revisions:		
No.	Description	Date
1	ADDENDUM #1	7/24/2026

Sheet Title:
PARTIAL ROOF PLAN - AREA - B

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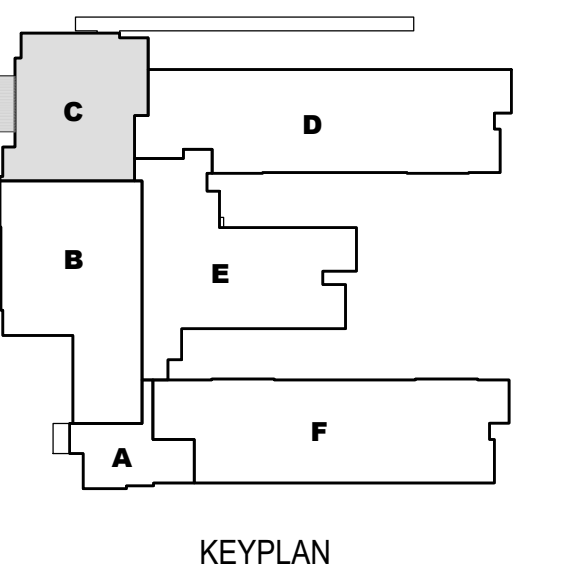


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EXPIRATION DATE 11/30/2026
SIGNED ON 6/29/2026

HARMONY PUBLIC SCHOOLS
SCIENCE ACADEMY HS/MS
CITY PLACE
PHASE 2
22000 SPRINGWOODS
VILLAGE PKWY, SPRING, TEXAS 77379



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Sheet Title:
PARTIAL ROOF PLAN - AREA - C

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