INDIAN SPRINGS HIGH SCHOOL
PERFORMING ARTS CENTER
PHASE 3

650 North Del Rosa
San Bernardino, CA 92410

PHASE 3 ADDENDUM 01

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Prepared By

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To: All bidders FROM: John Sergio Fisher, Architect, AIA, Principal PROJECT: Indian Springs High School Performing Arts Center

SUBJECT: Phase 3 – Addendum 01

The following changes, omissions, and/or additions to the Project Manual, Construction Manual and/or Drawings shall apply to proposals made for and to the execution of the various parts of the work affected thereby, and all other conditions shall remain the same.

Careful note of the Addendum shall be taken by all parties of interest so that the proper allowances may be made in strict accordance with the Addendum, and that all trades shall be fully advised in the performance of the work which will be required of them.

Bidder shall acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject Bidder to disqualification.

In case of conflict between Drawings, Project Manual, Construction Manual and this Addendum, this Addendum shall govern.

1 Inclusive Addenda

1.1 Phase 2 Addenda 1-7 are to be inclusive in Phase 3 Re-Bid

2 Specification Changes

2.1 Remove Specification Section 075000 from project manual and replace with new Specification Section 075000 Cold Process Monolithic Built Up Roofing. The bid cost for this roofing type to be listed under Base Bid #1 on the bid form.

2.2 Add Specification Section 075500 Built Up Roofing. The bid cost for this roofing type to be listed under Base Bid #2 on the bid form.

2.3 Remove Specification Section 099000 Paint and Coatings from project manual and replace with new Specification Section 099000 Paint and Coatings.

2.4 Remove Specification Sections 142120 Limited Use Limited Access Lift and 144100 Wheel Chair Lift from project manual and replace with Specification Section 144216 Vertical Wheelchair Lifts.

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3 Phase 2 Addendum 02

3.1 Addendum 2 Item 3.1 B

A. Remove and Replace all drawings attached to Alternate #8 with Drawings SK-CNPY01 through 011 inclusive. Pricing for Alternate #8 shall be based upon these drawings.

4 Added Contract Drawings

4.1 Catwalk Revisions

A. Add the following sketches

1. SK-CTWK 01 through 05 inclusive.

4.2 Platform Lift Revisions

A. Add the following sketches

1. SK-LIFT 01 through 04 inclusive.

4.3 Sunshade Revisions

A. Add the following sketches

1. SK-SHDS 01 AND 02.

SECTION 075000

COLD PROCESS MONOLITHIC BUILT-UP ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Furnish necessary material and labor to install a Henry Roof System Specification or approved equal following the requirements of this specification and site specific Scope of Work.

2. Other work included: Furnish and install sheet metal, metal pan collar flashing, pipe flashings and counter flashing.

B. Related Sections include the following:

1. Section 061000 Rough Carpentry.

2. Section 076000 Sheet Metal Flashing and Trim.

3. Section 079000 Joint Sealants

1.2 REFERENCES

B. National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual

C. Western States Roofing Contractors Association (WSRCA)

D. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)

E. Underwriters Laboratories (UL)

F. American Society of Testing & Materials (ASTM)

G. California Building Code (CBC)

1.3 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 “Terminology Relating to Roofing and Waterproofing”; glossary of NRCA's "The NRCA Roofing and Waterproofing Manual"; and the Roof Consultants Institute “Glossary of Roofing Terms” for definition of terms related to roofing work in this Section.

B. Sheet Metal Terminology and Techniques: SMACNA Architectural Sheet Metal Manual.

1.4 SYSTEM DESCRIPTIONS

A. Henry Specification #H4-IMC-MR (Concrete Insulated))– Slopes 0 – 18” – (*See 3.05)* Over prepared deck surface, install 80# SBS Underlayment (#606), three layers of 30# SBS Base Sheet (#608), Monolithic System (9 gal. #107 Emulsion reinforced with 3 lbs. #189 Fiberglass), 2 gallons #197 Emulsion & broadcast 40 lbs. granules, and #280 White Elastomeric Coating as specified.

B. Specification System & Weights per 100 Sq. Ft. Dry Weights

Insulation	TBD
#111 Insulbond – 2-1/2 gal Ea. 1st & 2nd layer	42 lbs.
#606 80# SBS Underlayment – Mechanically fastened	80 lbs.
#902 Permanent Bond Adhesive – 2 gallons per 100 sq. ft.	11 lbs.
#608 30# SBS Base Sheet	30 lbs.
#902 Permanent Bond Adhesive – 2 gallons per 100 sq. ft.	11 lbs.
#608 30# SBS Base Sheet	30 lbs.
#902 Permanent Bond Adhesive – 2 gallons per 100 sq. ft.	11 lbs.
#608 30# SBS Base Sheet	30 lbs.
#107 Emulsion Topcoat – 9 gallons per 100 sq. ft.	36 lbs.
#189 Chopped Fiberglass – 3 lbs. per 100 sq. ft.	3 lbs.
#197 Emulsion Topcoat – 2 gallons per 100 sq. ft.	9 lbs.
Granules	40 lbs.
#294 Premium Elastomeric Base Coat – 1 ½ gallons	10 lbs.
#280 White Elastomeric – 1 ½ gallons	20 lbs.
Approximate Total Dry Weight	332 lbs.

C. Jobsite Safety: Execute all operations and provide a safe work environment in accordance to OSHA standards and regulations. This requirement applies to all contractor personnel, associated subcontractors, workers in other trades, and jobsite visitors.

1. Follow all industry fire prevention guidelines for storage of materials, staging areas, roof access, and application means and methods.

2. Any applicable local fire codes supersede industry guidelines.

1.5 SUBMITTALS

A. Fire Hazard Classification - Provide letter certifying that roof membrane assembly qualifies for UL Class A fire hazard classification for the type of substrate(s), slope(s), insulation(s) (when applicable) and membrane(s) specified for this installation. Include copy of the UL listing.

B. Applicator approval - Provide letter from manufacturer of roofing materials stating that applicator is acceptable to manufacturer.

C. Complete materials list of all items to be furnished and installed under this Section.

D. Copy of latest edition of the Roofing System Manufacturer's material specifications and installation instructions.

E. Two (2) 3" x 5" samples of roof membrane mock-up and flashing membrane.

F. Copy of Manufacturers Warranty.

1.6 SUBMITTAL OF EQUALS

A. Submittals shall be made not less than ten (10) days prior to bid date. Primary roof systems that have been reviewed and accepted as equals to the specified roof system will be listed in an addendum prior to bid date; only then will equals be accepted at bidding. All submittals which do not conform to the following requirements will be rejected.

B. Furnish in triplicate:

1. 8" x 10" mock up samples of the complete roof membrane and flashing membrane assemblies.

2. Latest edition of the roofing system manufacturer's specifications and installation instructions.

3. Detailed descriptive list of the materials proposed for use.

4. Copy of UL approval of the proposed roofing system for the required assembly and slope. No other testing agency approvals will be accepted.

5. Letter from the proposed primary roofing manufacturer confirming the number of years it has directly manufactured the proposed primary roofing system under the trade name and/or trademarks as proposed.

6. List of ten (10) of the manufacturer's projects located within 25 miles of the project site of equal size and degree of difficulty which have been performing successfully for a period of at least ten (10) years. Include contact name and phone number.

7. Complete list of material physical properties including solids. Owner reserves the right to request documentation from a nationally recognized independent lab certifying physical properties.

8. Copy of manufacturer's inspection form.

9. Qualifications of manufacturer's inspector(s)

10. Proposal from manufacturer for site specific quality control program.

11. Sample copy of the specified guarantee including terms and procedures for renewal.

12. Documentation that manufacturer meets requirements of 1.6A.

1.7 QUALIFICATIONS

A. Manufacturer Qualifications:

1. Manufacturer shall be a member in good standing with the Southern California Roofing Contractors Association, Western States Roofing Contractors Association, National Roofing Contractors Association, Construction Specifications Institute, and California Association of School Business Officials.

2. Manufacturer must furnish as single source all primary roofing materials with manufacturer's labels and have current listing in Underwriters Laboratory Directory. Materials must bear UL Classification marking on bundle, package or container indicating that materials have been produced under UL's Classification and Follow-up Service.

3. Manufacturer must provide list of 10 projects of equal size and difficulty within a 25 mile radius of the project site.

4. Manufacturer shall employ a full-time field inspector available for periodic inspections (not less than twice weekly) and final inspections. Inspection reports to be available to the Owner Representative on request.

5. Manufacturer must employ a Registered Roof Consultant and Registered Roof Observer certified by the Roof Consultants Institute.

B. Contractor Qualifications

1. Contractor must provide list of 3 projects of equal size and difficulty within a 50 mile radius using the specified roof system.

2. Contractor must provide a supervisor that can communicate with Manufacturer's Inspector and Owner Representative.

3. Contractor must provide knowledgeable foreman who understands all aspects of the specification.

1.7 QUALITY ASSURANCE

A. Pre-Job Conference

1. Prior to the beginning of work, a pre-job conference shall be held at the job site.

2. Provide seven calendar days advance written notice ensuring the attendance by competent authorized representatives of the Henry Certified Contractor (HCC), a Henry Company representative, building owner, architect, consultant, and subcontractors including mechanical and electrical where such work penetrates the work of this Section.

3. During the pre-job conference, attendees shall review the specifications to determine any potential problems, changes, etc. Scheduling, weather conditions, unique job site conditions, installation requirements and procedures and any other information pertinent to the roof system installation shall be discussed.

4. The results of the conference shall be recorded with copies submitted to all participants

B. Notify Henry Company Inspector 48 hours prior to job start, schedule changes and prior to application of surfacing and reflective coat.

C. A copy of the specification is to be on the job site.

1.8 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, 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.

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 JOB CONDITIONS

A. Protection Requirements.

1. Protect building and grounds from overspray, staining and mechanical damage. Plank lawns, walks, etc. in traffic areas.

2. Applicator will be held responsible for any damage caused to roof top equipment, roof penetrations, clogged drains (if not identified prior to starting the work) and damage to building and grounds resulting from the execution of his work.

3. Lock valves on tankers when not attended.

4. Cover or arrange air intakes to be turned off during application of solvent-based materials.

B. Environmental Requirements.

1. Do not apply material during precipitation or when rain is a probability during or after application before material can set.

2. Never apply solvent-based adhesives or coatings to a wet surface.

3. Never apply water-based emulsions when the ambient temperature is below 50°F or will fall below 40°F before the emulsion has cured to a tack-free black surface. High humidity, fog and dew will greatly extend the time for emulsions to cure.

4. Protect adjacent surfaces from staining and mechanical damage during application of roofing.

1.11 WARRANTY

A. CONTRACTOR WARRANTY

1. Prior to acceptance of the roofing work, furnish certified written warranty signed by Roofing Contractor agreeing to make repairs and replacements required to maintain roof, including flashing, in watertight condition for two years from date of substantial completion.

2. Make repairs or replacements at no additional cost to Owner.

3. Warranty shall include temporary repair work under emergency condition as required to maintain water tightness of the building pending permanent repairs.

B. MANUFACTURER'S WARRANTY

1. Furnish Manufacturer's 10 + 10 -year Warranty for material and workmanship. There is to be no additional warranty or inspection fees for the 10-year extension.

2. Manufacturer to make inspection in the 2nd and 10th year of the warranty period.

1.12 MAINTENANCE

A. Furnish Owner with annual maintenance requirements to maintain contractor and manufacturer's warranties.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Materials manufactured or supplied by Henry Company, Huntington Park, CA 90255; tel: 323-583-5000.

B. Products by Tremco and Garland equal to the specified materials are also approved .

C. Products by other manufacturers must be submitted 10 days prior for approval.

2.2 PRODUCT DELIVERY

A. Bulk delivery material shall be accompanied by a Henry Company bill of lading.

2.3 MATERIALS

A. General: Refer to Project Scope of Work for applicable product references.

B. Underlayment or buffer ply

1. #606 80# SBS Underlayment

C. Insulation

1. Polyisocyanurate insulation ASTM C-1289-95

2. Density – ASTM D1622 – nominal 2 pcf.

3. Compressive strength – ASTM D1621 – nominal 20 psi

4. Polyisocyanurate insulation overlay of minimum ½" perlite fiberboard or 1/8" Henry Recover Board. Combine R-value of 30.

5. Mechanical fateners – corrosion resistant – listed with Factory Mutual

6. Insulation adhesive: #111 InsulBond applied at rate of 2 to 2.5 gallons per 100 sq. ft.

D. Interply

1. #608 SBS 30# Ply Sheet

E. Interply Adhesive – 2 gallons/ sq/ply:

1. #902 Permanent Bond Adhesive – low odor, modified and rubberized cold adhesive

F. Base Flashing

1. Modified plus NP 180 s/s – SBS modified membrane, polyester reinforced

G. Monolithic Surfacing (9 gallons w/ 3lbs glass/square)

1. #197 asphalt emulsion – ASTM D 1227-95 Type III, Class I
2. #189 chopped fiberglass

H. Surfacing

1. #197 asphalt emulsion
2. Granules (#40)

I. Reflective Surfacing

1. Premium elastomeric coating: #294 Premium Base Coat, #280 white, #282 Tan

J. Miscellaneous Products

1. Primer #103 VOC Compliant Primer.
2. #504 Plastic Cement
3. #600 Ruftac – 75 mil - SBS modified self-adhesive membrane
4. #209 ElastoMastic
5. #183 Reinforcing Glass – Yellow
6. #196 Polyester Fabric
7. #107 Asphalt Emulsion.
8. #109 Liquid Roof - Neoprene Modified Emulsion
9. #176 Pond Patch
10. Walk pads
11. Approved mechanical fasteners
12. Wolmanized wood nailers
13. Replacement metal to be 24 gauge galvanized sheet metal.
    a. Metal edging to have maximum ¼” rise.
    b. All flanges to be 4 inches with full corners
    c. Pitch pans to have soldered joints.
14. Lead Flashings to be minimum 4 #. – factory or field soldered
15. Josam or Smith drains and overflows

16. ChemCurb pitch pockets (approved in lieu of galvanized pitch pockets)

17. Four inch cant strips ASTM C-208

PART 3 - APPLICATION

3.1 EXAMINE 3.1 GENERAL

A. Henry Company's General Requirements and Product Data are a part of this specification.

B. Do not tear-off or remove any more roofing than can be replaced the same day.

C. Unless sheet metal components are specified for replacement carefully remove, clean, prime and set aside for reinstallation. Carefully turn up counter flashing.

3.2 EXAMINE SUBSTRATES, AREAS, AND CONDITIONS,

A. Inspect deck: Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:

1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.

2. Blocking, curbs, and nailers are required at edges of roof penetrations, area dividers, and terminations.

3. 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.

4. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch out of plane relative to adjoining deck.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

A. Sweep or vacuum all surfaces prior to commencement of roofing. Allow surface to dry before proceeding.

B. Cut ply sheets into 18 foot lengths. Allow plies to flatten before application.

C. All surfaces shall be well-secured, firm, smooth and free from rough spots and sharp projections before roof application begins.

D. Test interior drains to confirm that they flow freely. Immediately notify Owner's Representative if correction is required. Protect drains from plugs of gravel and debris.

E. If not scheduled for new metal, carefully lift or remove metal counterflashing, coping, and gravel stop. Clean metal and set aside for reinstallation.

3.4 GENERAL REQUIREMENTS

A. Install roofing in accordance with roofing system manufacturer's instruction, scope of work for the site and these requirements.

B. Valleys and waterways. Install extra layer of the specified glass base set in full width application of #902 High Solids Modified Bitumen Adhesive in valleys, drains and waterways.

C. Prime metal flanges (all jacks, edge metal, etc.); concrete and masonry surfaces with a uniform coating of asphalt primer.

D. Thinning or alterations of adhesives, primer, emulsion, reflective coat and sealant is not permitted.

E. Clean all drains and remove clamp rings, dried mastic and any other loose material. Prime with asphalt primer and allow too dry. Install Ruftac in drains set in #209 Elastomastic.. Replace broken or missing clamp rings, bolts or fasteners and drain bonnets with new. Complete drains the same day.

F. Scuppers/Outlets. Set scuppers in 1/8" troweling of Elastomastic. Three course flange with Elastomastic and glass fabric.

G. Lift all supports for conduits and other pipes. Install new wood blocks under conduit or pipes. Reinforce under block with one layer of 80# Cap Sheet cut 6" larger in all directions of block, granules side up, set in generous application of specified Elastomastic prior to Monolithic surfacing. Seal top of bolts, screws, etc., with #209 ElastoMastic. Loosen brackets so pipes can expand and contract freely.

H. EQUIPMENT PADS. Install one layer of Ruftac over equipment pads before installing metal pans.

I. PIPE PENETRATIONS, ELECTRICAL JACKS, VENT PIPES EQUIPMENT STANDS

1. Set flange over base plies set in #209Elastomastic.

2. Seal with 6” strip of reinforcing fabric sealed solidly with Elastomastic. Cut a collar of base sheet to fit around vents and overlap the flanges 6” on sides. Set in application of Elastomastic.

3. Form a #209 Elastomastic cant around base of vents prior to the application of the Monolithic surfacing.

4. Ruftac is an acceptable alternative to I.2.

5. When specified in project’s Scope of Work, install storm collars on all pipe penetrations and jacks.

J. 3-COURSING

1. Prime wall surface at least 3" above termination edge of the base flashing.

2. Over completed base flashing trowel a 5” wide layer of #209 Elastomastic 1/8” thick to completely cover nails and top edge of base flashing.

3. Embed a 4" wide strip of Yellow Glass Fabric and apply another 1/8" troweling of Elastomastic covering fabric completely. Bring to a featheredge and finish in a straight line.

4. If not covered by metal counterflashing cover with Monolithic Emulsion system.

K. CANT STRIPS. Install cant strip at all horizontal to vertical transitions. Nail or set in specified Elastomastic. Set to provide smooth transition without gaps. Miter corners. At scuppers bevel cant strip starting 8” back from outlet.

L. COPING JOINTS: Clean coping joints. Prime 3” on both sides of joint and seal joint with 6” minimum layer of Ruftac.

M. WATER CUT-OFF. At end of day’s work, or when precipitation is imminent, install water cut-off at all open edges. Install alternating layers of Elastomastic and roof felts. Construction is to withstand protracted periods of service. Remove cut-offs completely prior to the resumption of roofing.

N. Roll the membrane with a 75-lb. (34kg) (minimum) weighted roller within 30 minutes to 4 hours of application. Provide waterstops and seal all terminations at the end of each day.

O. WALKWAYS. Install walkways in 4' sections allowing 2" spacing between sheets. Cut and trim pieces as required to fit conditions. Set walkway in spot applications of Plastic Cement.

3.5 Specification H4-IMC-MR (OVER CONCRETE OR OTHER NON-NAILABLE DECK – WITH INSULATION)

A. Underlayment or Buffer: Apply #606 inverted 80# SBS Underlayment granule side down with 2" (51mm) side laps and 4" (102mm) end laps. Apply the first sheet of underlayment with a 12" (305mm) width and the remaining sheets full width. Stagger end laps.

B. Adhere base ply with 9" diameter spot application of #902 High Solids Modified Bitumen Adhesive 18" on center staggered in two rows 12" apart. Seal side and end laps.

C. Base Sheets: Over the underlayment, apply three (3) layers of #608 30# SBS Base interply sheets set in a uniform application #902 High Solids Modified Bitumen Adhesive at a rate of 2 gallons per 100 sq.ft.

D. Starting at the low point, apply a 12" (457mm) wide piece, then over that, one 24" (610mm) wide, then over both, a full width piece. Install the remaining sheets full width overlapping preceding sheet 24-2/3". Run plies to top of cant.

3.6 METAL EDGING

A. Extend top layer of base sheet over edge of roof approximately 1".

B. Install metal flange over completed membrane but before application of surfacing. Set metal flange in trowel application of plastic cement. Nail 3" (76mm) o.c. staggered.

C. Over prepared surface install 12" wide Ruftac over metal flange and extending onto the field of the roof.

3.7 FLASHINGS

A. General Requirements

1. Prime concrete surfaces with specified primer and allow too dry.

2. Complete first ply of flashing daily to assure watertight installation.

3. Install Base Flashing to a maximum 24" in height

4. Ruftac may be used in lieu of modified Plus 180, but requires that surface be primed and allowed to dry.

5. Install flashings in two pieces when height exceeds 24". Overlap bottom layer 3".

6. Reinforce and make watertight all angles with one layer of modifiedPlus 180 s/s to extend 2" above cant and 2" onto field. Coat substrate and back of sheet with 902 High Solids Modified Bitumen Adhesive at rate of 1 gallon per 100 sq.ft. per side. Allow to tack. May require approximately 30 minutes air time to be tacky. Press in place. Lap sides 3".

7. Unless otherwise specified 3-course top edge with Plastic Cement and #183 Yellow Glass

B. Install Flashing Specification Number #180

1. Cut layer of modifiedPlus180s/s to extend not less than 4" (51mm) above cant strip. Coat back of cap ply and wall with #902 High Solids Modified Bitumen Adhesive at rate of ¾ gallon/100 sq.ft. (.3 l/m²) each side. Allow sheets to set until tacky. Press sheet in place. Lap ends 4" (102mm).

2. Nail top of completed base flashings 8" (204mm) o.c.

3. Provide counterflashing with minimum 4" (102mm) face installed in reglet or surface mount.

4. Apply compatible sealant.

C. Wall Flashings

1. Wood Walls. Nail #605 granule side out. Nail 12" on center in all directions and 6" on end laps. Extend wall flashing over base flashing 3".

2. Concrete Walls. Unless otherwise specified, cover the inside and tops of concrete parapet walls with one layer of Ruftac. Extend membrane over base flashing 3" and to within 3" of outside wall. Rub in firmly by using a wallpaper roller bonding Ruftac without wrinkles or loose areas. Nail top edge through 1" tin disks 8" o.c.

3. Masonry Block Walls. Unless otherwise specified cover the inside and tops of masonry block walls with one layer of polyester embedded in 4 gallons of 107 Asphalt Emulsion. Side laps to be

3". Extend over base flashing 3" and to within 3" of outside wall. Polyester to be fully embedded and without wrinkles.

3.8 SURFACING - Monolithic System

A. After the adhesive has thoroughly cured (no solvent odor is evident and laps cannot be pulled apart), but not less than five days, sweep or pressure blow dust and debris from the roof surface to provide a clean surface. Hose and/or scrub off with water any residue accumulation.

B. Protect adjacent walls not scheduled for emulsion and reflective coating. Protect equipment, roof top units, valves, switches, coils or moveable parts etc. not scheduled to receive Monolithic application from overspray. Mask off identification plates on equipment.

C. Clean gutters prior to surfacing.

D. Cover prepared surfaces with not less than 9 gallons (34l) per 100 sq.ft of undiluted #197 Asphalt Emulsion. Evenly blend emulsion with 3 lbs. (1.4kg) of ¾" (19mm) long chopped glass reinforcing sprayed with equipment approved by Henry Company. Tufting of the glass fibers is not acceptable. Spray emulsion in a direction opposing the laps of base sheet so that when system is dry, there are no voids or bridging of glass over any seam of the membrane. Finish to be 72 dry mils.

E. Unless otherwise specified, spray vents, ducts, and parapet walls. Spray parapet walls to within 1" of outside edge; above reglets and/or 5-course counterflashing.

F. Spray base flashings and other designated surfaces with the Monolithic System.

3.9 REFLECTIVE COATING:

A. As soon as emulsion surfacing has cured (tack-free and black), clean the surface of dust and debris. After five (5) days, hose roof surface and scrub out any pockets of residue.

B. Apply two (2) gallons of undiluted #197 Asphalt Emulsion per 100 sq. ft.

C. Broadcast granules into wet #197 Asphalt Emulsion.

D. Apply #294 Premium Elastomeric Base Coat at the rate of 1 ½ gallons per 100 sqft (.6l/m²) in one coat.

E. Apply #280 White Elastomeric Top Coating at the rate of 1 ½ gallons per 100 sq.ft.

F. Any areas that peel must be redone before the project will be considered complete.

G. In arid climates when rain is unlikely with 30 days of application of the reflective coat, Hose roof surface 30 days after application.

3.10 CLEAN-UP

A. Test all drains to confirm they are free flowing and clear of debris.

B. Clean gutters and downspouts as needed of all debris.

C. Any deficiencies found during final inspection will be corrected within 5 working days and will be re-inspected by a Manufacturer's Representative and Owner's Representative.

D. Leave premises clean to complete satisfaction of the Owner.

END THIS SECTION

SECTION 075500 GAF Alternate

BUILT-UP ROOFING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes
   1. Asphaltic modified bituminous roofing
   2. Roof Insulation

B. Related Sections
   1. Section 061000 Rough Carpentry
   2. Section 076000 Flashing and Sheet Metal
   3. Section 221000 Plumbing

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM) - *Annual Book of ASTM Standards*

B. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - *Architectural Sheet Metal Manual*

C. National Roofing Contractors Association (NRCA)

D. Underwriters Laboratories (UL) - *Roofing Systems and Materials Guide*

E. California Title 24 Energy Efficient Standards

1.03 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D1079 and the glossary of the National Roofing Contractors Association (NRCA) *Roofing and Waterproofing Manual* for definitions of roofing terms related to this section.

1.04 SUBMITTALS

A. Product Data: Provide product data sheets for each type of product indicated in this section.

B. Shop Drawings: Provide manufacturers standard details and approved shop drawings for the roof system specified.

C. Samples: Provide samples of insulations, fasteners, membrane materials and accessories for verification of quality.

D. Certificates: Installer shall provide written documentation from the manufacturer of their authorization to install the roof system, and eligibility to obtain the warranty specified in this section.

1.05 PRE-INSTALLATION CONFERENCE

A. Prior to scheduled commencement of the roofing installation and associated work, conduct a meeting at the project site with the installer, architect, owner, GAF representative and any other persons directly involved with the performance of the work. The installer shall record conference discussions to include decisions and agreements reached (or disagreements), and furnish copies of recorded discussions to each attending party. The main purpose of this meeting is to review foreseeable methods and procedures related to roofing work.

1.06 PERFORMANCE REQUIREMENTS

A. Provide an installed roofing membrane and base flashing system that does not permit the passage of water, and will withstand the design pressures calculated in accordance with the most current revision of ASCE 7.

B. GAF® shall provide all primary roofing materials that are physically and chemically compatible when installed in accordance with manufacturers current application requirements.

1.07 REGULATORY REQUIREMENTS

A. All work shall be performed in a safe, professional manner, conforming to all federal, state and local codes.
B. Exterior Fire Test Exposure: Provide a roofing system that will achieve an Underwriters Laboratories rating for roof slopes indicated.
   1. UL Class B

C. Windstorm Classification: Provide a roofing system which will achieve a Factory Mutual wind uplift rating, as listed in the current FM Approval Guide.

1.08 DELIVERY, STORAGE AND HANDLING

A. Deliver all roofing materials to the site in original containers, with factory seals intact. All products are to carry either a GAF® or BMCA ® label.

B. Store roll goods on end on pallets in a clean, dry, protected area. Take care to prevent damage to roll ends or edges. Do not double stack modified bitumen products.

C. Materials shall be stored above 55°F (12.6°C) a minimum of 24 hours prior to application.

D. Store all pail goods in their original undamaged containers in a clean, dry location within their specified temperature range. Reference data sheets for product storage requirements.

E. Do not expose materials to moisture in any form before, during or after delivery to the site. Reject delivery of materials that show evidence of contact with moisture.

F. Remove manufacturer supplied plastic covers from materials provided with such. Use “breathable” type covers such as canvas tarpaulins to allow venting and protection from weather and moisture. Cover and protect materials at the end of each work day. Do not remove any protective tarpaulins until immediately before the material will be installed.

1.09 PROJECT CONDITIONS

A. Weather
1. Proceed with roofing only when existing and forecasted weather conditions permit.
2. Ambient temperatures must be above 45°F (7.2°C) when applying hot asphalt or water based adhesives.

1.10 WARRANTY/GUARANTEE

Provide Manufacturers standard prorated material warranty where the manufacturer agrees to repair or replace to portion of the roofing materials that have resulted in a leak due to a manufacturing defect or defects caused by ordinary wear and tear.

1. Duration: Twenty (20) years

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURER

A. GAF - 1361 Alps Road, Wayne, NJ 07470

2.02 INSULATION: Rigid polyisocyanurate board, with a strong white or black fibrous glass facer conforming to or exceeding the requirements of ASTM C 1289 / FS HH-I-1972. Thermal resistance of R-30

2.03 ROOF BOARD: Fiber-reinforced gypsum panel with an integral water-resistant core. 1/4" GP Dens-Deck or equal.

2.04 INSULATION ACCESSORIES

A. Cant Strip: Factory fabricated rigid perlite strip cut at angles to provide a true 45° Angle between horizontal and vertical surfaces.

B. Tapered Edge Strip: Factory fabricated rigid perlite strip cut at angles to provide a smooth transition between differences in elevation.

2.05 MEMBRANE MATERIALS

A. Glass fiber asphalt saturated ply sheet, strong and lightweight. Conforms to or exceeds requirements of ASTM D 2178 Type IV and UL Type G1 BUR Each roll contains five (5) squares (530 sq. ft.) of material, approximately 39.4” x 161.8’ (1.0m x 49.3m).

2.06 FLASHING MATERIALS

A. Heavyweight asphalt coated glass fiber base sheet: Conforms to or exceeds requirements of ASTM D 4601, Type II, UL Type G2 BUR, and Federal Spec SS-R-620B Type II. Each

roll contains three (3) squares (320 sq. ft.) of material, approximately 39.4" x 97.5’ (1 m x 29.7 m).

B. Premium glass fiber asphalt saturated ply sheet with flexible design: Conforms to or exceeds requirements of ASTM D 2178 Type VI and UL Type G1 BUR. Each roll contains five (5) squares (530 sq. ft.) of material, approximately 39.4” x 161.8’ (1.0m x 49.3m).

2.07 BITUMEN / ADHESIVES

A. Asphalt Bitumen: ASTM D312 Type III or IV

B. SBS Adhesive: ASTM D4586, TOPCOAT Matrix 102 SBS Membrane Adhesive by GAF .

C. Roof Cement: ASTM D4586, TOPCOAT Matrix 203 Plastic Roof Cement, by GAF.

D. Asphalt Primer: ASTM D41 TOPCOAT Matrix 307 Premium Asphalt Primer, by GAF.

E. Insulation Adhesive: Oly-Bond 500 distributed by GAF.

2.08 PLATES & FASTENERS

A. Standard Screws: Standard duty alloy steel insulation fastener with CR-10 coating with a .215” diameter thread. Factory Mutual Standard 4470 Approved, #3 Phillips head for use on steel and wood decks.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that the surfaces and site conditions are ready to receive work.

B. Verify that the deck is supported and secured.

C. Verify that the deck is clean and smooth, free of depressions, waves, or projections, and properly sloped to drains, valleys, eaves, scuppers or gutters.

D. Verify that the deck surfaces are dry and free of ice or snow.

E. Verify that all roof openings or penetrations through the roof are solidly set, and that all flashings are tapered.

3.02 SUBSTRATE PREPARATION

A. Sweep or vacuum all surfaces prior to commencement of roofing. Allow surface to dry before proceeding.

B. Cut ply sheets into 18 foot lengths. Allow plies to flatten before application

C. All surfaces shall be well-secured, firm, smooth and free from rough spots and sharp projections before roof application begins.

D. Test interior drains to confirm that they flow freely. Immediately notify Owner's Representative if correction is required. Protect drains from plugs of gravel and debris.

E. If not scheduled for new metal, carefully lift or remove metal counter flashing, coping, and gravel stop. Clean metal and set aside for reinstallation.

3.03 INSTALLATION - GENERAL

A. Install roofing system according to all current application requirements in addition to those listed in this section.

B. GAF® GAFGLAS® Specification #: ***I-0-3-C***

C. When the slope of the roof is ½" per foot or greater, install all plies parallel with the slope of the roof, and install intermediate wood nailers as required for the specific roof slope. Plies must extend over ridges and nailed on 6" centers.

D. Start the application of membrane plies at the low point of the roof or at the drains, so that the flow of water is over or parallel to, but never against the laps.

3.04 BITUMEN HANDLING

A. Do not mix different types of asphalt.

B. Use only ASTM D 312, Type III or Type IV Steep Asphalt. Type III asphalt may be used on slopes up to ½" per foot (4cm/m). Type IV asphalt must be used on all slopes greater than ½" per foot (4 cm/m).

C. Application with hot asphalt requires continuous, uniform interply mopping rates of 25 lbs. +/- 20% per 100 square feet of roof area (1.2 kg/m^2). rates up to 60lbs per 100 sq.ft. may be required if the substrate surface is rough or porous.

D. Application temperature of the asphalt must be at the Equiviscous Temperature (EVT) with a tolerance of +/- 25°F (13.9°C), at which a viscosity of 125 centipoise is attained. When using mechanical asphalt applicators, the target viscosity should be 75 centipoise.

E. For all SBS modified asphalt flashings; the minimum application temperature of the asphalt must be at the EVT temperature, typically between 425°F and 475^{o}F, whichever is greater, with a rolling bank (puddle) of mopping asphalt across the full width of the roll.

F. Do not heat the asphalt to or above its flash point or hold the asphalt at temperatures above the finished blowing temperature for more than 4 hours.

G. Do not keep heated tankers above 325°F (163°C) overnight.

3.05 AIR/VAPOR BARRIER

1. Install in accordance with provisions of section 072600

3.06 INSULATION

A. GENERAL

1. Do not apply roof insulation or roofing until all other work trades have completed jobs that require them to traverse the deck on foot or with equipment. A vapor retarder coated lightly with asphalt may be applied to protect the inside of the structure prior to the insulation and final roofing installation. Before the application of the insulation, any damage or deterioration to the vapor retarder must be repaired.
2. Do not install wet, damaged or warped insulation boards.
3. Install insulation boards with staggered board joints in one direction (unless taping joint).
4. Install insulation boards snug. Gaps between board joints must not exceed ¼" (6 mm). All gaps in excess of ¼" (6 mm) must be filled with like insulation material.
5. Wood nailers must be 3-1/2" (8.9 cm) minimum width or 1" (25 mm) wider than metal flange. They shall be of equal thickness as the insulation, and be treated for rot resistance. All nailers must be securely fastened to the deck.
6. Do not kick insulation boards into place.
7. Miter and fill the edges of the insulation boards at ridges, valleys and other changes in plane to prevent open joints or irregular surfaces. Avoid breaking or crushing of the insulation at the corners.
8. Insulation should not be installed over new lightweight insulating concrete.
9. Cant strips must be installed at the intersection of the roof and all walls, parapets, curbs, or transitions approaching 90°, to be flashed. They shall be approximately 4" (10.2 cm) in horizontal and 4" (10.2 cm) in vertical dimension. The face of the cant shall have an incline of not more than 45 degrees with the roof.
10. Roof tape, if required over insulation joints, must be laid evenly, smoothly and embedded in a uniform coating of hot steep asphalt with 4" (10.2 cm) end laps. Care must be taken to assure smooth application of tape, and full embedment of the tape in the asphalt.
11. Do not install any more insulation than will be completely waterproofed each day.

B. INSULATION – BASE LAYER APPLICATION

1. The insulation must be securely attached to the roof deck. A minimum FMRC 1-60 attachment is recommended. Refer to FMRC Approval Guide for FM fastening patterns. Factory Mutual requires fastener density increased in corner areas for FM 1-60 as well as perimeter and corner area fastener density increases for FM 1-90 or greater. Refer to FM Loss Prevention Data Sheets 1-7, 1-28, and 1-49.
2. Use only fasteners with a minimum 3 inch (7.6 cm) stress plate when mechanically attaching insulation. Do not attach insulation with nails.
3. Install insulation layers, maximum 4' x 4' (1.22m x 1.22m) board size, in a full and uniform mopping of hot asphalt applied at the rate of 25 lbs./square (1.2 kg/m2) ±20%. Press each board firmly into place. Stagger the joints of additional layers in relation to the insulation joints in the layer(s) below by a minimum of 6" (15.2 cm) to eliminate continuous vertical gaps.
4. The substrate must be free of and debris, dust, dirt, oil, grease, and standing water before applying the adhesive.
5. OlyBond 500 must be applied using the specially designed PaceCart dispenser. OlyBond 500 SpotShot shall be applied using one of the specially designed dual cartridge dispensers.
6. Install insulation layers applied with bands of OlyBond 500 spaced 12" O.C. Approximate coverage rate is ½ to 1 gallon per 100 square feet, depending on the

substrate. Allow the foam to rise ¾" to 1". Walk each board firmly into place. Stagger the joints of additional layers in relation to the insulation joints in the layer(s) below by a minimum of 6" (15.2 cm) to eliminate continuous vertical gaps.

7. The substrate must be free of debris, dust, dirt, oil, grease, and standing water before applying the adhesive.
8. Install insulation layers applied with 3/4" beads of Insta-Stik spaced 12" o.c. Press each board firmly into place. Stagger the joints of additional layers in relation to the insulation joints in the layer(s) below by a minimum of 6" (15.2 cm) to eliminate continuous vertical gaps.
9. Loose apply the base layer of insulation for subsequent layers to be simultaneously attached or for ballast applications. Minimal fastening should be performed to avoid movement of the boards.
10. Fill all flutes with a loose applied base layer of insulation. Insulation must be of equal height as metal ribs, seams or flutes to allow for subsequent layers to be applied without interference. Minimal fastening should be performed to avoid movement of the boards.
11. If subsequent layers of insulation are to be attached with insulation adhesive, the base layer must be mechanically attached with a minimum fastener density of 1 fastener every 2 square feet.

C. INSULATION – SUBSEQUENT LAYERS APPLICATION

1. The insulation must be securely attached to the roof deck. A minimum FMRC 1-60 attachment is recommended. Refer to FMRC Approval Guide for FM fastening patterns. Factory Mutual requires fastener density increases in corner areas for FM 1-60 as well as perimeter, and corner area fastener density increases for FM 1-90 or greater. Refer to FM Loss Prevention Data Sheets 1-7, 1-28, and 1-49.
2. Multiple layers of insulation of the same, non-tapered insulation material may be simultaneously mechanically fastened with approved fasteners and plates through the top layer of insulation to the structural deck. Individual layers of insulation must not exceed 3" (7.6 mm) in thickness nor total thickness of all layers should not exceed 5" (12.7 cm) without written approval of GAF® Contractor Services. FM Type attachments may differ
3. Use only fasteners with a minimum 3 inch (7.6 cm) stress plate when mechanically attaching insulation. Do not attach insulation with nails.
4. Install insulation layers, maximum 4' x 4' (1.22m x 1.22m) board size, in a full and uniform mopping of hot asphalt applied at the rate of 25 lbs./square (1.2 kg/m2) ±20%. Press each board firmly into place. Stagger the joints of additional layers in relation to the insulation joints in the layer(s) below by a minimum of 6" (15.2 cm) to eliminate continuous vertical gaps.
5. The substrate must be free of and debris, dust, dirt, oil, grease, and standing water before applying the adhesive.
6. OlyBond 500 must be applied using the specially designed PaceCart dispenser. OlyBond 500 SpotShot shall be applied using one of the specially designed dual cartridge dispensers.
7. Install insulation layers applied with bands of Oly Bond 500 spaced 12" O.C. Approximate coverage rate is ½ to 1 gallon per 100 square feet, depending on the substrate. Allow the foam to rise ¾" to 1". Walk each board firmly into place. Stagger the joints of additional layers in relation to the insulation joints in the layer(s) below by a minimum of 6" (15.2 cm) to eliminate continuous vertical gaps.
8. The substrate must be free of debris, dust, dirt, oil, grease, and standing water before applying the adhesive.

9. Install insulation layers applied with 3/4” beads of Insta-Stik spaced 12” o.c. Press each board firmly into place. Stagger the joints of additional layers in relation to the insulation joints in the layer(s) below by a minimum of 6” (15.2 cm) to eliminate continuous vertical gaps.
10. Do not install any more insulation than will be completely waterproofed each day.

3.07 INTERPLY SHEETS

A. Three ply interply application: Install starter strips of 13 1/8” (33.3 cm), 26 1/4” (66.7 cm) and 39 3/8” (100.0 cm) widths and follow with a second full 39 3/8” (100.0 cm) width sheet with a maximum 11 1/8” (28.3 cm) exposure, applied shingle style. Lap felts 2615/16” (68.4cm) with a 127/16” (31.6 cm) exposure and lap 6”(15.2 cm) at ends. Stagger adjacent end laps a minimum of 18” (45.7 cm).

3.08 COATING

A. For a smooth surfaced GAFGLAS® roof, the following coatings may be used with the limits indicated:
   1. ASTM D-312, Type I asphalt may be used on slopes of up to 1/2 inch per foot (North and South Zones only), applied at the rate of 20 pounds per 100 square feet.
   2. TOPCOAT Matrix™ Fibered Aluminum Roof Coating may be used on slopes of 1/4 inch per foot or more (positive drainage, no ponding water), applied at the rate of approximately 1 1/2-2 gallons per 100 square feet. Steep asphalt at the laps must be allowed to age at least 60-90 days and must be free of dust and dirt prior to the application of Matrix™ Fibered Aluminum Coating.
   3. Matrix™ Non-fibered Emulsion may be used on slopes of up to 6 inches per foot, applied at the rate of approximately 3 gallons per 100 square feet. Steep Roofing Asphalt at the laps should be allowed to age at least one week and be free of dust and dirt prior to the application of Matrix™ Emulsion.

B. Coating must be applied directly to the roofing felts.

C. Surfacing may be delayed for up to 90 days; however, the surface must be clean and dry before proceeding with the coating.

D. Reapplication of the coating shall be employed as part of a periodic maintenance program. The frequency will vary depending on climatic conditions.

E. Coating of asphalt prior to the application of surface coatings will affect the UL ratings. For UL approved coatings over GAFGLAS systems, contact GAF® Contractor Services.

3.09 FLASHINGS

A. General Requirements:
   1. Prime concrete surfaces with specified primer and allow too dry.
   2. Complete first ply of flashing daily to assure watertight installation.
   3. Install base flashing to a maximum of 24'' in height.
   4. Install flashings in two pieces when height exceeds 24''. Overlap bottom layer 3''.
   5. Reinforce and make watertight all angles with one layer of modified bitumen flashing to extend 2” above cant and 2” onto field. Coat substrate and back of sheet with modified

bitumen adhesive at rate of 1 gallon per 100 sq.ft. per side. Allow to tack. May require approximately 30 minutes air time to be tacky. Press in place. Lap sides 3".

6. Unless otherwise specified 3-course top edge with plastic cement and #183 yellow glass.

B. Nailable curbs and walls must be covered with a layer of approved GAFGLAS Base Sheet or backer ply fastened 8" (20.3 cm) o.c. in all directions with approved fasteners. All vertical laps shall be 4" (10.2 cm). Base sheet or backer ply must extend out onto the field of the roof as shown in the applicable GAF® construction detail.

C. Prime all metal and masonry surfaces with asphalt primer, and allow adequate drying time prior to adhering flashing plies.

D. Backer plies installed over masonry or other non-nailable substrates must be cut into manageable lengths to ensure adequate adhesion to the cant strip and vertical surfaces without excessive voids. All vertical laps shall be 4" (10.2 cm). Backer plies shall extend onto the field of the roof as shown in the applicable GAF® construction detail.

E. The finished ply of base flashing shall be run vertically to provide a selvage edge that will aid in achieving proper adhesion at the 3" (7.6 cm) vertical laps. If the sheet is run horizontally, the vertical laps must be a minimum of 6" (15.2 cm) and the selvage edge must be removed form the sheet or fully covered by the counter flashing. The finished flashing ply must extend out onto the field of the roof as shown in the applicable GAF® construction detail, and must be extended a minimum of 4" (10.2 cm) beyond the edge of the prior flashing plies. The flashing must be soundly adhered to the parapet, cant area and roof surface to result in a minimum void, non-bridging construction.

F. Base flashing heights must be a minimum of 8" (20.3 cm) and a maximum of 24" (61.0 cm) above the roofline.

G. Use onlyType III or Type IV hot asphalt. Maintain asphalt at the Equiviscous Temperature (EVT) +/- 25ºF (13.9ºC) for all base and ply sheets used in flashing details. Apply flashing membranes at the EVT temperature or 425ºF (218ºC) whichever is greater. Firmly press sheets into the adhesive, and immediately nail the top of the flashing as specified in the appropriate flashing detail.

H. Use only trowel-grade modified adhesive. Apply using a trowel or wide-edged putty knife with a uniform 1/8" thickness throughout. Firmly press sheets into the adhesive, and immediately nail the top of the flashing as specified in the appropriate flashing detail.

I. Corner membrane flashings, such as "bow ties" for outside corners and "footballs" for inside corners or other membrane reinforcements are required to ensure that base flashing corners are sealed at cant areas. An alternate method of corner reinforcing is to install a smooth MB membrane reinforcement piece on the prepared corner substrate prior to final surfacing membrane. Refer to MB Flashing Details section of the GAF® *Application and Specifications Manual*.

3.10 PENETRATIONS

A. Horizontal penetrations shall be flashed with M-Curbs filled with M-Thane sealant, then coated with Topcoat® Flexseal.

B. Vertical penetrations shall be flashed with Topcoat® Topester Fabric embedded between two coats of Topcoat® Flexseal.

3.11 SHEET METAL

A. Metal should not be used as a component of base flashing. Because of the high coefficient of expansion of sheet metals and the large temperature changes that can be experienced on a roof, sheet metal or exposed metal components must be isolated from the waterproofing components of the roofing and flashing system as efficiently as possible to prevent the metal from splitting the membranes. GAF® assumes no responsibility for damage to the roofing system caused by the movement of accessory metal.

B. Metal should not be used as a component of base flashing. Because of the high coefficient of expansion of sheet metals and the large temperature changes that can be experienced on a roof, sheet metal or exposed metal components must be isolated from the waterproofing components of the roofing and flashing system as efficiently as possible to prevent the metal from splitting the membranes.

C. All metal edge details scheduled to be included in the Edge to Edge Coverage of the Diamond Pledge™ Guarantee must be submitted and approved in writing by the manufacturer prior to project commencement.

3.12 SHEET METAL

A. When it is unavoidable to use metal in the roofing system (i.e., lead flange at drains, gravel stops), treated wood nailers and insulation stops, 1” (25 mm) wider than the metal flange, should be provided for metal flange attachment. Metal flanges must always be set on top of the roof membrane with modified trowel grade cold adhesive applied material for SBS roof systems. The metal flange is then sealed using the applicable construction detail to meet applicable guarantee requirements. Metal accessories (gravel stops, counter flashing, etc.) should be 16 oz. (0.56 mm) copper, 24 gauge (0.71 mm) galvanized or stainless steel, 2 1/2 to 4 lb (1.1-1.8 kg) lead, or 0.032” (0.81 mm) aluminum.

B. Fabricate and install all sheet metal materials as shown in applicable construction details. Refer to SMACNA (Sheet Metal and Air Conditioning Contractors National Association, Inc.) for guidance on sheet metal treatments not addressed in this specification.

C. Clean metal and apply asphalt primer to all sheet metal surfaces that will come into contact with asphalt or other bituminous materials; allow the primer adequate time to dry.

D. Use fastener types compatible with the sheet metal type.
1. Copper or lead-coated copper: use copper or bronze fasteners.
2. Lead and galvanized steel: use galvanized or cadmium-plated sheet fasteners.
3. Aluminum: use aluminum fasteners.
4. Stainless steel: use stainless steel fasteners.

E. Metal counter-flashing shall have a minimum 4” (10.2 cm) face with a drip lip. The bottom edge of the counter flashing shall cover the roofing membrane and/or base flashing by a minimum of 4” (10.2 cm). Metal counter flashing used for masonry walls, wooden walls, or

through wall metal flashings should be a two piece design to allow for installation and later removal. Metal counter-flashings for stucco, EIFS, wood siding or similar materials should be designed appropriately, such as “Z” type flashing. End joints shall be lapped 3” (7.6 cm) or more. Adequate fasteners must be provided to secure against wind forces. Skirt fasteners shall be watertight.

F. Metal termination bars shall be a minimum of 1/10” (3 mm) thick x 1” (25 mm) wide with preformed sealant edge lap. Bar should have 1/4” (6 mm) x 3/8” (10 mm) slotted holes on 4” (10.2 cm) centers to facilitate mechanical anchorage.

G. Metal flanges for gravel stops, eave strips, and pitch pockets to be used in conjunction with roofing shall be primed (both sides), set in modified trowel grade cold adhesive applied material for SBS roof systems. Flanges shall be a minimum of 3 1/2” (8.9 cm) wide for gravel stops or eave strips and 4” (10.2 cm) wide for projections and extensions through the roof. The gravel stop lip should be at least 3/4” (19 mm) high. Eave strip lips shall be at least 3/8” (10 mm) high. Provisions must be made for securing the skirt to the face of the wall. This may be a wood nailer strip for masonry and metal construction. In all cases, gravel stop and eave strip nailer should be fastened to the deck or deck system with adequate resistance against wind forces.

H. Stacks shall have metal sleeve flashing a minimum of 8” (20.3 cm) high. Pitch pockets for brackets, supports, pad-eyes, etc., shall have a 4” (10.2 cm) minimum height metal sleeve.

I. On re-roofing projects, provisions shall be made for reinstallation of existing sheet metal duct work, equipment, coping metal and counter-flashing removed in conjunction with the new work. Also, provide for cleaning and repairing of existing defective sheet metal, and replacement of missing and irreparable sheet metal to match existing types. Light gauge sheet metal flashings which are incorporated into the Ruberoid® roof system are not suitable for re-use and must be replaced with new material.

J. Conduits and piping such as electrical and gas lines must be set on wood blocking or some other form of support. Wood blocking/supports must be set on pads constructed of an additional layer of roof membrane material.

3.13 WALKWAYS

A. Walkways for normal rooftop traffic may be constructed from two plies of modified bituminous membrane of the same type as the field of the roof. This type of walkway is not for sidewalk or patio-type use.

B. Construct walkways by solidly adhering a first ply of smooth surfaced membrane to the field of the roof followed by a granule surfaced membrane to the surface of the first ply.

C. Walkway sections should be no longer than 10’ (3 m), with a 6” (15.2 cm) minimum gap between each section to allow for drainage.

3.14 ROOF PROTECTION

A. Protect all partially and fully completed roofing work from other trades until completion.

B. Whenever possible, stage materials in such a manner that foot traffic is minimized over completed roof areas.

C. When it is not possible to stage materials away from locations where partial or complete installation has taken place, temporary walkways and platforms shall be installed in order to protect all completed roof areas from traffic and point loading during the application process.

D. Temporary tie-ins shall be installed at the end of each workday and removed prior to commencement of work the following day.

3.15 CLEAN-UP

A. All work areas are to be kept clean, clear and free of debris at all times.

B. Do not allow trash, waste, or debris to collect on the roof. These items shall be removed from the roof on a daily basis.

C. All tools and unused materials must be collected at the end of each workday and stored properly off of the finished roof surface and protected from exposure to the elements.

D. Dispose of or recycle all trash and excess material in a manner conforming to current EPA regulations and local laws.

E. Properly clean the finished roof surface after completion, and make sure the drains and gutters are not clogged.

F. Clean and restore all damaged surfaces to their original condition.

3.16 MAINTENANCE

A. Inspections to the roof shall be performed annually by a GAF® Master Select™ contractor.

B. An annual roofing system maintenance program shall be performed by a Master Select™ contractor in accordance with GAF®'s 10 Point Maintenance Program provided with your Diamond Pledge™ guarantee.

C. Submit copies of the roof inspection form, accompanying photographs (a minimum of 6 photos showing the condition of the roof and critical details), and a record of all roofing system maintenance to the GAF® Contractor Services Department within sixty (60) days of the anniversary date of the completion of the roofing system. Annual roof inspections must be started within the first two (2) years of the guarantee term.

END OF SECTION

SECTION 099000

PAINTS AND COATINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Requirements for the provision of:
   1. Surface preparation, painting and finishing of exposed items and surfaces.

B. Related Sections:
   1. Section 051200 - Structural Steel
   2. Section 062000 – Finish Carpentry
   3 Section 092000 – Gypsum Board Assemblies

1.2 REFERENCES

A. ASTM - American Society for Testing and Materials:
   1. ASTM D 16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications.

B. SCAQMD
   1. Architectural coatings, Rule 1113

1.3 DEFINITIONS

A. “Paint”: As used herein, means coating systems materials including primers, emulsions, epoxy, enamels, sealers, fillers, and other applied materials whether used as prime, intermediate or finish coats.

1.4 SYSTEM DESCRIPTION

A. Performance Requirements
   1. Paint exposed surfaces whether or not colors are designated in the schedules, except where a surface or material is specifically indicated not to be painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces. If color or finish is not designated, the Architect will select from standard colors or finishes available.
   2. Painting is not required on pre-finished items, finished metal surfaces, concealed surfaces, operating parts and labels.
   3. Do not paint over UL, FM or other code required labels or equipment name, identification, performance rating or nomenclature plates.

1.5 SUBMITTALS

A. Product Data: Submit manufacturer's product data for each paint system specified, including primers.
   1. Provide manufacturer's technical information including label analysis and instructions for handling, storage and application of each material proposed for use.
   2. List each material and cross reference the specific coating, finish system and application. Identify each material by the manufacturer's catalog number and general classification.

B. Samples
   1. Following the selection of colors and glosses by the Owner, submit samples for the Owner's review.
      a. Provide 3 samples of each color and each gloss for each material on which the finish is specified to be applied.
      b. Make samples approximately 8 inches by 10 inches in size, except as otherwise directed by the Owner.
      c. If so directed by the Owner, provide field mock-ups during progress of the Work in the form of actual application of the materials on actual surfaces to be painted for approval by the Owner. Areas shall be 10 feet by 10 feet.
   2. Revise and resubmit each sample or field mock-up as requested until the required gloss, color and texture are achieved. Such samples or field mock-ups, when approved, will become standards of color and finish for accepting or rejecting the work of this Section.
   3. Do not commence finish painting until approved samples are on file at the job site.

E. Quality Control Submittals
   1. Certificates: Provide certification by the manufacturer that products supplied do not contain or use volatile organic compounds (VOCs).

F. Finish Schedule and Color Boards: Submit for review by the Owner each color scheme and coordinate with other finish materials.

G. Comply with requirements set forth in the CA Green Building Code, Section 5.504.4.3 for Paints and Coatings.

1.6 QUALITY ASSURANCE

A. Qualifications
   1. Applicator: Engage an experienced applicator who has completed painting system applications similar in material and extent to that indicated for this Project with a minimum of 5 years of experience and a record of successful in-service performance.

B. Provide primers and undercoat paint produced by the same manufacturer as finish coats.
   1. Review other Sections of these Specifications as required, verifying the prime coats to be used and assuring compatibility of the total coating system for the various substrates.
   2. Upon request, furnish information on the characteristics of the specific finish materials to assure that compatible prime coats are used.
   3. Provide barrier coats over non-compatible primers, or remove the primer and re-prime as required.
   4. Notify the Owner in writing of anticipated problems in using the specified coating systems over prime coatings supplied under other Sections.

1.7 SEQUENCING AND SCHEDULING

A. Painting to be completed at least 7 days before carpeting or setting of acoustical panels.

B. After painting, fully ventilate building with maximum outside air before installing carpet and acoustical panels. Maintain required temperature and humidity within the building.

1.8 MAINTENANCE

A. Upon completion of the work of this Section, deliver to the Owner an extra stock equaling 4 gallons (1 box) or one 5 gallon pail of each color, type and gloss of paint used in the Work; tightly sealing each container, and clearly labeling the Project name and contents and location where used and with color swatch painted on top of the container.
   1. supply extra paints from same production lots or color runs as used in the work, in factory sealed and labeled containers and which are properly resealed after adding colorants and mixing.
   2. Deliver material to the Owner's on-site designated storage place, unload and position in place in accordance with Architect's instructions.
   3. Provide the Owner with a signed receipt indicating materials and quantities upon delivery.
   4. Provide maintenance manufacturers cleaning instructions for painted surfaces.
   5. Provide a final paint schedule listing, for each type of paint material used, the manufacturer, product name and/or number color name and/or number and locations installed.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: Sherman WIlliams, Vista, Dunn-Edwards, PPG, or equal, preferable from local distributors.

2.2 PAINT MATERIALS

A. Paint Materials, General: Provide primers, finish coat materials, and related materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by the manufacturer, based on testing and field experience.

B. Material Quality: Provide manufacturer's best quality trade sale paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable.

C. Colors: To be selected from manufacturer's custom colors.
1. per district's standards for exterior: semi-gloss for all surfaces in three color schemes
2. per district's standards for interior: semi-gloss for all surfaces in three color schemes
3. per district's request option for one ore more color schemes.

2.3 APPLICATION EQUIPMENT

A. For application of the approved paint, use only such equipment as is recommended for application of the particular paint by the manufacturer of the particular paint, and as approved by the Owner.

B. Prior to use of application equipment, verify that the proposed equipment is actually compatible with the material to be applied, and that integrity of the finish will not be jeopardized by use of the proposed equipment.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.
1. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request,

furnish information on characteristics of finish materials to ensure use of compatible primers.

3.2 PREPARATION

A. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.

B. At existing areas: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and painting.
   1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
   2. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.
   3. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

C. Cementitious Materials: Prepare concrete, concrete masonry block and cement plaster surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
   1. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
   2. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's written instructions.

D. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth. Touch-up minor defects with spackle and sand smooth and flush. Before painting, confirm that the gypsum board surface is prepared as prescribed in Section 09250. Paint finished gypsum board surface egg shell finish.

E. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
   1. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer.

After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.

a. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, and paneling.
b. When transparent finish is required, backprime with spar varnish.
c. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on backside.
d. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.

F. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations.

1. Blast steel surfaces clean as recommended by paint system manufacturer and according to requirements of SSPC SP-10.
   a. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
   b. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with the same primer as the shop coat.

G. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

H. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.

1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
3. Use only thinners approved by paint manufacturer and only within recommended limits.

I. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 PAINT APPLICATION

A. General

1. Touch-up shop-applied prime coats which have been damaged, and touch-up bare areas prior to start of finish coats application.
2. Slightly vary the color of succeeding coats.
    a. Do not apply additional coats until the completed coat has been inspected and approved.
    b. Only the inspected and approved coats of paint will be considered in determining the number of coats applied.
3. Sand and dust between coats to remove defects visible to the unaided eye from a distance of 5 feet.
4. On removable panels and hinged panels, paint the back sides to match the exposed sides.

B. Drying
1. Allow sufficient drying time between coats, modifying the period as recommended by the material manufacturer to suite adverse weather conditions.
2. Consider oil base and oleo-resinous solvent-type paint as dry for re-coating when the paint feels firm; does not deform or feel sticky under moderate pressure of the thumb, and when the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

C. Brush Applications
1. Brush out and work the brush coats onto the surface in an even film.
2. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness and other surface imperfections will not be acceptable.

D. Spray Application
1. Except as specifically otherwise approved by the Architect, confine spray application to metal framework and similar surfaces where hand brush work would be inferior.
2. Where spray application is used, apply each coat to provide the hiding equivalent of brush coats.
3. Do not double back with spray equipment to build up film thickness of 2 coats in 1 pass.

E. For completed work, match the approved samples as to texture, color and coverage. Remove, refinish or repaint work not in compliance with the specified requirements.

F. Miscellaneous Surfaces and Procedures
1. Exposed mechanical items:
    a. Finish electric panels, access doors, conduits, pipes, ducts, grilles, registers, vents and items of similar nature to match the adjacent wall and ceiling surfaces, or as directed.
    b. Paint visible duct surfaces behind vents, registers, and grilles flat black.
    c. Wash metal with solvent, prime and apply 2 coats of alkyd enamel.

2. Exposed pipe and duct insulation:
   a. Apply 1 coat of latex paint on insulation which has been sized or primed under other Sections; apply 2 coats on such surfaces when unprepared.
   b. Match color of adjacent surfaces.
   c. Remove band before painting, and replace after painting.
3. Hardware:
   a. Paint prime coated hardware to match adjacent surfaces;
   b. Paint metal portions of head seals, jamb seals, and astragal seals to match the color of the door frame unless otherwise directed by the Owner.
4. Wet areas:
   a. For oil base paints, use 1 percent phencimercuric or 4 percent tetrachlorophenol.
   b. For water emulsion and glue size surfaces, use 4 percent sodium tetrachlorophenate.
5. Exposed Vents: Apply 2 coats of heat resistant paint approved by the Owner.

3.4 INTERIOR PAINT SCHEDULE

A. Wood Designated to Receive Opaque Finish
   1. Semigloss, Acrylic-Enamel Finish: 2 finish coats over a wood undercoater.
      a. Undercoat
         1) Alkyd- or acrylic-latex-based, interior wood undercoater, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
         2) Product: ICI Dulux - 1120 Ultra-Hide, or equal.

      b. First and Second Coats
         1) Semigloss, acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils.
         2) Product: ICI Dulux - 1407 Dulux Ultra, or equal.

C. Ferrous Metal
   1. Semigloss, Acrylic Enamel Finish: 1 finish coat over an enamel undercoat and a primer. Primer is not required on shop-primed items.
      a. Primer
         1) Quick drying, rust-inhibitive alkyd based or epoxy metal primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 mils.

2) Product: ICI Dulux - 4160 Ultra-Hide, Benjamin Moore & Co., or equal.

b. Undercoat
1) Alkyd, interior enamel undercoat or semigloss, acrylic latex, interior enamel, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.3 mils.
2) Product: ICI Dulux - 1120 Ultra-Hide, Benjamin Moore & Co., or equal.

c. Finish Coat
1) Semigloss, acrylic latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.3 mils.
2) Product: ICI Dulux - 1407 Dulux Ultra, Benjamin Moore & Co., or equal.

E. Galvanized Metal
1. Semigloss, Acrylic Enamel Finish: 2 finish coats over a primer.
a. Primer
1) Galvanized metal primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
2) Product: ICI Dulux - 4020 Devflex, Benjamin Moore & Co., or equal.

b. First and Second Coats
1) Semigloss, acrylic latex interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils.
2) Product: ICI Dulux - 1407 Dulux Ultra, Benjamin Moore & Co., or equal.

F. Gypsum Wall Board
1. Eggshell Acrylic finish, 2 finish coats over a primer.
a. Primer
1) applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
2) Product: ICI Dulux, Benjamin Moore & Co., or equal.

3.5 EXTERIOR PAINT SCHEDULE

A. Graffiti Coating
1. Manufacturer: PROSOCO, Inc. or approved equal.

2. Product Description: Sure Klean Weather Seal Blok-Guard & Graffiti Control II is a clear-drying, water-based silicone emulsion for weatherproofing concrete block.

3. Technical Data
   FORM: White milky liquid
   SPECIFIC GRAVITY: 1.00
   ACTIVE CONTENT: 6%
   pH: N/A
   WT./GAL.: 8.32 lbs.
   FLASH POINT: > 212 degrees F (>100 degrees C) ASTM D 3278
   FREEZE POINT: 32 degrees F (0 degrees C)
   VOC CONTENT: <20 g/L Low Solids Coating. Complies with all known national, state and district AIM VOC regulations.

4. Vertical Application Instructions
   a. Spray:
      1. For best results, apply Weather Seal GP “wet-on-wet” to a visibly dry and absorbent surface.
      2. Saturate from the bottom up, creating a 4” to 8” (15 to 20 cm) rundown below the spray contact point. Let the first application penetrate for 5-10 minutes.
      3. Resaturate while surface still appears moist. Less will be needed for the second application.

   b. Brush or roller: Saturate uniformly. Let protective treatment penetrate for 5 to 10 minutes. Brush out heavy runs and drips that don’t penetrate.

   c. Dense Surfaces Application Instructions
   Saturate in a single application with no rundown. Back roll any runs or drips to ensure uniform appearance. One application is usually enough.

5. Horizontal Application Instructions
   a. Saturate in a single application. Use enough to keep the surface wet for 2 to 3 minutes before penetration.
   b. Broom out puddles until they soak in.

B. Exterior Paint: Sherwin Williams products or approved equal

1. concrete masonry units: Sherwin Williams Elastomeric System
   a. 1st Coat: S-W Loxon BlockSurfacer, A24W200 (50-100 sq ft/gal).
   b. 2nd Coat: S-W ConFlex XL Elastomeric High Build Coating, A5-400 Series.
   c. 3rd Coat: S-W ConFlex XL Elastomeric High Build Coating, A5-400 Series (16 mils wet, 7.5 mils dry per coat).

2. Metals: Sherwin Williams Latex System

a. 1st Coat: S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series (5.0 mils wet, 2.0 mils dry).
b. 2nd Coat: S-W A-100 Exterior Latex Gloss, A8 Series.
c. 3rd Coat: S-W A-100 Exterior Latex Gloss, A8 Series (4 mils wet, 1.3 mils dry per coat).

C. All colors to be determined at time of submittal review by architect and owner's rep.

END OF SECTION

SECTION 144216

VERTICAL WHEELCHAIR LIFTS

PART 1. GENERAL

1.1 SECTION INCLUDES

A. Full cab vertical platform wheelchair lift installed within a shaftway.

1.2 RELATED SECTIONS

A. Division 26 Sections for electrical service

B. Section 033000 - Cast-in-Place Concrete: Concrete for elevator machine foundation

C. Section 042200 - Concrete Unit Masonry

D. Section 06100 - Rough Carpentry

E. Section 092500 - Gypsum Board Systems

F. Section 096500 - Resilient Flooring

G. Section 099000 - Paints and Coatings

H. Section 283100 - Fire Alarm

1.3 REFERENCES

A. American Society of Mechanical Engineers (ASME) A17.1 - Safety Code for Elevators and Escalators.

B. American Society of Mechanical Engineers (ASME) A17.5 - Elevator and Escalator Electrical Equipment.

C. American Society of Mechanical Engineers (ASME) A18.1 - Safety Standard for Platform and Stairway Chair Lifts.

D. CSA B44.1 - Elevator and Escalator Electrical Equipment.

E. CSA B355 - Lifts for Persons with Physical Disabilities.

F. U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)".

G. ICC/ANSI A117.1 - Accessible and Usable Buildings and Facilities.

H. NFPA 70 - National Electric Code.

I. CSA - National Electric Code.

1.4 REQUIREMENTS OF REGULATORY AGENCIES:

A. Fabricate and install work in compliance with applicable jurisdictional authorities.

B. File shop drawings and submissions with local authorities as the information is made available. Company pre-inspection and jurisdictional authority inspections and permits are to be made on timely basis as required.

1.5 SUBMITTALS

A. Submit under provisions of Section 013000.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.

2. Storage and handling requirements and recommendations.

3. Installation methods.

C. Shop Drawings: Provide a complete layout of lift equipment detailing dimensions and clearances as required.

D. Selection Samples: For each finish product specified requiring selection of color or finish, two complete sets of color charts representing manufacturer's full range of available colors and patterns.

1.6 QUALITY ASSURANCE

A. Installer Qualifications:

1. Skilled tradesmen shall be employees of the installing contractor approved by the manufacturer, with demonstrated ability to perform the work on a timely basis.

2. Execute work of this section only by a company that has adequate product liability insurance.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install systems under environmental conditions outside manufacturer's absolute limits.

1.9 WARRANTY

A. Coverage - this warranty applies to the repair or replacement, at Manufacturer's option, of parts that fail due to defective material or workmanship. Manufacturer may, at its option, provide factory reconditioned parts. This warranty is provided to the Authorized Dealer on behalf of the final purchaser of the product and is not transferable. The Manufacturer's warranty does not cover labor charges for the removal, repair or replacement of warranty parts but such costs may be covered for a period of time by Authorized Dealer's warranty, which is provided to purchaser separately.

1. Manufacturer shall warrant the wheelchair lift materials and workmanship for two years following completion of installation.

2. Provide an extended manufacturer’s warranty for the entire warranty period covering the wheelchair lift materials and workmanship for the following additional extended period beyond the initial one year warranty. Preventive Maintenance Agreement required.

    a. Five additional years.

PART 2. PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Garaventa Lift; United States - P.O. Box 1769, Blaine, WA 98231-1769. Canada - 7505 134A St., Surrey, BC V3W 7B3. ASD. Toll Free: 800-663-6556. Tel: (604) 594-0422. Fax: (604) 594-9915. Email: productinfo@garaventalift.com. Web: www.garaventalift.com.

B. Or equal in accordance with provisions of Section 016300.

2.2 FULL CAB VERTICAL WHEELCHAIR LIFT

A. Capacity: 1000 lbs (455 kg) – standard
B. Floor to Floor Lifting Height: 10'-0"
C. Nominal Car Dimensions: 42 inches (1067 mm) by 60 inches (1524 mm).
D. Car Configuration: Style 2: Straight through entry/exit.
E. Landing Openings: All Landings: Fire Doors interlocked with Lift controls.
F. Door Construction:
    1. Fire Rated Doors: 1-1/2 hour B label rating. Pre-hung, constructed of 16 gauge (1.5 mm) steel, with a vision panel, delayed action door closer, pull handle and integrated interlock. Doors mount flush to the inside wall of the shaftway.
    2. Nominal Door Width: 36 inches

G. Shaftway Pit at Lower Landing: Pit Mount: Lift to be mounted in pit with dimensions to meet manufacturer requirements for the car size specified. Pit construction shall be in accordance to Section 03300.

H. Hydraulic Drive:
    1. Drive Type: 1:2 Cable hydraulic.
    2. Emergency Operation: Manual device to lower platform.

3. Safety Devices:
   a. Slack chain safety device.
   b. Shoring device.
4. Travel Speed: 30 fpm (.15 m/second).
5. Power Supply: As per Garaventa Lift shop drawings

I. Car Controls: 24 VDC control circuit with the following features.
1. Direction Control: Illuminated constant pressure buttons.
2. Illuminated and audible emergency stop switch shuts off power to lift and activates audio alarm equipped with battery backup.
3. Keyed operation.
4. Emergency phone may be required by the local jurisdiction.
5. Emergency Telephone: Platform shall be equipped with ADA compliant integrated telephone with a stainless steel faceplate. Telephone shall operate in the event of power failure. A telephone line shall be supplied to the lift site as specified under Division 16.
6. Digital Floor Display.

J. Call Station Controls: 24 VDC control circuit with the following features.
1. Direction Control: Illuminated constant pressure buttons.
2. Keyed operation.
3. Call Station Mounting
   a. Lowest: Wall mounted recessed
   b. Mezzanine Floor: Wall mounted recessed.

K. Safety Devices and Features:
1. Grounded electrical system with upper, lower, and final limit switches.
2. At all landings a solenoid activated interlock shall electrically monitor that the door is in the closed position and the lock is engaged before lift can move from landing
3. Electrical disconnect shall shut off all power to the lift.

L. Finishes
1. Car Walls: ½" (12 mm) Plastic Laminate: Submit samples for Architect's approval
2. Car Operating Panel: Brushed Stainless Steel
3. Car Handrail: Brushed Stainless Steel
4. Hall Call Stations: Brushed Stainless Steel

PART 3. EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Verify shaft and machine space are of correct size and within tolerances.

C. Verify required landings and openings are of correct size and within tolerances.

D. Verify electrical rough-in is at correct location.

E. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install lifts in accordance with applicable regulatory requirements including ASME A 17.1, ASME A 18.1 and the manufacturer's instructions.

B. Install lifts in accordance with applicable regulatory requirements including CSA B355, and manufacturer's instructions.

C. Install system components and connect to building utilities.

D. Accommodate equipment in space indicated.

E. Startup equipment in accordance with manufacturer’s instructions.

F. Adjust for smooth operation.

3.4 FIELD QUALITY CONTROL

A. Perform tests in compliance with ASME A 17.1 or A18.1 and as required by authorities having jurisdiction.

B. Perform tests in compliance with CSA B355 and required by authorities having jurisdiction.

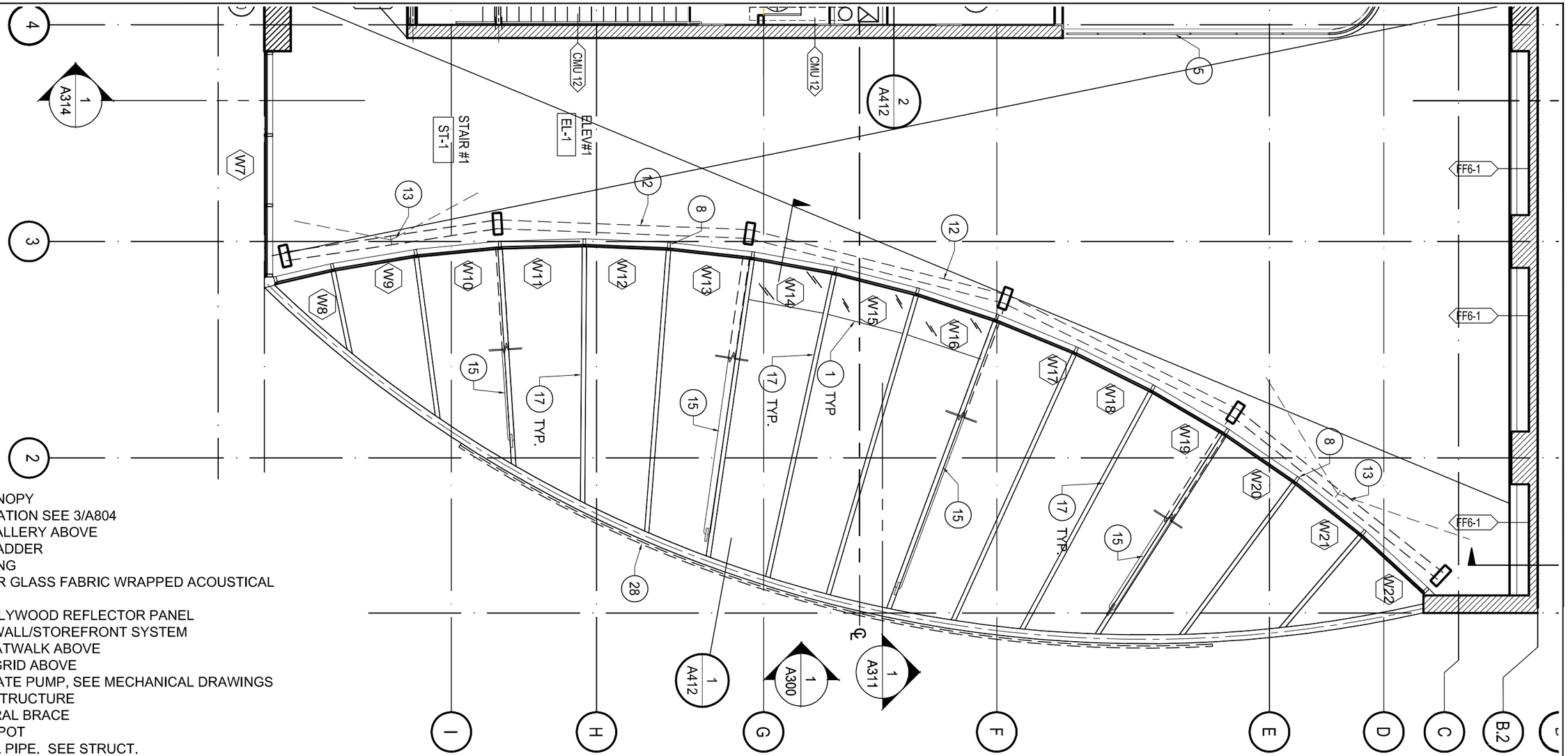
C. Schedule tests with agencies and Architect, Owner, and Contractor present.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION



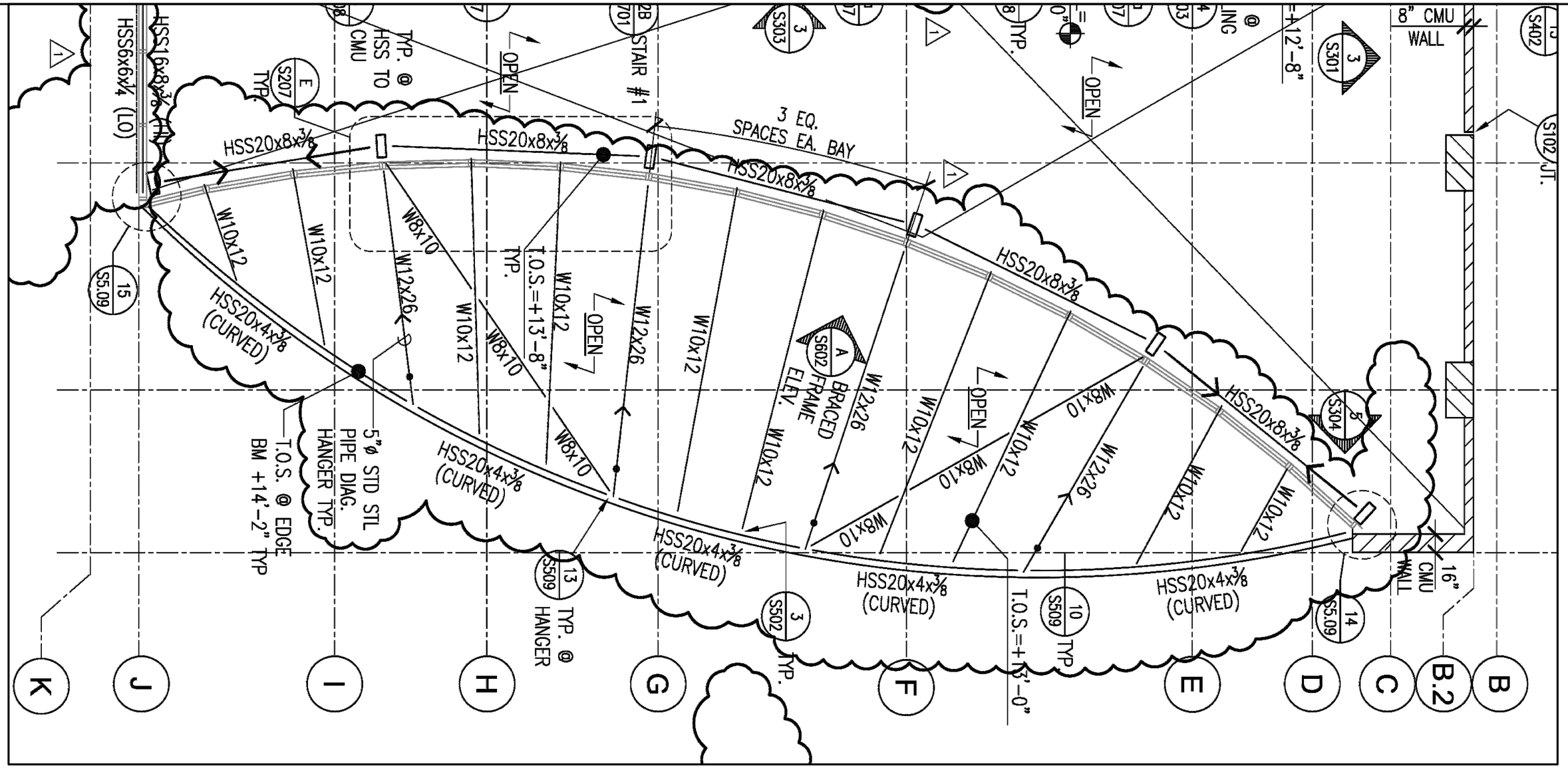
1. GLASS CANOPY
2. MIXING STATION SEE 3/A804
3. LINE OF GALLERY ABOVE
4. ACCESS LADDER
5. PIPE RAILING
6. 1-1/2" FIBER GLASS FABRIC WRAPPED ACOUSTICAL PANEL
7. CHERRY PLYWOOD REFLECTOR PANEL
8. CURTAIN WALL/STOREFRONT SYSTEM
9. LINE OF CATWALK ABOVE
10. TENSION GRID ABOVE
11. CONDENSATE PUMP, SEE MECHANICAL DRAWINGS
12. HSS PER STRUCTURE
13. STRUCTURAL BRACE
14. FOLLOW SPOT
15. 6" Ø STEEL PIPE. SEE STRUCT.
16. BUILT UP ROOFING
17. EXPOSED STEEL FRAMING
18. CMU FACE SHELL @ EXPOSED CONCRETE WALL / PILASTER SEE DETAIL 1/A405
19. NOT USED
20. ROOF DRAIN AND OVERFLOW LEADER
21. REMOVABLE SEATS ON SLEDS AT DUAL WHEELCHAIR POSITION
22. SEALED CONCRETE
23. CARPET
24. TOP OF DRINKING FOUNTAIN ALCOVE. FRAME WITH METAL STUDS @ 16" O.C. AND 5/8" TYPE 'X" GYP. BD. TOP AND BOTTOM. CEILING HEIGHT OF ALCOVE SHALL BE 7'-0"
25. HATCH ABOVE
26. ROOF HATCH
27. SPEAKER @ CEILING ABOVE, TYP.
28. BACK LIT STAINLESS STEEL LETTERING, SEE 5/A822
29. PARAPET BRACE
30. GUARDRAIL. SEE DTL. 10/A610
31. PERFORATED METAL RAILING SEE DTL 6/A820

1 MEZZANINE FLOOR PLAN

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

N

INDIAN SPRINGS HIGH SCHOOL PERFORMING ARTS CENTER 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN: 36-H7 04-114977	Date: 11. 17.2016 Scale: AS NOTED
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: MEZZANINE FLOOR PLAN		Dwg. Sheet No.: A 203
ENGINEERS:	SKETCH DETAIL TITLE.: PLAN OF CANOPY		Sketch No.: SK-CNPY 01



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ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: MEZZANINE LEVEL FRAMING PLAN		Dwg. Sheet No.: S 203
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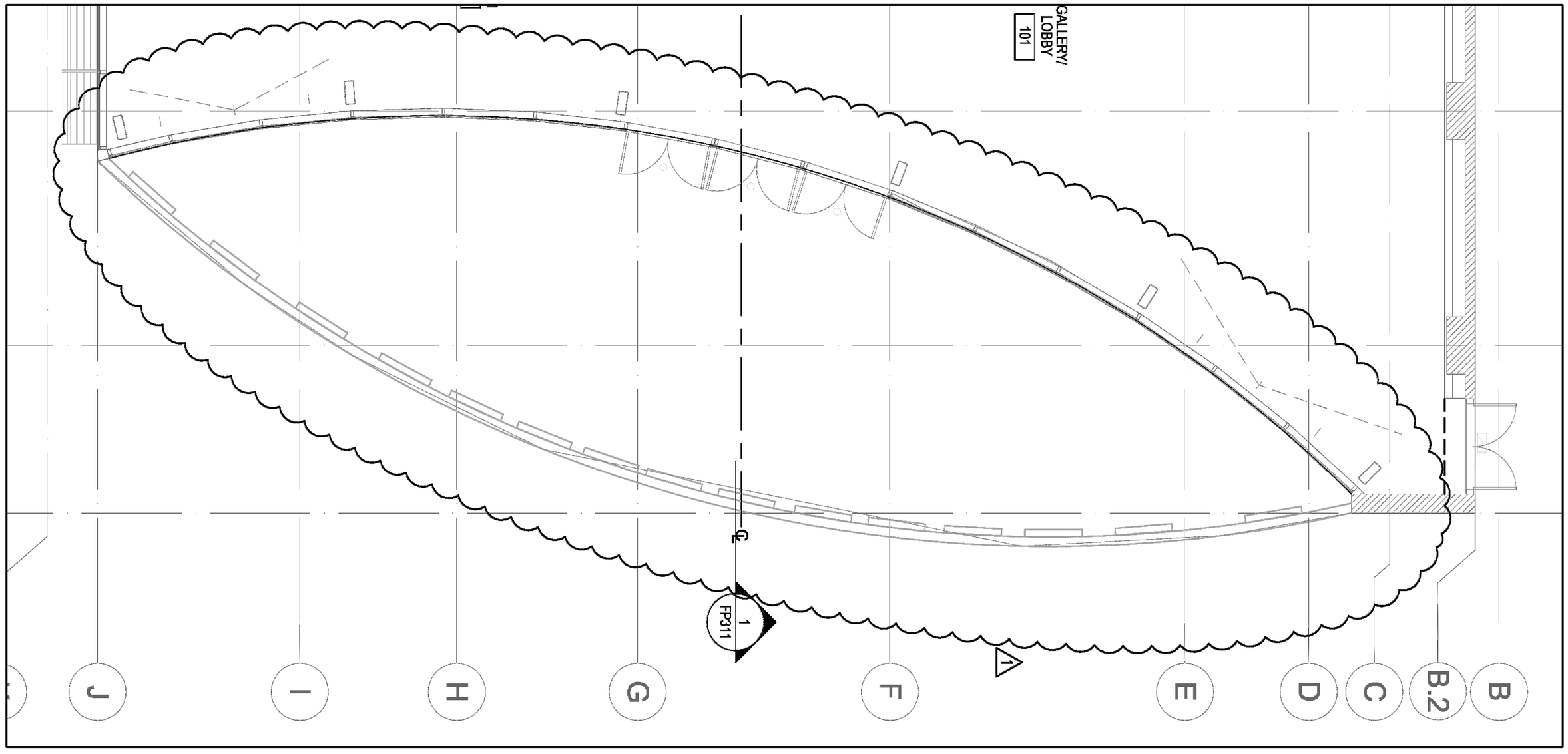
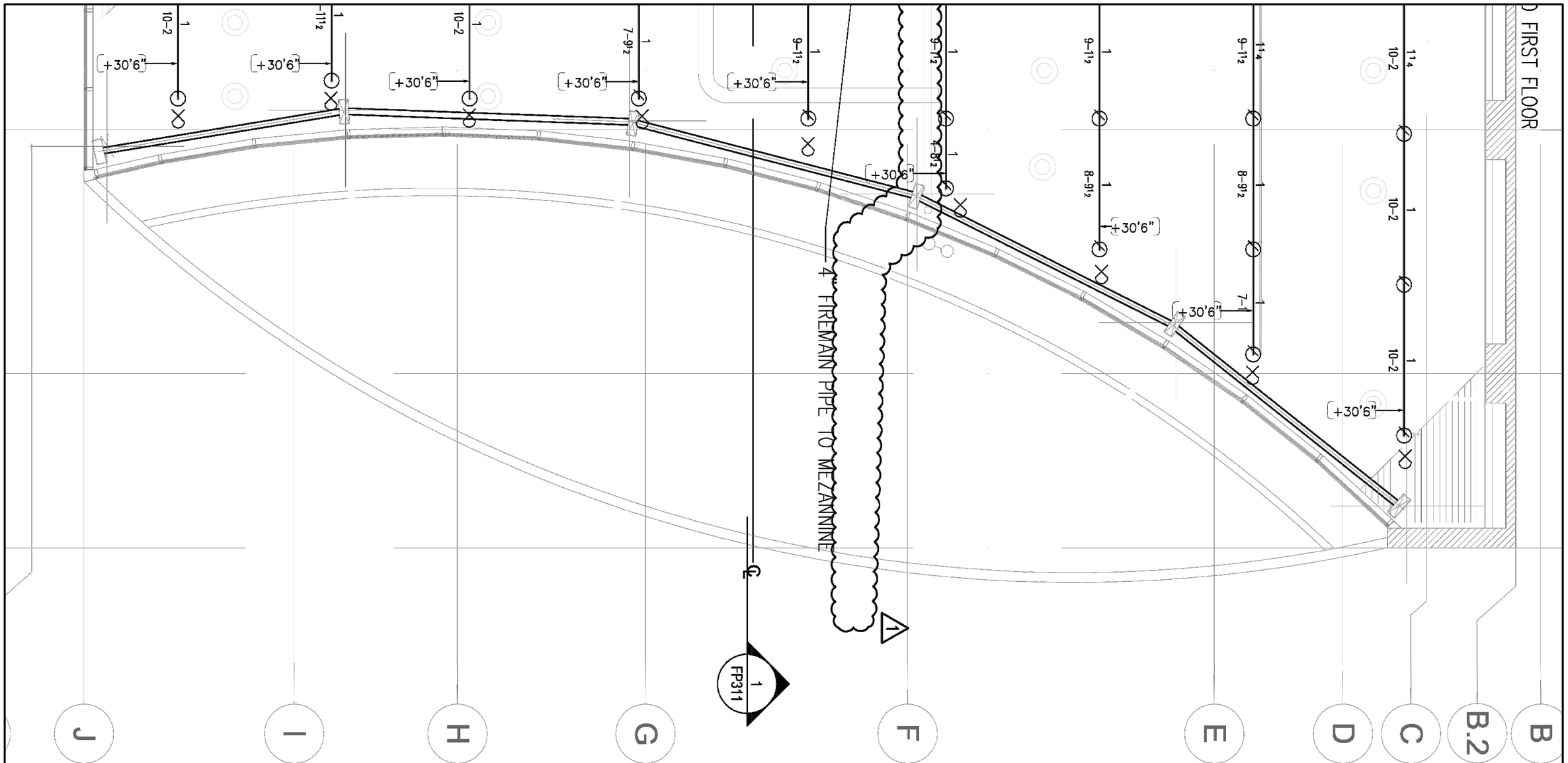


INDIAN SPRINGS HIGH SCHOOL **PERFORMING ARTS CENTER** 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN: 36-H7 04-114977	Date: 11. 17.2016 Scale: NONE
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: FIRE PROTECTION FIRST LEVEL		Dwg. Sheet No.: FP202
ENGINEERS:	SKETCH DETAIL TITLE.: FIRE PROTECTION AT CANOPY		Sketch No.: SK-CNPY 03



INDIAN SPRINGS HIGH SCHOOL **PERFORMING ARTS CENTER** 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN: 36-H7 04-114977	Date: 11. 17.2016 Scale: NONE
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: FIRE PROTECTION CATWALK LEVEL		Dwg. Sheet No.: FP204
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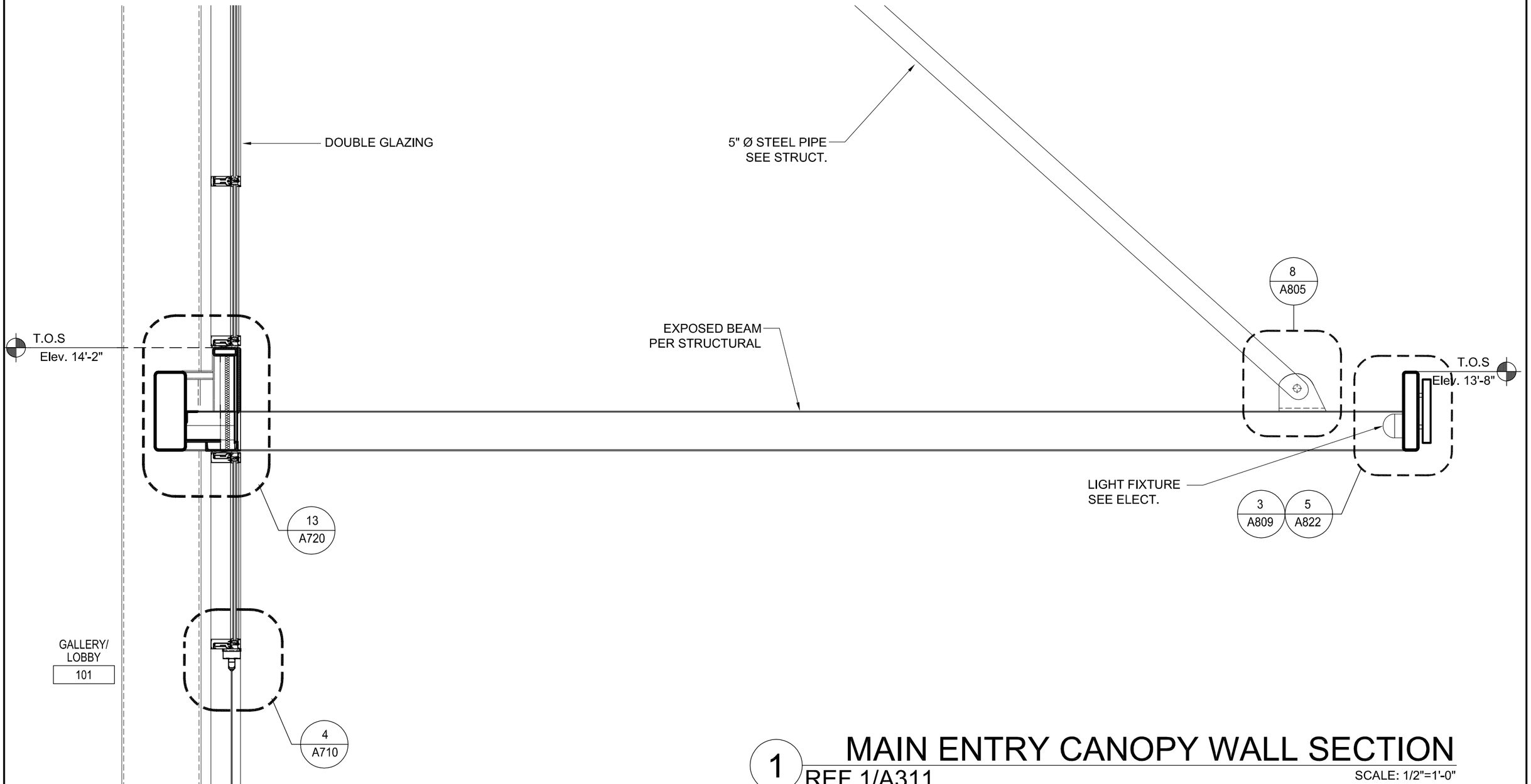

1 MAIN ENTRY CANOPY WALL SECTION

REF.1/A311

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

INDIAN SPRINGS HIGH SCHOOL PERFORMING ARTS CENTER 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN: 36-H7 04-114977	Date: 11. 17.2016 Scale: AS NOTED
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: MAIN ENTRY CANOPY WALL SECTION		Dwg. Sheet No.: A 412
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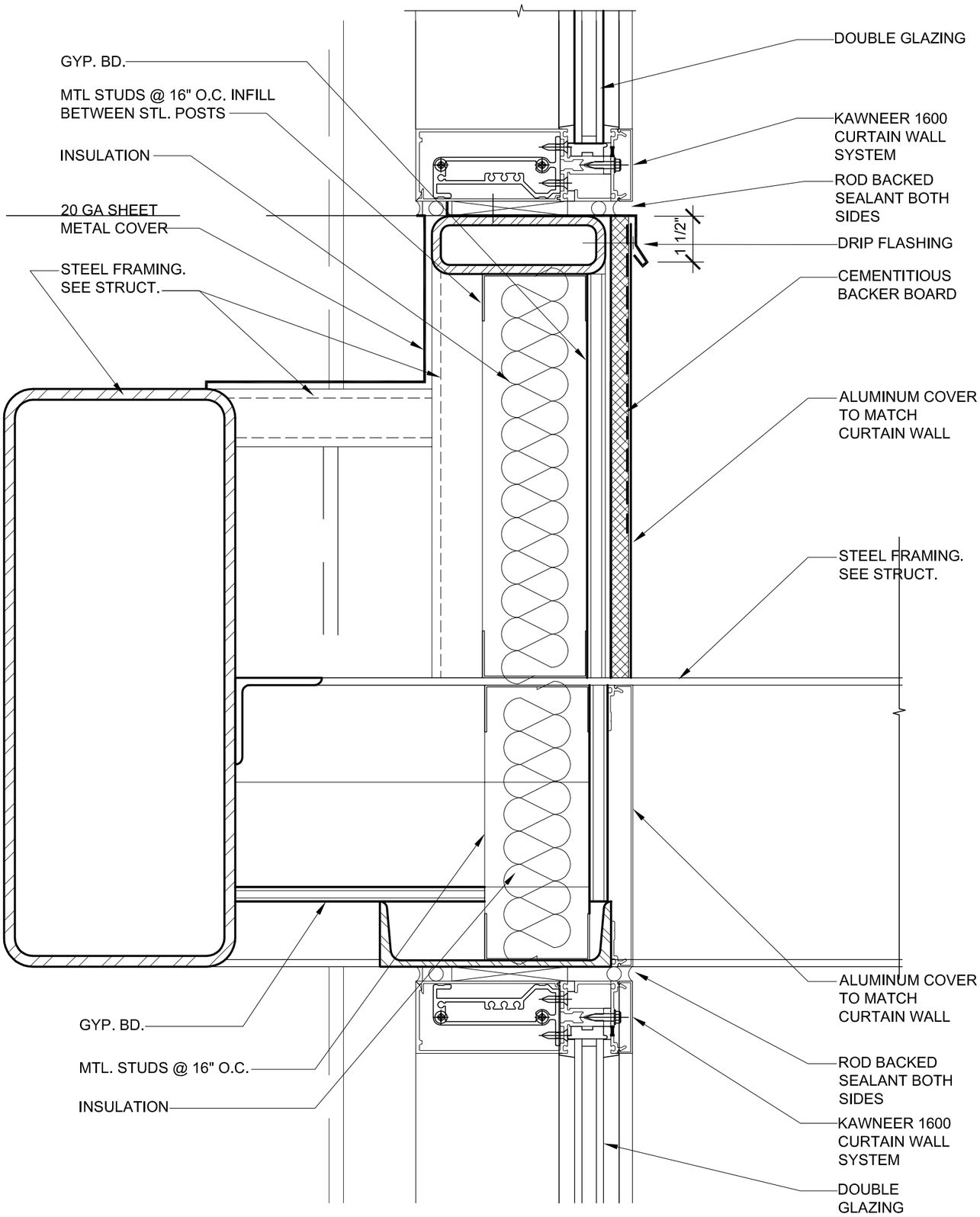


13

CURTAIN WALL ANCHORAGE AT ROOF

SCALE: 3"=1'-0"

INDIAN SPRINGS HIGH SCHOOL
PERFORMING ARTS CENTER
650 North Del Rosa Dr. San Bernardino, CA 92410

ARCHITECTS:
John Sergio Fisher & Associates Inc.
jsfa

ENGINEERS:

RFI NO.

APPN: 36-H7 04-114977

DRAWING TITLE.: CURTAIN WALL ANCHORAGE AT ROOF

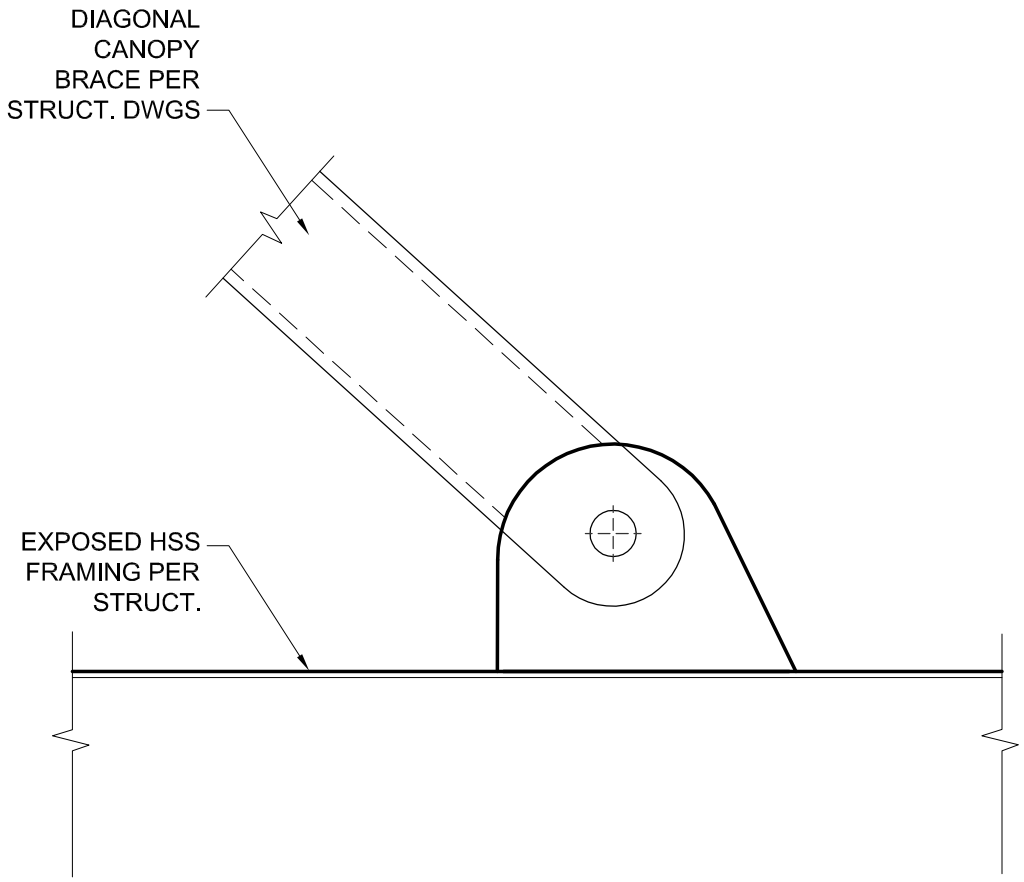
SKETCH DETAIL TITLE.: CANOPY DETAIL AT CURTAIN WALL

Date: 11. 17.2016

Scale: AS NOTED

Dwg. Sheet No.: A 720

Sketch No.: SK-CNPY 06

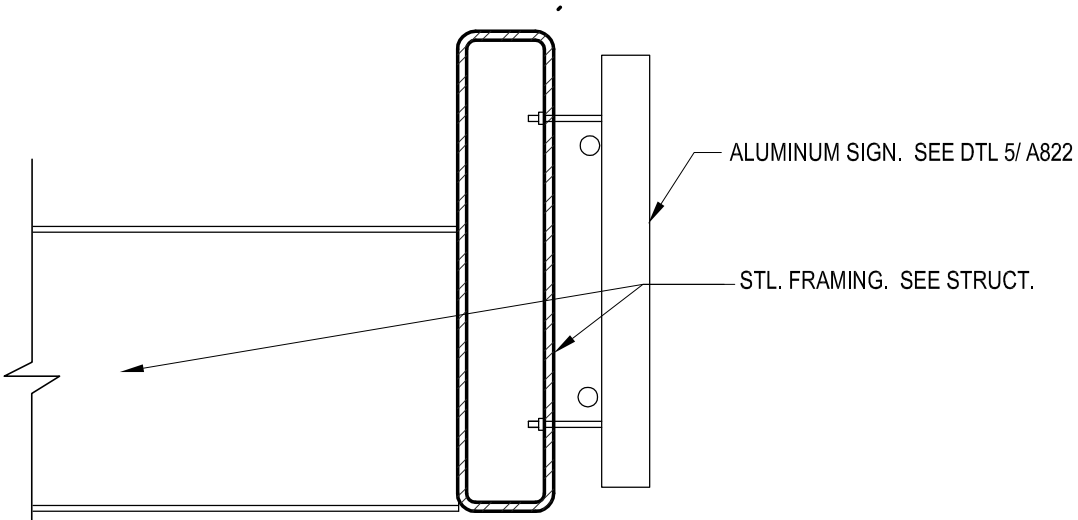


CANOPY BRACE DETAIL

8

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

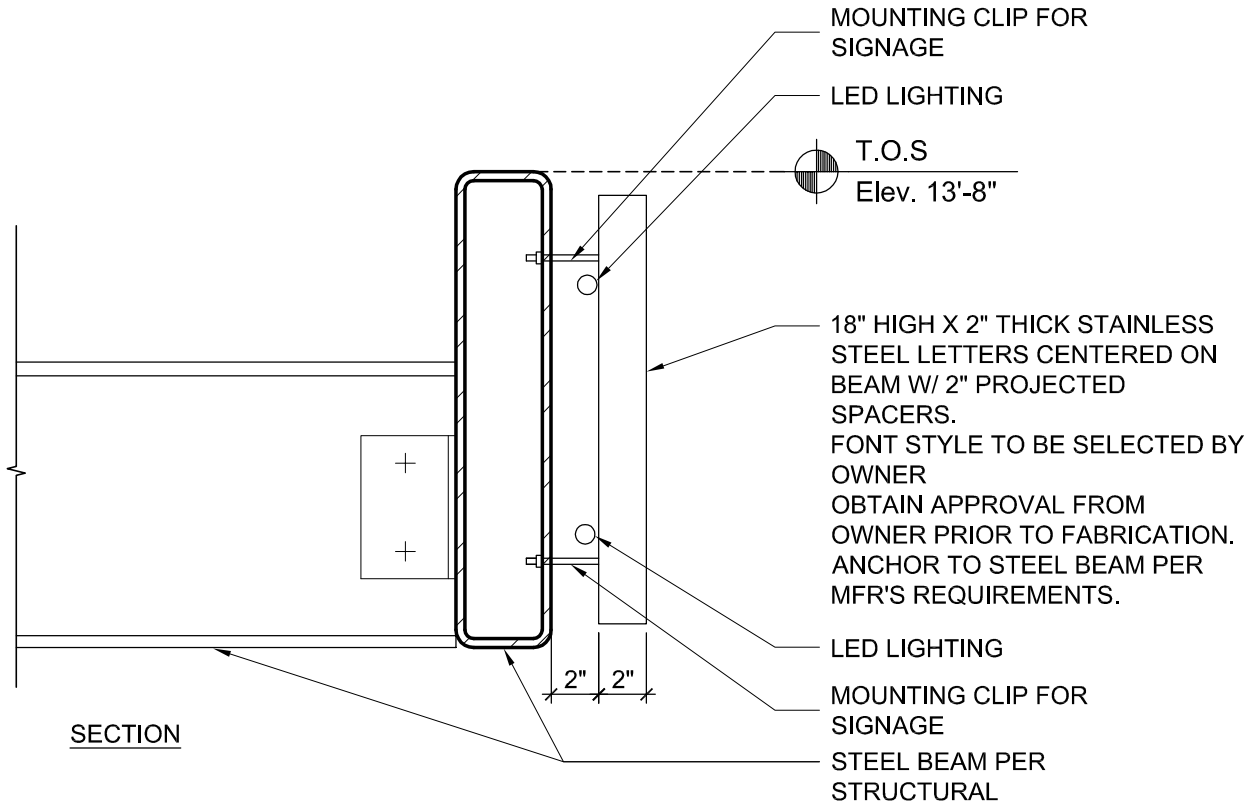
INDIAN SPRINGS HIGH SCHOOL PERFORMING ARTS CENTER 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN: 36-H7 04-114977	Date: 11. 17.2016 Scale: AS NOTED
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: CANOPY BRACE DETAIL		Dwg. Sheet No.: A 805
ENGINEERS:	SKETCH DETAIL TITLE.: CANOPY BRACE DETAIL		Sketch No.: SK-CNPY 07



3 ANCHOR @ CANOPY ROOF DETAIL

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

INDIAN SPRINGS HIGH SCHOOL **PERFORMING ARTS CENTER** 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN: 36-H7 04-114977	Date: 11. 17.2016 Scale: AS NOTED
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: CANOPY ROOF DETAIL		Dwg. Sheet No.: A 809
ENGINEERS:	SKETCH DETAIL TITLE.: EDGE BEAM DETAIL AT CANOPY		Sketch No.: SK-CNPY 08

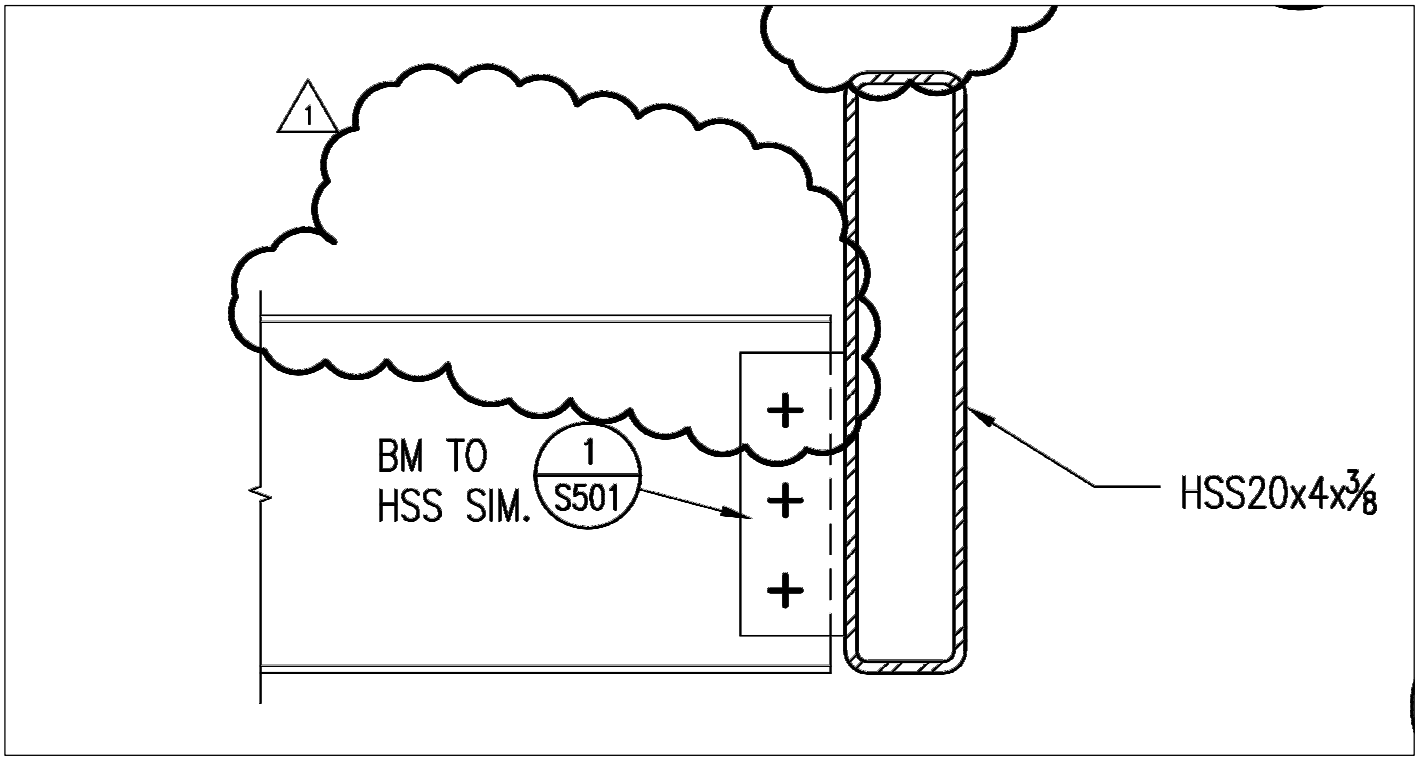


5 SIGN AT STEEL TUBE BEAM

REF.1/A412

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

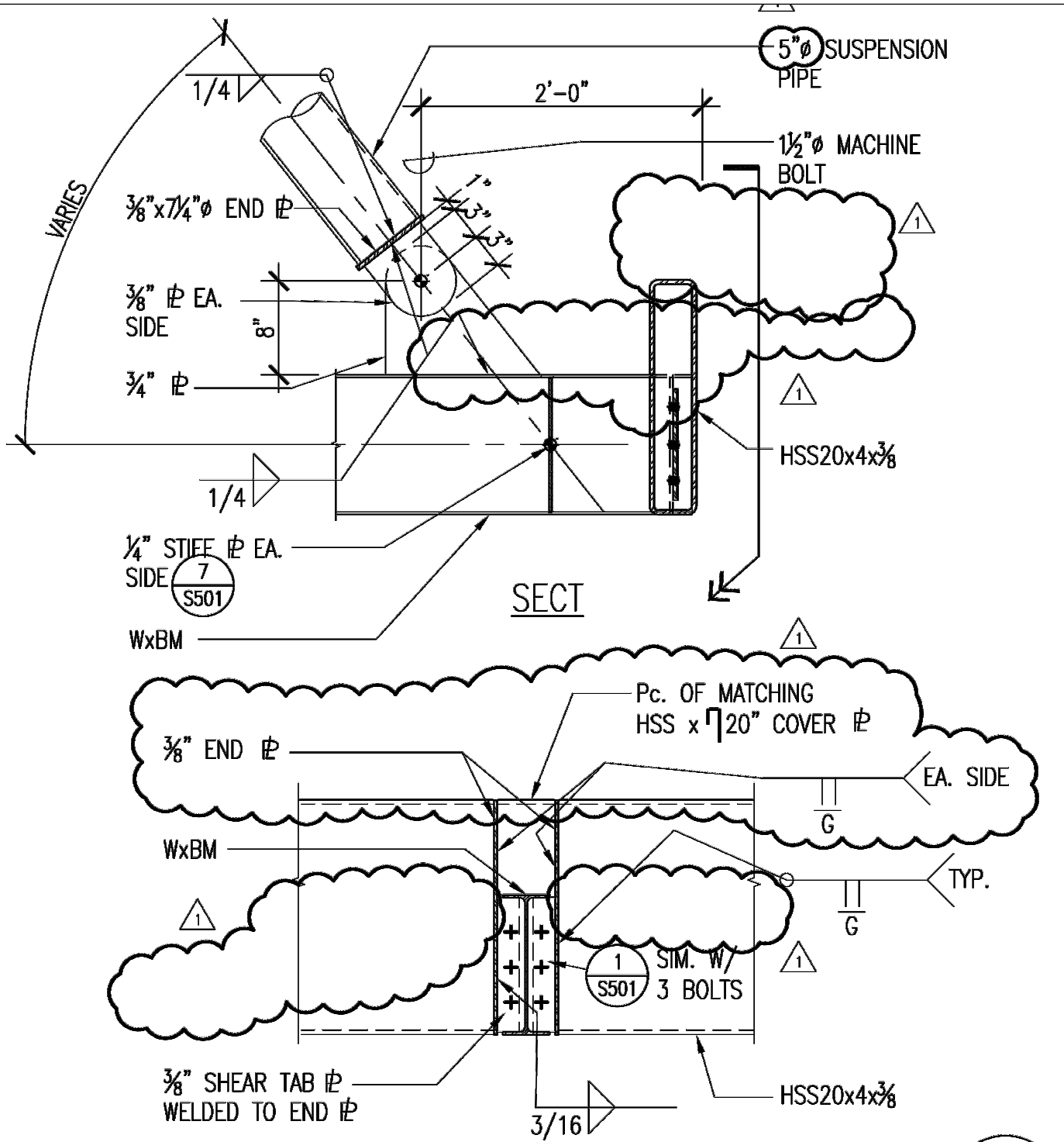
INDIAN SPRINGS HIGH SCHOOL PERFORMING ARTS CENTER 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN: 36-H7 04-114977	Date: 11. 17.2016 Scale: AS NOTED
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: SIGN AT STEEL TUBE BEAM		Dwg. Sheet No.: A 822
ENGINEERS:	SKETCH DETAIL TITLE.: SIGN AT STEEL TUBE BEAM		Sketch No.: SK-CNPY 09



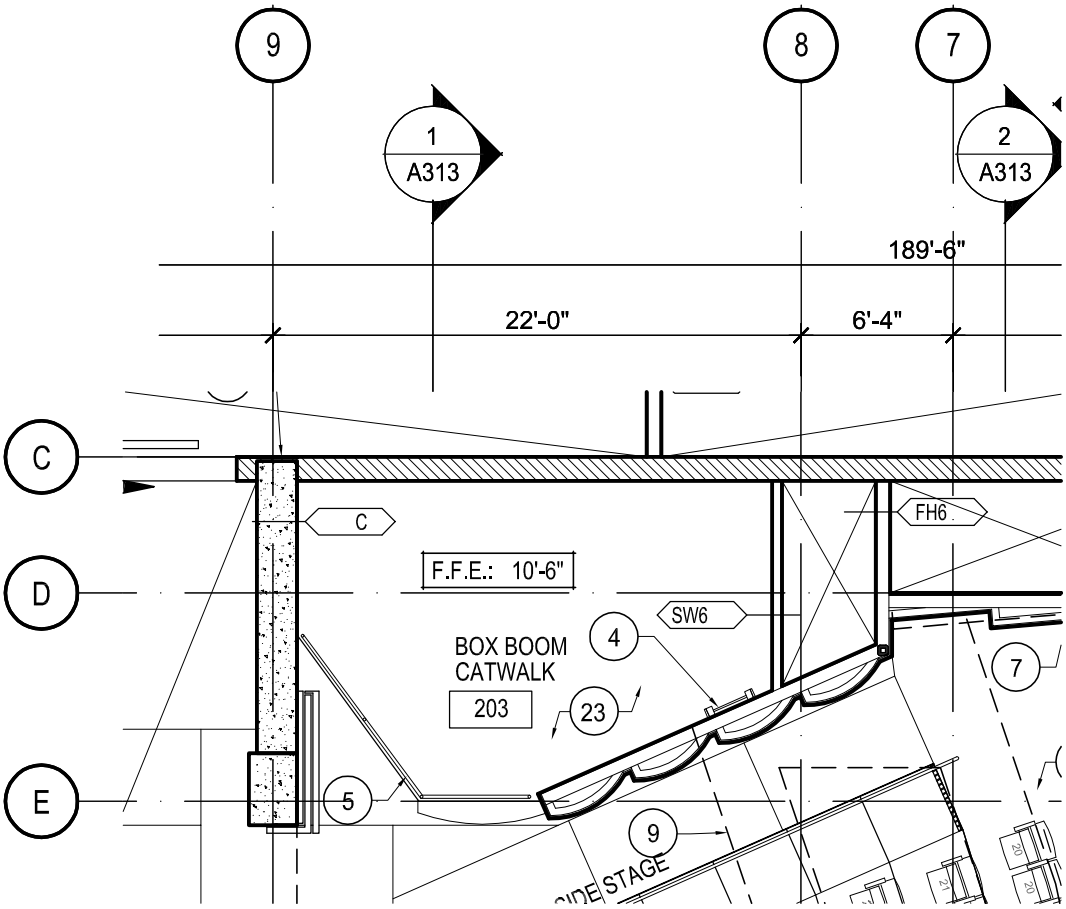
10 DETAIL

SCALE: NONE

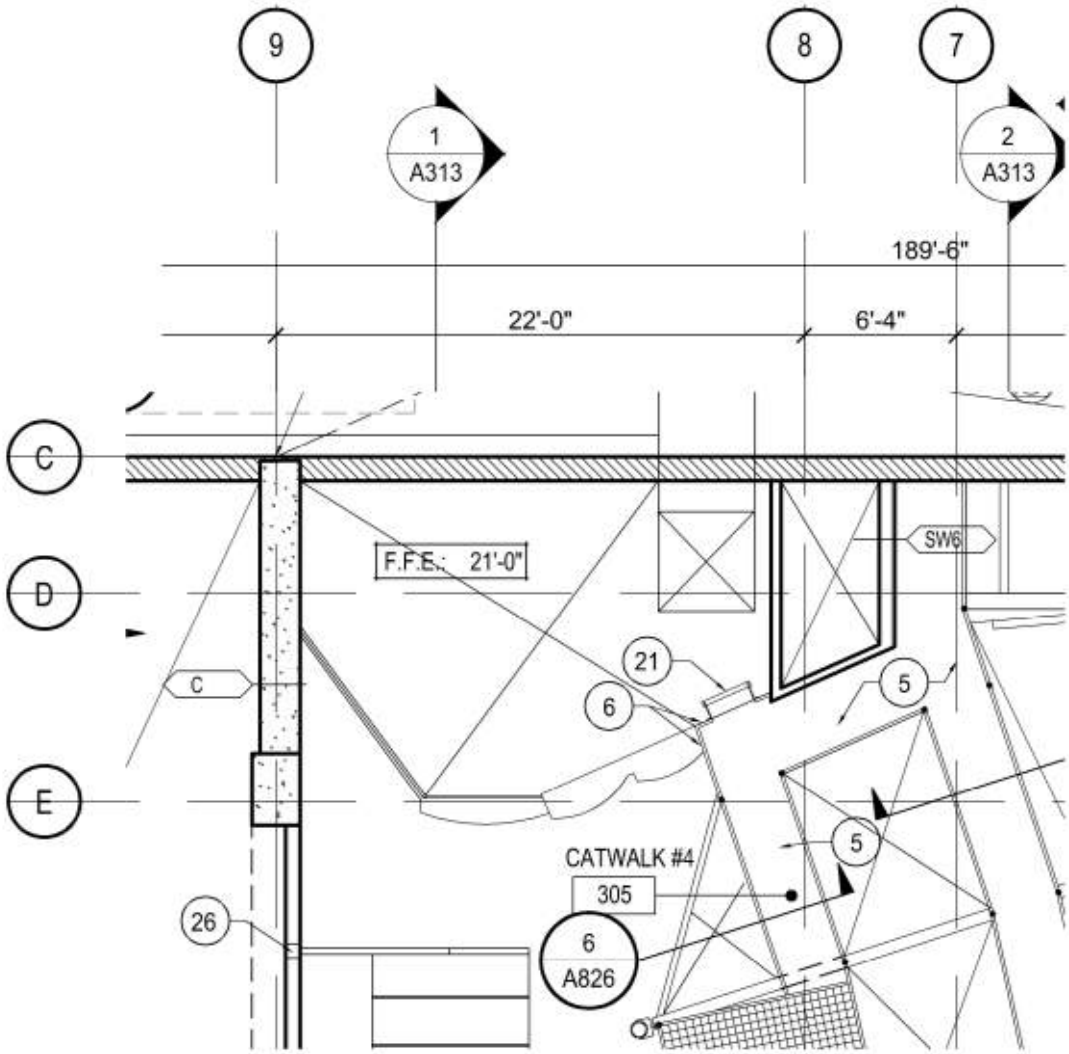
INDIAN SPRINGS HIGH SCHOOL PERFORMING ARTS CENTER 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN: 36-H7 04-114977	Date: 11. 17.2016 Scale: AS NOTED
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: DETAIL		Dwg. Sheet No.: S 509
ENGINEERS:	SKETCH DETAIL TITLE.: BEAM CONNECTION AT CANOPY		Sketch No.: SK-CNPY 10



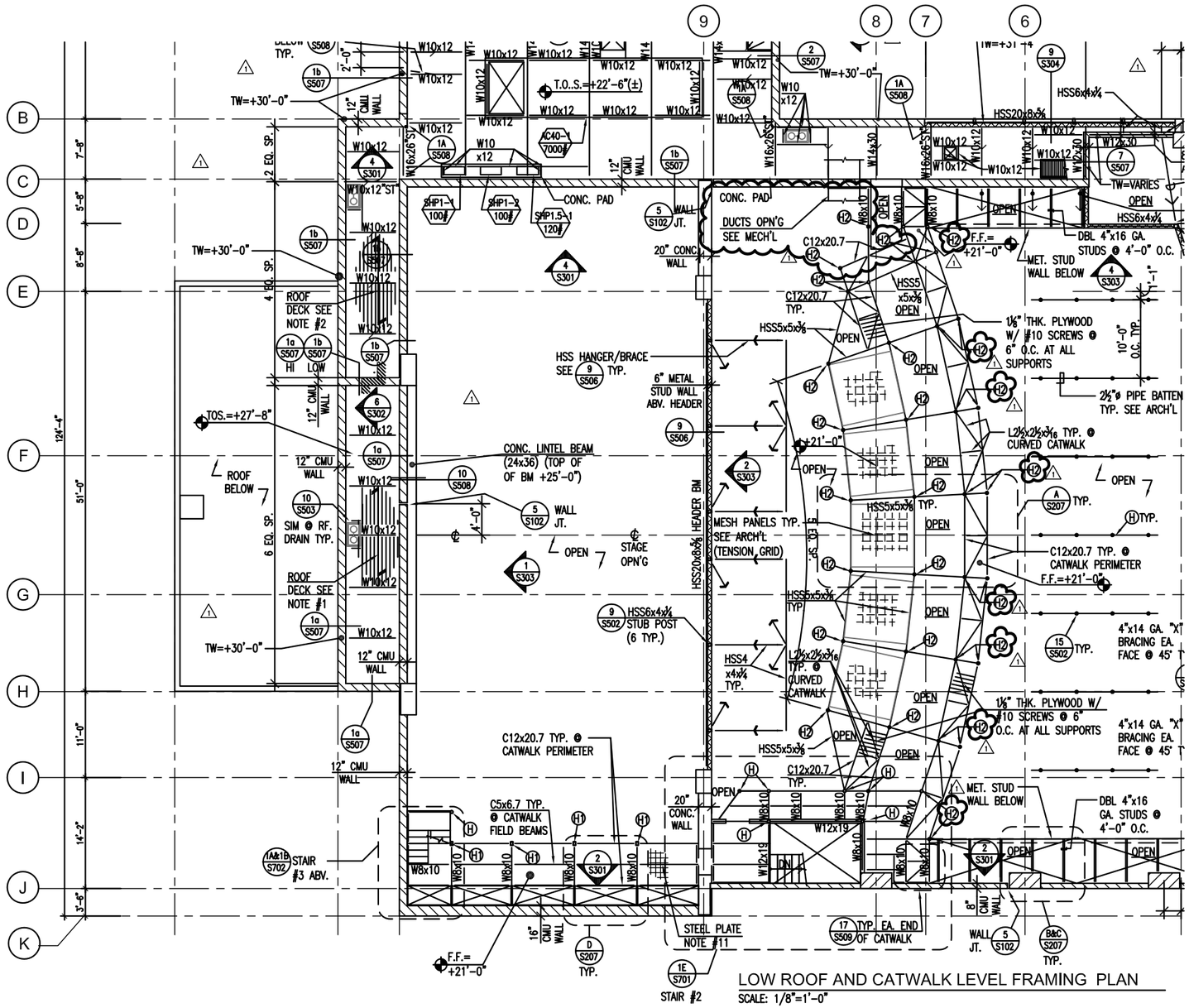
INDIAN SPRINGS HIGH SCHOOL PERFORMING ARTS CENTER 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN: 36-H7 04-114977	Date: 11. 17.2016 Scale: AS NOTED
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: DETAIL		Dwg. Sheet No.: S 509
ENGINEERS:	SKETCH DETAIL TITLE.: PIPE CONNECTION AT CANOPY		Sketch No.: SK-CNPY 11



INDIAN SPRINGS HIGH SCHOOL **PERFORMING ARTS CENTER** 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN: 36-H7 04-114977	Date: 11. 17.2016 Scale: 1/8"= 1'-0"
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: MEZZANINE FLOOR PLAN		Dwg. Sheet No.: A203
ENGINEERS:	SKETCH DETAIL TITLE.: BOX BOOM CATWALK PLAN		Sketch No.: SK-CTWK 01



INDIAN SPRINGS HIGH SCHOOL PERFORMING ARTS CENTER 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN: 36-H7 04-114977	Date: 11. 17.2016 Scale: 1/8"= 1'-0"
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: CATWALK PLAN		Dwg. Sheet No.: A204
ENGINEERS:	SKETCH DETAIL TITLE.: PARTIAL CATWALK PLAN		Sketch No.: SK-CTWK 02



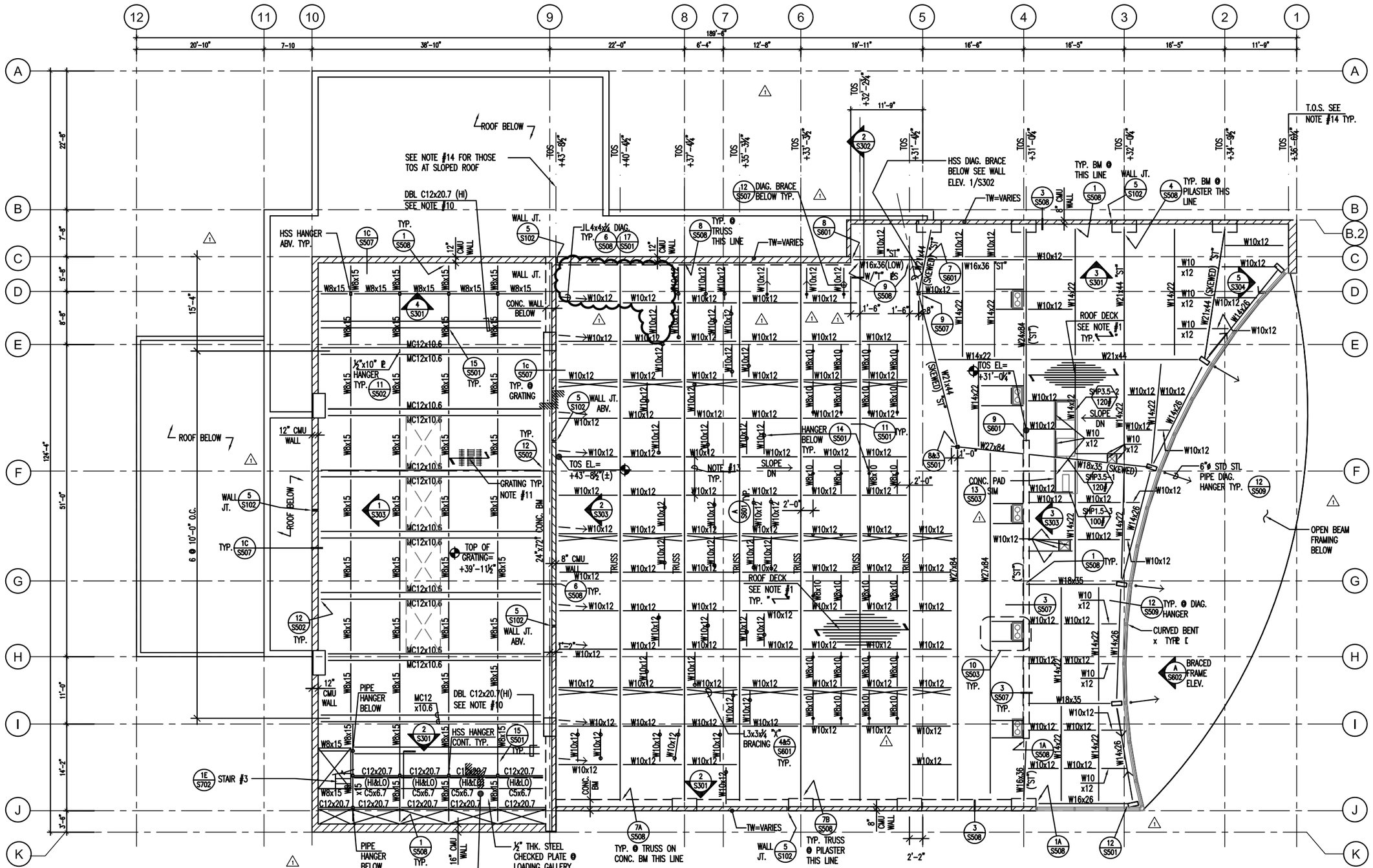
LOW ROOF AND CATWALK LEVEL FRAMING PLAN

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

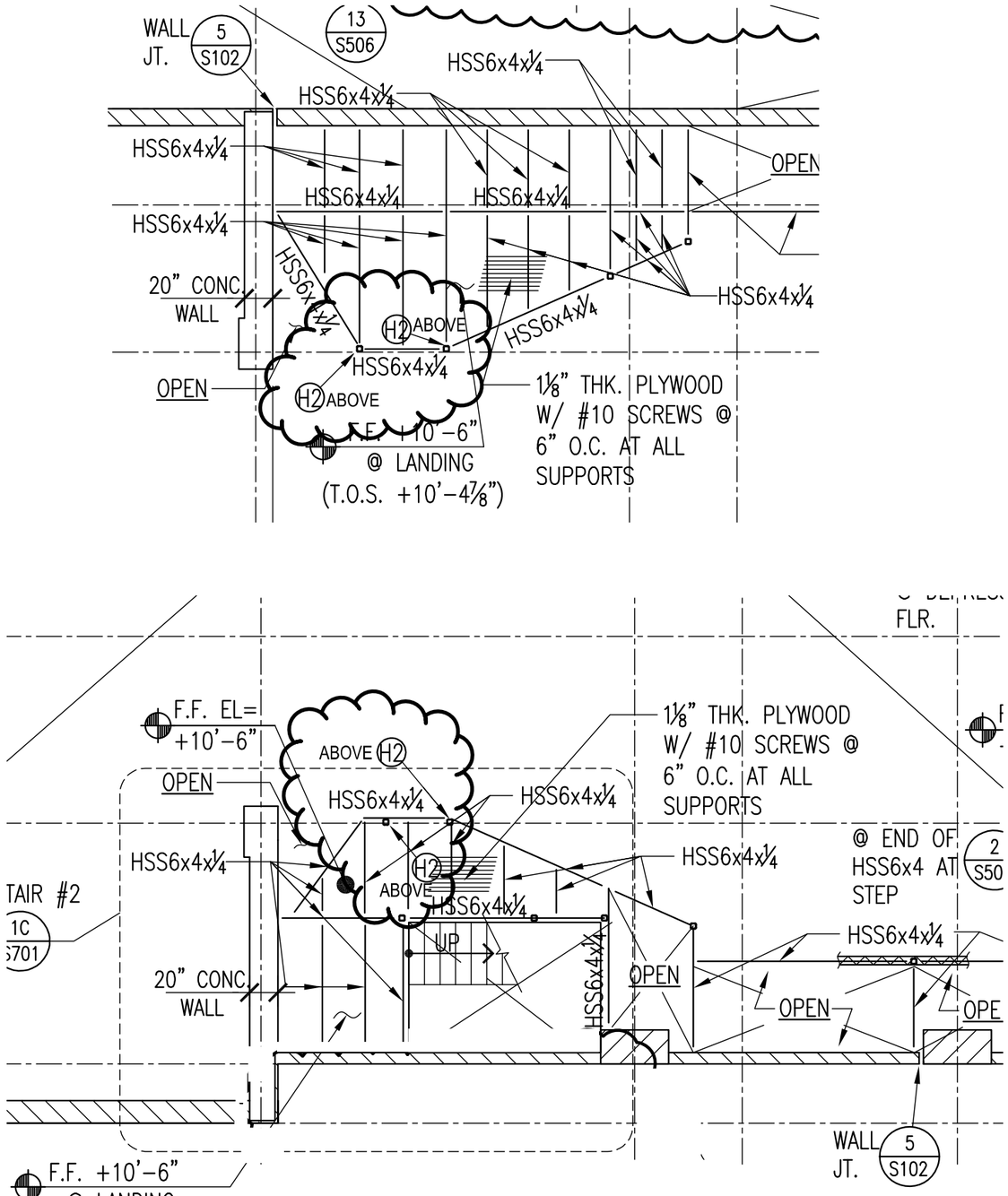
SPECIAL NOTES THIS SHEET:

1. ROOF DECK 3¼" MIN. LIGHT WEIGHT CONCRETE TOPPING OVER 2"X18 GA. COMPOSITE METAL DECK (ASC PROFILES INC. 2WH-36 ESR #2408). HI FORM DECK OR APPROVED EQUIVALENT WITH #3 @ 15" O.C. E.W. SEE DETAILS 1A,2,3, & 4 ON SHEET S504 FOR ADDITIONAL INFORMATION. PROVIDE VARIABLE SCREED TO ACCOUNT FOR BEAM DEFLECTION DUE TO CONSTRUCTION LOADS FINISH SLAB MUST BE MAINTAINED LEVEL AT THE FLOOR & PROPER SLOPE AND STEPS WHERE NOTED ON ARCHITECTURAL DRAWINGS. PROVIDE ¾"ø WELDED STUDS @ 24" O.C. AT ALL BEAM SUPPORTS. SEE DETAIL 2&3/S504 FOR ADDITIONAL INFORMATION.
2. ROOF DECK 1½" TYPE B 18 GA. MINIMUM METAL DECK (ASC PROFILES INC. B-36 OR APPROVED EQUIVALENT ESR #1414). SEE DETAILS 1 THROUGH 3 ON SHT. S503. RIGID INSULATION BOARD WHERE USED OVER DECK. SEE ARCH'L. AND MECH'L. DWGS. FOR ADDITIONAL INFORMATION. PROVIDE TWO ROWS OF DECK WELDING PER DETAIL 3/S503 @ DRAG STRUT LINES NOTED "ST".
3. ALL GRID LINES INDICATE CENTERLINE OF COLUMN U.N.O.
4. SEE ARCHITECTURAL DRAWINGS FOR ROOF SLOPE AND LOCATION OF OPENINGS.
5. COORDINATE WITH ARCHITECTURAL,MECHANICAL & PLUMBING DRAWINGS, FOR SIZE & LOCATION OF ALL MECH'L. EQUIPMENT, PADS, CURBS & OPENINGS.
6. OPENINGS IN METAL ROOF DECK SHALL BE FRAMED PER DETAILS 4/S503 AND 5/S503 U.N.O.
7. ⟶ ⟵ DENOTES BRACED FRAME SEE SHEET S602, FOR ELEVATIONS.
8. ROOFING AND THICKNESS OF RIGID INSULATION VARIES, SEE ARCH'L ROOF PLAN FOR TOP OF ROOF ELEVATIONS.
9. (VC-2) DENOTE A/C UNIT AND MAX. WT. IN LBS. SEE MECH'L DRWG. FOR SIZE & LOCATION. ROOF SUPPORT. DETAIL SEE 11/S503
10. (H) DENOTES CATWALK HANGER OF 2½"ø STD STL. PIPE.
    (H1) DENOTES LOADING GALLERY CATWALK HANGER OF HSS6x4x3/8
    (H2) DENOTES CATWALK HANGER OF 1½"ø STD. STL. PIPE.
11. STEEL PLATE AT LOADING GALLERY SHALL BE ¼" THK. CHECKER STEEL PLATE

INDIAN SPRINGS HIGH SCHOOL PERFORMING ARTS CENTER 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN:	Date: 11.21.16 Scale: N.T.S.
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: PARTIAL LOW ROOF AND CATWALK LEVEL FRAMING PLAN		Dwg. Sheet No.: S204
ENGINEERS: LW LIN & WU ENGINEERING CONSULTING STRUCTURAL ENGINEERS 911 South Primrose Ave., Suite H, Monrovia, CA 91016 TEL (626) 256-6688 FAX (626) 256-6689	SKETCH DETAIL TITLE.:		Sketch No.: SK-CTWK 03



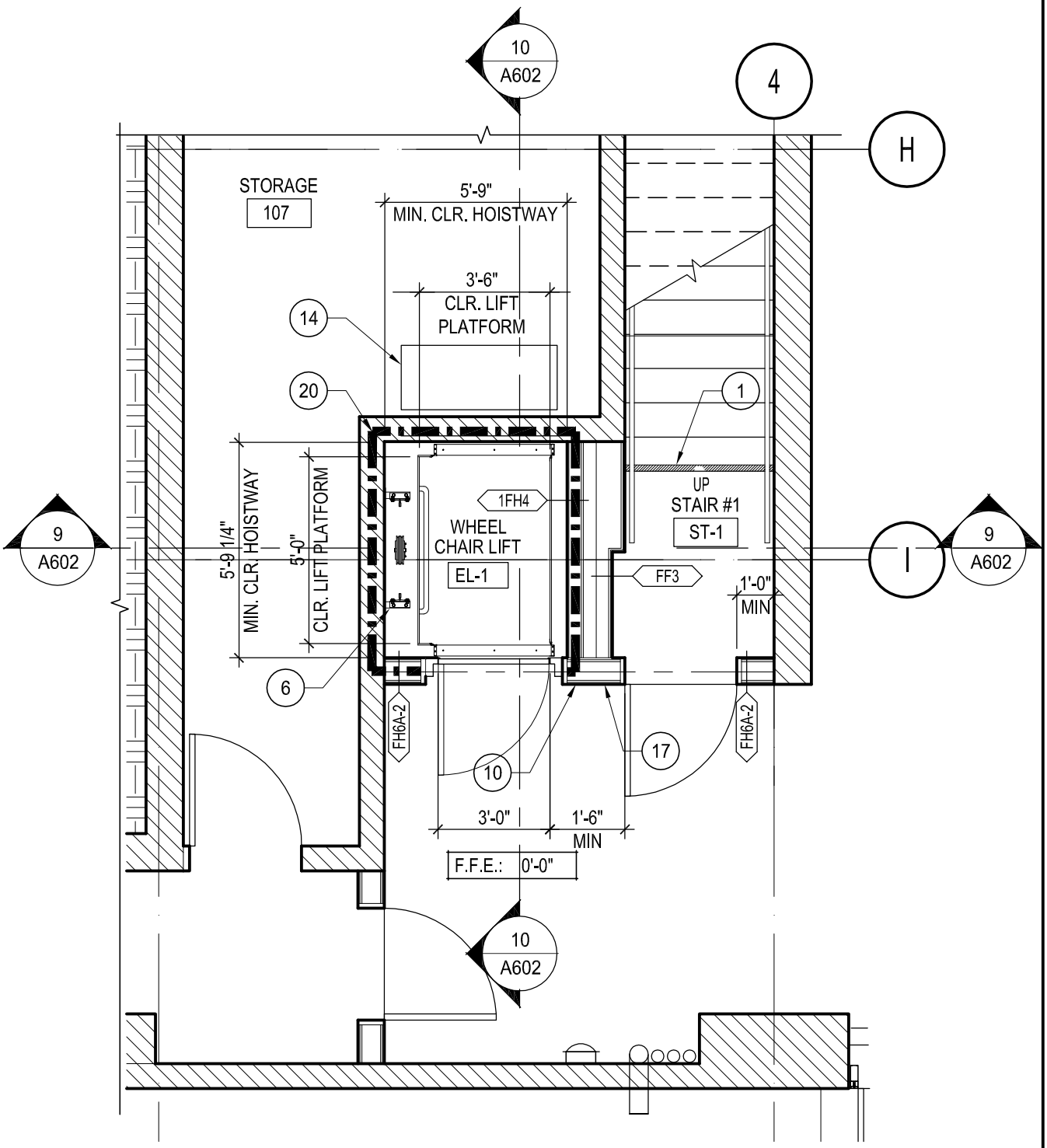
INDIAN SPRINGS HIGH SCHOOL PERFORMING ARTS CENTER 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN:	Date: 11.21.16 Scale: N.T.S.
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: PARTIAL MAIN ROOF AND GRID IRON FRAMING PLAN		Dwg. Sheet No.: S205
ENGINEERS: LW LIN & WU ENGINEERING CONSULTING STRUCTURAL ENGINEERS 911 South Primrose Ave., Suite H, Monrovia, CA 91016 TEL (626) 256-6688 FAX (626) 256-6699	SKETCH DETAIL TITLE.:		Sketch No.: SK-CTWK 04



MEZZANINE LEVEL FRAMING PLAN

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

INDIAN SPRINGS HIGH SCHOOL PERFORMING ARTS CENTER 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN:	Date: 11.21.16 Scale: N.T.S.
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.:		Dwg. Sheet No.: S203
ENGINEERS: LW LIN & WU ENGINEERING CONSULTING STRUCTURAL ENGINEERS 911 Isabella Parkway Ave., Suite H, Monrovia, CA 91016 TEL: (626) 256-6688 FAX (626) 256-6699	SKETCH DETAIL TITLE.: HANGERS AT BOX BOOM		Sketch No.: SK-CTWK 05

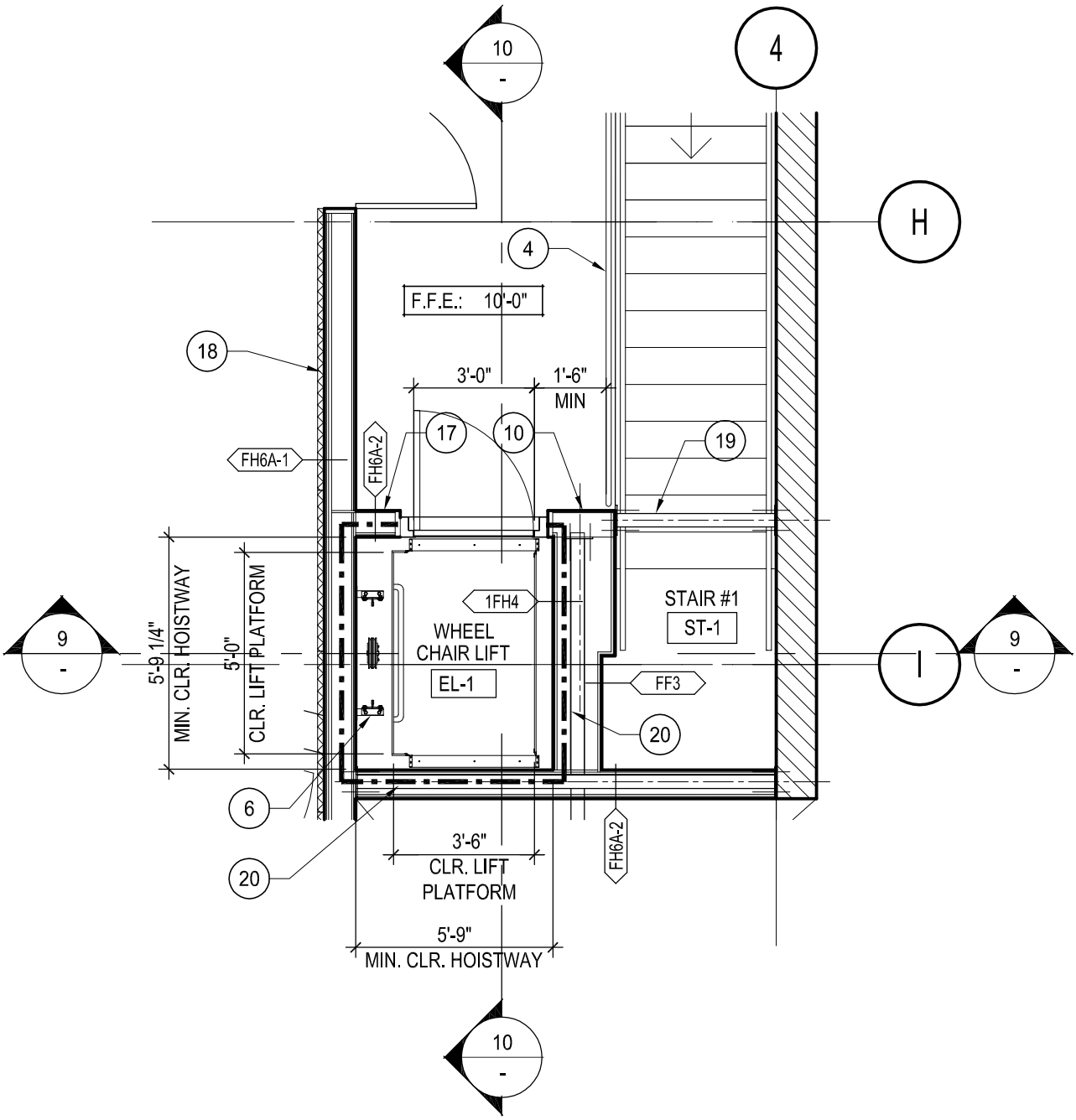


LIFT #1
1ST FLOOR PLAN

6 REF.A202

SCALE: 1/4"=1'-0"

INDIAN SPRINGS HIGH SCHOOL **PERFORMING ARTS CENTER** 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN: 36-H7 04-114977	Date: 11. 17.2016 Scale: AS NOTED
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: STAIR #3 PLANS & SECTIONS & LIFT #1 PLANS		Dwg. Sheet No.: A 602
ENGINEERS:	SKETCH DETAIL TITLE.: LIFT #1 FIRST FLOOR PLAN		Sketch No.: SK-LIFT 01



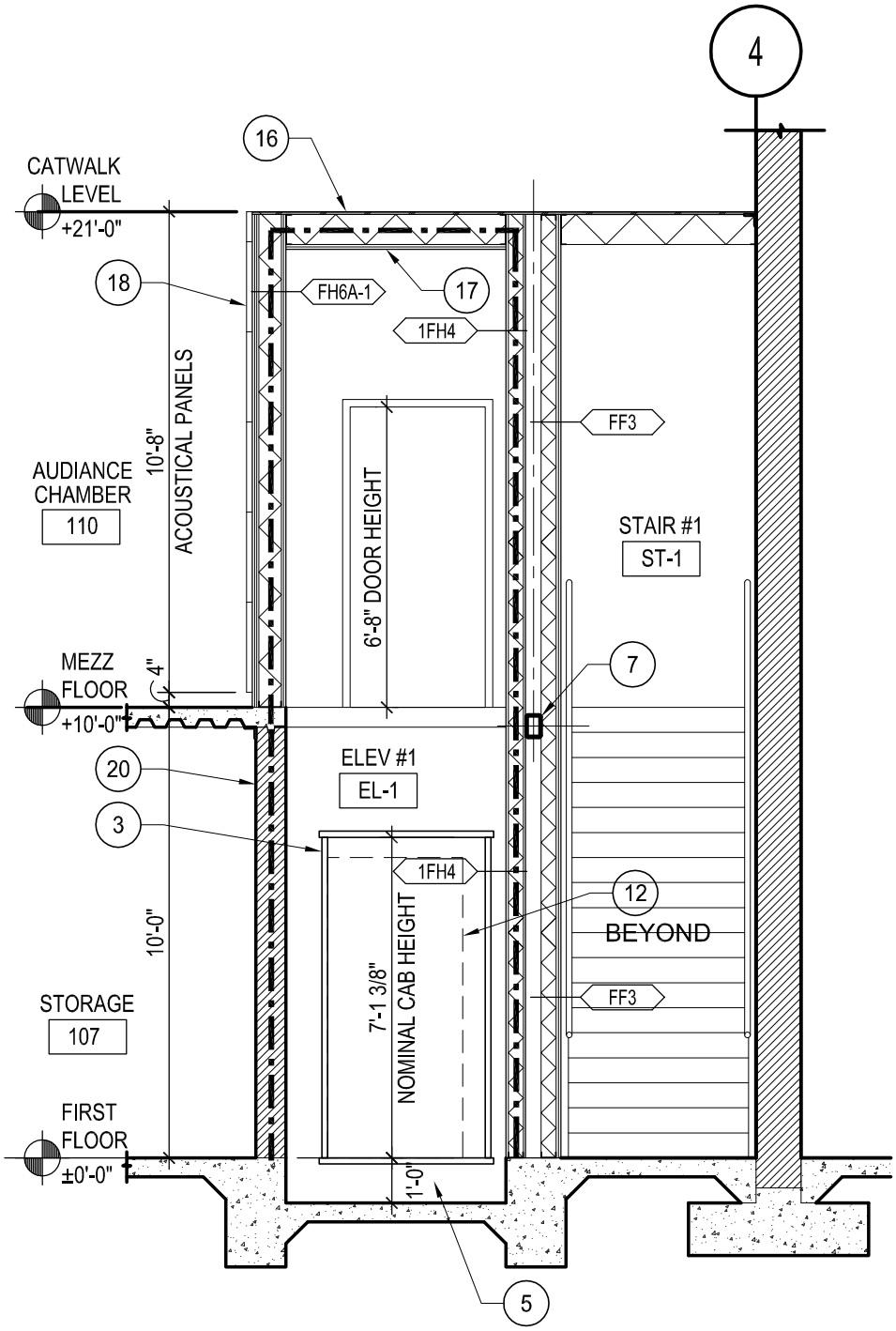
LIFT #1
MEZZ. FLOOR PLAN

7

REF.A203

SCALE: 1/4"=1'-0"

INDIAN SPRINGS HIGH SCHOOL **PERFORMING ARTS CENTER** 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN: 36-H7 04-114977	Date: 11. 17.2016 Scale: AS NOTED
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: STAIR #3 PLANS & SECTIONS & LIFT #1 PLANS		Dwg. Sheet No.: A 602
ENGINEERS:	SKETCH DETAIL TITLE.: LIFT #1 MEZZ FLOOR PLAN		Sketch No.: SK-LIFT 02



KEYNOTES:

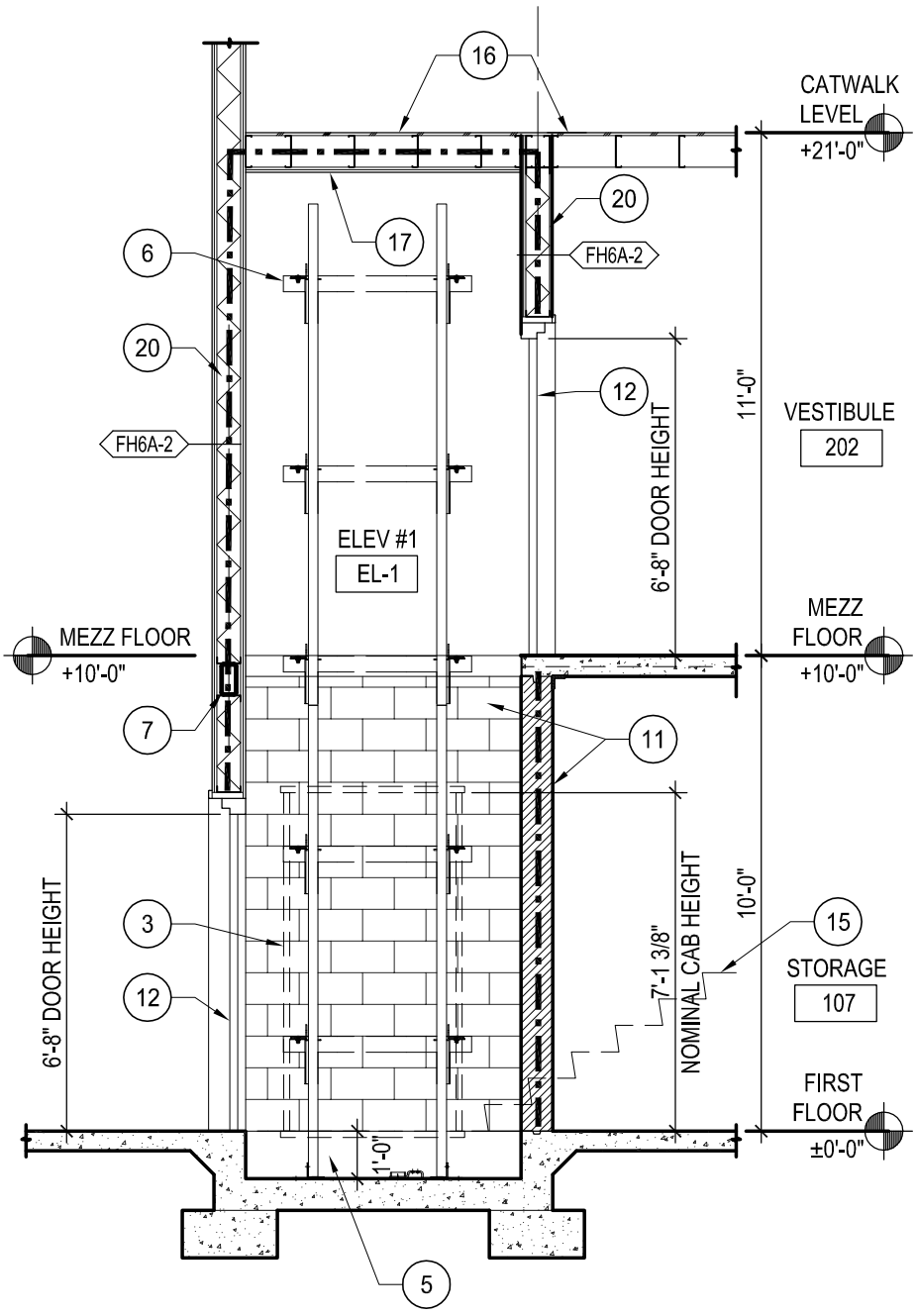
1. 2" CONTRASTING STRIPE. SEE DTL 8/A610
2. CHAIN LINK SAFETY CAGE
3. VERTICAL PLATFORM LIFT CAB
4. PIPE RAILING
5. LIFT PIT
6. LIFT RAIL BRACKET ASSEMBLY
7. HSS PER STRUCTURAL
8. GUARDRAIL
9. 2" CONTRASTING STRIPE. SEE DTL. 8/A610
10. LIFT CALL BUTTON
11. EXPOSED CMU
12. 1 HR LIFT SHAFT DOOR
13. HANDRAIL
14. LIFT EQUIPMENT / CONTROLLER
15. LINE OF STAIR #1 - BEYOND
16. 3/4" FIRE TREATED PLYWOOD
17. (2) LAYERS 5/8" GYP BOARD EACH SIDE
18. ACOUSTICAL WALL PANELS
19. EXPOSED HSS PER STRUC.
20. 1 HR RATED ELEVATOR SHAFT WALL

9

LIFT #1 SECTION

SCALE: 1/4"=1'-0"

INDIAN SPRINGS HIGH SCHOOL PERFORMING ARTS CENTER 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN: 36-H7 04-114977	Date: 11. 17.2016 Scale: AS NOTED
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: STAIR #3 PLANS & SECTIONS & LIFT #1 PLANS		Dwg. Sheet No.: A 602
ENGINEERS:	SKETCH DETAIL TITLE.: LIFT #1 SECTION		Sketch No.: SK-LIFT 03

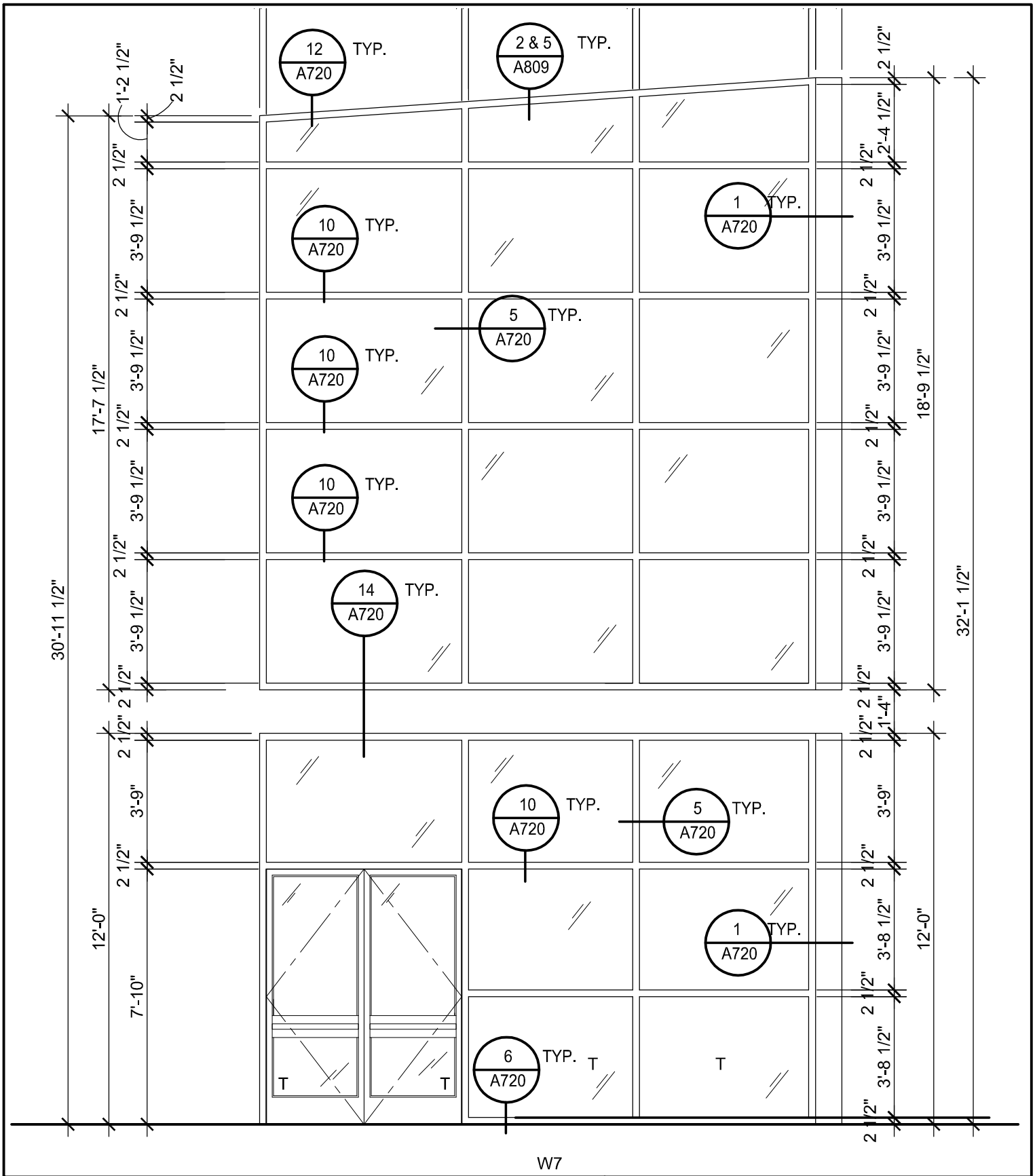


LIFT #1 SECTION

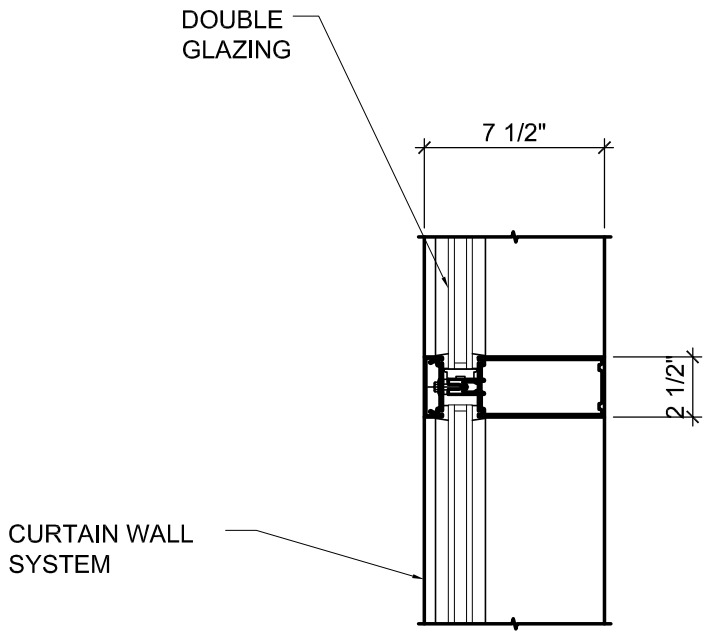
10

SCALE: 1/4"=1'-0"

INDIAN SPRINGS HIGH SCHOOL PERFORMING ARTS CENTER 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN: 36-H7 04-114977	Date: 11. 17.2016 Scale: AS NOTED
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: STAIR #3 PLANS & SECTIONS & LIFT #1 PLANS		Dwg. Sheet No.: A 602
ENGINEERS:	SKETCH DETAIL TITLE.: LIFT #1 SECTION		Sketch No.: SK-LIFT 04



INDIAN SPRINGS HIGH SCHOOL **PERFORMING ARTS CENTER** 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN: 36-H7 04-114977	Date: 11. 17.2016 Scale: 1/4" = 1'-0"
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: CURTAIN WALL SCHEDULE		Dwg. Sheet No.: A 707
ENGINEERS:	SKETCH DETAIL TITLE.: CURTAIN WALL W7		Sketch No.: SK-SHDS 01



10

CURTAIN WALL
HORIZONTAL MULLION

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

INDIAN SPRINGS HIGH SCHOOL **PERFORMING ARTS CENTER** 650 North Del Rosa Dr. San Bernardino, CA 92410	RFI NO.	APPN: 36-H7 04-114977	Date: 11. 17.2016 Scale: AS NOTED
ARCHITECTS: John Sergio Fisher & Associates Inc. **jsfa**	DRAWING TITLE.: CURTAIN WALL DETAILS		Dwg. Sheet No.: A 720
ENGINEERS:	SKETCH DETAIL TITLE.: HORIZONTAL MULLION		Sketch No.: SK-SHDS 02