

ADDENDUM No. 1
Request for Competitive Sealed Proposals (CSP)
19CSP136 Roof Replacement at Fulmore Middle School

June 27, 2019

Received by bidder:

Date: _____

Name: _____

Signature: _____

Item 1: Questions and Answers

Item 2: Revisions to Specifications and Drawings

Item 1:

Questions and Answers are provided in the attached document prepared by Engineered Exteriors, LLC.

Item 2:

Revisions to Specifications and Drawings are provided in the attached document prepared by Engineered Exteriors, LLC.



Date: June 27, 2019
To: All Plan Holders
RE: Roof Improvements to Fulmore Middle School
 AISD Project No. 19-0036-FULMR
 EE Project No. 004-012



ADDENDUM NO. 1

This addendum applies to the Bidding Documents for the subject project, prepared by Engineered Exteriors, LLC, dated May 21, 2019, and shall be included as part of the Contract Documents.

QUESTIONS

1. *Is the roof in good enough condition to qualify for a roof coating? We can offer a 20yr NDL for less than the budget on this project. **A roof coating system is not option for this project. AISD also requires that we increase the R-Value and add secondary drainage provisions to meet current building codes, raise MEP curbs, and replace sheet metal flashings and components. Therefore, a roof coating is not an acceptable option for this roofing project. Please bid the drawings and specifications, including this addendum as shown.***

SPECIFICATIONS

Div.	Section	Item	Revision
07	07 54 19	All	Replace the specification section in its entirety. Revised specification includes Johns Manville as an approved manufacturer.
07	07 54 20	All	Replace the specification section in its entirety. Revised specification includes Johns Manville as an approved manufacturer.

DRAWINGS

Sheet	Revision
R2.00	Replace with attached revised R2.00, clarifying key notes to reference mechanical drawings and including portable platform requirements for MEP equipment on Roof Area A-10.
R2.01	Replace with attached revised R2.01, clarifying key notes to reference mechanical drawings and including requirement on roof plan to raise mechanical units on Roof Area D-01 to match MEP drawings.
R2.02	Replace with attached revised R2.01, clarifying extents of walk pads.

END OF ADDENDUM NO. 1

SECTION 075419 - POLYVINYL-CHLORIDE (PVC) ROOFING

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Qualifications, Standards and Materials for new roof assembly
2. Adhered polyvinyl-chloride (PVC) or ketone ethylene ester (KEE) roofing system, smooth type.
3. Roofing accessory materials
4. Traffic pads

B. Related Requirements:

1. Section 061053 – Miscellaneous Rough Carpentry
2. Section 070150 - Preparation for Re-Roofing
3. Section 072200 - Roof and Deck Insulation
4. Section 076200 - Sheet Metal Flashing and Trim

1.3 DEFINITIONS

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

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Roofing Conference:

1. After approval and review of all submittals by the Engineer, meet with Owner, Engineer, Owner's insurer if applicable, testing and inspecting agency representative, roofing installer, roofing system manufacturer's representative, and installers whose work interfaces with or affects roofing, including installers of roof accessories, masonry flashings, MEP contractor, and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review structural loading limitations of roof deck during and after roofing.

5. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
6. Review governing regulations and requirements for insurance and certificates if applicable.
7. Review temporary protection requirements for roofing system during and after installation.
8. Review roof observation and repair procedures after roofing installation.

1.5 SUBMITTALS

- A. Submit product data and shop drawings under provisions of appropriate Division 01 Section - Submittals.
- B. Product Data: For each type of product.
- C. Shop Drawings: For roofing system.
 1. Plans: if submitting detail shop drawings, provide a roof plan indicating the locations of these details.
 2. Details:
 - a. Provide certification to comply with the contract document drawings and specifications without deviation under provisions of Section 013300, Submittals.
 - b. For any proposed deviations, provide shop drawings indicating clearly proposed changes. Provide manufacturer's standard details (subject to contract document requirements), including:
 - 1) Base flashings, penetrations, and membrane terminations.
 - 2) Fastening patterns for field, perimeter, and corners.
- D. Qualification Data: For Installer and manufacturer.
- E. Manufacturer Certificate:

Provide project specific system letter, signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article. Include evidence of compliance, including:

1. Compliance with performance requirements.
2. Roofing system components are listed for the project.
3. Components are physically and chemically compatible for installation as designed.
4. All proposed materials, including those by other manufacturer, are acceptable to membrane manufacturer for use in system.
5. Proposed system meets all criteria for issuance of required manufacturer's warranty
6. Identify fastening patterns to be used in field, perimeter, and corner, based on third party test data.
7. Specifically identify and define any deviations.

- F. Product Test Reports: For components of roofing system, for tests performed by manufacturer and witnessed by a qualified testing agency. Test reports must indicate they meet or exceed the uplift pressures shown in the Drawings.
 - G. Research/Evaluation Reports: For components of roofing system, from ICC-ES.
 - H. Laboratory Test Reports:
 - 1. For each adhesive used, provide documentation indicating that the adhesive contains no urea formaldehyde.
 - 2. For each adhesive used, provide documentation of VOC content.
 - I. Contractor Daily Construction report form.
 - J. Plan for protecting installed materials during construction and staged materials.
 - K. Sample Warranties: For manufacturer's special warranties.
- 1.6 CLOSEOUT SUBMITTALS
- A. Maintenance Data: For roofing system to include in maintenance manuals.
- 1.7 QUALITY ASSURANCE
- A. General: Competition shall be maintained at every level of the project, including the following:
 - 1. Architect/Engineer shall not be affiliated with or be employed by a Manufacturer or Contractor.
 - 2. Manufacturer shall not be affiliated with or provide compensation to Architect/Engineer. Selection of manufacturer shall be open and based on product performance meeting or exceeding the requirements of this Section.
 - 3. Contractor shall be selected on a competitive basis, in a manner that reviews submitted cost, qualifications, and previous project experience.
 - B. Manufacturer:
 - 1. Company specializing in manufacturing the products specified in this Section with a minimum of five years documented experience.
 - 2. Obtain primary products, including roof membrane, base flashings, membrane adhesives and adhesives products from a single manufacturer. Provide secondary products recommended by the manufacturer of primary products for use with roofing system provided.
 - 3. The roofing systems manufacturer shall provide non-sales related field auditors for the purpose of performing quality assurance inspections, both in-progress and final inspections. Provide copies of the manufacturer's field auditor inspection report to the contractor, roof consultant, and building owner.
 - C. Contractor:

1. Be currently approved and certified to install low slope roof systems that qualify for the primary roofing material manufacturer's 20-Year No Dollar Limit (NDL) Guarantee; and use only skilled roofers completely familiar with the products and the manufacturer's current recommended methods of installation.
2. Contractor shall maintain a permanent office for conduct of business and shall operate its own full-service sheet metal shop.
3. Submit a letter from the roofing material manufacturer proposed for the project, stating that your company has been an approved and certified applicator for a minimum of three (3) years prior to the bid date, and that your company is approved to install that manufacturer's Twenty (20) Year No Dollar Limit (NDL) Guarantee.
4. Successful completion of minimum three (3) similar projects during that time. Project experience submitted must include those projects performed with proposed subcontract labor (if applicable). Contractor to provide project reference contact names, phone numbers, and emails as part of submittal process.
5. Evidence of Contractor's qualification to do business in the State of Texas where the project is located or covenant to obtain such qualification prior to award of the contract.
6. Workers:
 - a. Project Manager and Superintendent: Minimum five years roofing experience and employed by Contractor for a minimum one year prior to Bid Date.
 - b. Non-working Full Time Superintendent: Able to communicate effectively with School staff and Applicator's workers and employed by Contractor for a minimum one year prior to Bid Date. PROVIDE A FULL TIME SUPERINTENDENT AT ALL TIMES ROOFING WORK IS IN PROGRESS. Failure to provide full time supervision of the work will result in immediate stoppage of the work by A/E until specified supervision is provided by the Contractor.
 - c. Designate a responsible Project Manager or Superintendent to inspect all installed Work, particularly tie-ins and temporary flashings, at end of each working day and as otherwise required to ensure water-tightness.
 - 1) Verify Inspection by signature on approved Daily Inspection Form signifying installation is in accordance with specified requirements.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle materials in accordance with manufacturer's printed instructions. Deliver materials in manufacturer's original wrappers, dry, and undamaged with seals and labels intact.
- B. Overnight rooftop storage of materials is prohibited unless approved by AISD. All materials shall be stored in a secure manner to avoid damage, danger to occupants, or theft.

1. If inside storage is not available at the job site, protect materials by covering with breathable tarpaulins. Polyethylene covers are not acceptable field storage coverings.
 2. Store rolled goods on end on raised platforms, and protected from the weather until installed in the roofing system.
- C. Damaged materials (moisture, fire, or other) resulting from noncompliant storage practices shall be removed and replaced at Contractor's expense. Water stains on insulation facers will be deemed as damaged and require to be removed from the project.
- D. Adhesives, flashing cements, and pail goods must be stored inside lockable trailers and in original containers with lids tightly in place.

1.9 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
1. Do not apply roofing membrane during inclement weather.
 2. Do not apply roofing membrane to damp or frozen substrates.
 3. Observe wind chill and other cold weather conditions for proper application.
 4. The Contractor shall have the final decision as to whether to chance roofing operations in the event wet conditions threaten,
 5. The Contractor shall suspend Work, if in his/her opinion, wind speed will impede the proper installation of the roofing Work, or cause a danger to its personnel, or the Owner's property.

1.10 WARRANTY

- A. Provide a two-year written warranty covering defects in the roofing materials and labor, on the form at the end of this Section.
- B. Provide the roofing materials manufacturer's 20-year no-dollar-limit type warranty covering repair of defects in the insulation, roofing and flashings. Commence all warranties on the Date of Substantial Completion for the overall project.
1. Wind Rider: Manufacturers warranty to include wind speed coverages up to 90 mph.
- C. Provide a minimum of six (6) Roof Warranty Signs for each roof section at the completion of the project. Signs shall be placed on roof at locations determined by the Owner. Fasten signs to existing masonry walls with stainless steel 3/16" masonry screws.
1. Warranty Signs: 24" x 24" x .080 aluminum with a baked enamel background and black lettering, in a non-penetrating manner, to read as follows:

WARNING:
ROOF AREA: (Roof designation)

ROOF WARRANTY NO.: (Warranty number)
THIS ROOF IS UNDER WARRANTY UNTIL
(Date)
(MANUFACTURER)
(Manufacturer's Phone No.)

DO NOT MAKE ALTERATIONS OR REPAIRS
TO THIS ROOF WITHOUT APPROVAL FROM AISD

CONTACT
AISD DEPARTMENT OF CONSTRUCTION MANAGEMENT
512-414-1715
FOR APPROVAL AND/OR TO REPORT DAMAGE REQUIRING REPAIRS

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. FiberTite
- B. Carlisle-Syntec Inc.
- C. Versico
- D. Sarnafil
- E. Johns-Manville
- F. Pre-bid approved equivalent.

2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and base flashings shall remain watertight.
 - 1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
 - 2. Impact Resistance: Roofing system shall resist impact damage when tested according to ASTM D 3746 or ASTM D 4272.
- B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Roof System Design: Provide a roofing system that meets or exceeds the more stringent of the following designations:
 - 1. Provide a roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist wind uplift pressures calculated according to ASCE 7, edition as adopted by the current City of Austin Building Code.
 - 2. Wind Uplift Resistance Values: A minimum of two (2.0) times the wind uplift

pressures. Contractor shall submit the calculated wind uplift resistance values for the selected roof membrane, as well as the actual calculations performed by the roof membrane manufacturer.

- D. Approval Standards: Meet testing standards of FM 4450 and FM 4470.
- E. Solar Reflectance Index: Minimum initial solar reflectance of 0.70 and initial thermal emittance of 0.75, OR minimum initial solar reflectance index of 82.
- F. Energy Performance: Refer to Section 018113, Sustainable Construction Requirements.
- G. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- H. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

2.3 ROOF MEMBRANE

- A. PVC or KEE membrane
 - 1. Fibertite, 50 mil XT
 - 2. Carlisle-Syntec Inc., 80 mil Sureflex PVC KEE HP
 - 3. Versico, 80 mil Versiflex-D KEE HP
 - 4. Sarnafil, 80 mil G410
 - 5. Johns-Manville, 80 mil PVC

2.4 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing.
- B. Sheet flashing:
 - 1. PVC: Provide 60 mil thick flashing membrane for use with 80 mil PVC roof membranes.
 - 2. KEE: Provide 50 mil thick flashing membrane for use with 50 mil KEE roof membrane.
- C. Bonding Adhesive: Manufacturer's standard.
- D. Slip Sheet: Manufacturer's standard, of thickness required for application.
- E. Metal Termination Bars: Manufacturer's standard, pre-drilled stainless-steel or aluminum bars, approximately 1 by 1/8-inch thick, pre-punched at 6" o.c.; with anchors.
- F. Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1-inch wide by 0.05 inch thick, pre-punched.

- G. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roofing to substrate, and acceptable to roofing system manufacturer.
- H. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.
- I. PVC Self-Adhered Membrane Flashings: Manufacturers pressure sensitive cover strips or standard self-adhered PVC membrane.
- J. Liquid Flashings: Manufacturers cold applied two-component flashings system with reinforcing fleece and compatible with the roof membrane.
- K. Membrane Coated Metal: Manufacturer's standard 24 gauge, G-90 galvanized metal sheet, coated with PVC membrane coating.
 - 1. Color: As selected by Owner.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Ensure that surfaces and site conditions are ready to receive Work and are acceptable to membrane manufacturer for required warranty.
- B. Ensure existing roof surface is clean and smooth, free of depressions, waves or projections and is properly sloped to drains or eaves.
- C. Ensure that roof surfaces are dry and free of snow or ice. Confirm dryness in the field by moisture meter; maximum allowable: 12-percent.
- D. Ensure that roof openings, curbs, pipes, sleeves, ducts and vents through roof are solidly set, and any required wood nailing strips are in place.
- E. Beginning of installation means installer accepts existing surfaces.

3.2 PREPARATION

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

3.3 ROOFING INSTALLATION, GENERAL

- A. Install roofing system according to roofing system manufacturer's written instructions.
- B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
- C. Install roofing and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition and to prevent voiding of manufacturer's warranty for existing roofing system.

3.4 ADHERED ROOFING INSTALLATION

- A. Membrane Attachment:
 - 1. Apply bonding adhesive in accordance with the manufacturer's published instructions, to the exposed underside of the membrane and the corresponding substrate area.
 - 2. Do not apply bonding adhesive along the splice edge of the membrane to be hot air welded over the adjoining sheet. Allow the adhesive to dry until it is tacky but will not string or stick to a dry finger touch.
- B. Membrane Adhesion:
 - 1. Roll the membrane into the substrate while avoiding wrinkles. Roll the bonded section of the membrane sheet immediately after rolling the membrane into the adhesive with a 150 lb, 24" diameter roller to achieve maximum contact.
 - 2. Fold back the un-bonded half of the sheet lengthwise and repeat the bonding procedures.
- C. Mechanical Fasteners: In addition to adhering, mechanically fasten roofing securely at terminations, penetrations, and perimeter of roofing in accordance with manufacturer requirements.
- D. Membrane Placement:
 - 1. Apply roofing with side laps shingled with slope of roof deck where possible. Position adjoining sheets to allow a minimum overlap of 2 inches.
 - 2. Continue to install adjoining membrane sheets in the same manner, overlapping edges a minimum of 2 inches and complete the bonding procedures as stated previously, in accordance with the manufacturer's specifications.
- E. Apply roofing with side laps shingled with slope of roof deck where possible.
- F. Seams: Clean seam areas, overlap roofing, and hot-air weld side and end laps of roofing and sheet flashings according to manufacturer's written instructions, to ensure a watertight seam installation.

1. Equipment: Use an Automatic Hot Air Welding Machine for all field seams. Hot Air Hand Welders are acceptable at flashings only.
2. Quality Control:
 - a. Probe all seams once the hot air welds have thoroughly cooled (approximately 30 minutes). Repair all seam deficiencies the same day they are discovered.
 - b. Seam Testing: Verify strength of seams on sample material a minimum of twice daily, and provide samples or photographs of samples with Contractor's Daily Report. NOTE: failure to provide evidence of daily seam testing for both automatic and hand welding for review by A/E will result in seam testing performed on installed roofing at substantial completion. Seam welds require to be a minimum of 1-1/2 inch.

Contractor shall provide repairs at all samples removed for seam testing. If seams do not comply with the minimum width specified, Contractor shall provide repair patches along all seams at all roof areas within 10,000 square feet of the noncompliant seam.

- G. Roof Drains: Spread sealant bed over deck-drain flange at roof drains, and securely seal roofing in place with clamping ring.
- H. Cut Edge Sealant: Apply manufacturer's sealant to all cut edges of reinforced membrane.

3.5 FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories, and adhere to substrates according to roofing system manufacturer's written instructions. Heat weld all edge flashings to coated metal edge fascia, ensuring that strip in membrane fully covers all horizontal portions of edge fascia.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate, and allow to partially dry. Do not apply to seam area of flashing.
- C. Flash penetrations per manufacturer requirements and the Drawings.
- D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.
- E. Terminate, anchor and seal top of sheet flashings per manufacturer requirements, incorporating any additional requirements indicated in the Drawings.

3.6 FIELD QUALITY CONTROL

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.

- B. Repair or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.7 PROTECTING AND CLEANING

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

3.8 MANUFACTURER'S FIELD SERVICES

- A. The Contractor shall coordinate with the primary roofing material manufacturer's representative to provide the following:
- B. Attendance at the pre-roofing conference;
- C. Manufacturer shall provide a minimum of four (4) site visits for roof replacement projects, one at commencement of construction, two during construction, and at substantial completion.
- D. The Contractor shall obtain written reports of the visits and shall submit to the Owner and A/E, in accordance with Section 013300, Submittals.

END OF SECTION

SECTION 075420 – HYBRID POLYVINYL-CHLORIDE (PVC) ROOFING (ALTERNATE NO.1)

1.1 RELATED DOCUMENTS

- A. Alternate No. 1: In lieu of single ply PVC roof system, install 2-ply hybrid PVC roof system in accordance with this Section.
- B. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Qualifications, Standards and Materials for new roof assembly
 - 2. Adhered 2-ply hybrid polyvinyl-chloride (PVC) or ketone ethylene ester (KEE) roofing system, smooth type.
 - 3. Roofing accessory materials
 - 4. Traffic pads
- B. Related Requirements:
 - 1. Section 061053 – Miscellaneous Rough Carpentry
 - 2. Section 070150 - Preparation for Re-Roofing
 - 3. Section 072200 - Roof and Deck Insulation
 - 4. Section 076200 - Sheet Metal Flashing and Trim

1.3 DEFINITIONS

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

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Roofing Conference:
 - 1. After approval and review of all submittals by the Engineer, meet with Owner, Engineer, Owner's insurer if applicable, testing and inspecting agency representative, roofing installer, roofing system manufacturer's representative, and installers whose work interfaces with or affects roofing, including installers of roof accessories, masonry flashings, MEP contractor, and roof-mounted equipment.
 - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.

3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review structural loading limitations of roof deck during and after roofing.
5. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
6. Review governing regulations and requirements for insurance and certificates if applicable.
7. Review temporary protection requirements for roofing system during and after installation.
8. Review roof observation and repair procedures after roofing installation.

1.5 SUBMITTALS

- A. Submit product data and shop drawings under provisions of appropriate Division 01 Section - Submittals.
- B. Product Data: For each type of product.
- C. Shop Drawings: For roofing system.
 1. Plans: if submitting detail shop drawings, provide a roof plan indicating the locations of these details.
 2. Details:
 - a. Provide certification to comply with the contract document drawings and specifications without deviation under provisions of Section 013300, Submittals.
 - b. For any proposed deviations, provide shop drawings indicating clearly proposed changes. Provide manufacturer's standard details (subject to contract document requirements), including:
 - 1) Base flashings, penetrations, and membrane terminations.
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- D. Qualification Data: For Installer and manufacturer.
- E. Manufacturer Certificate:

Provide project specific system letter, signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article. Include evidence of compliance, including:

1. Compliance with performance requirements.
2. Roofing system components are listed for the project.
3. Components are physically and chemically compatible for installation as designed.
4. All proposed materials, including those by other manufacturer, are acceptable to membrane manufacturer for use in system.
5. Proposed system meets all criteria for issuance of required manufacturer's warranty

6. Identify fastening patterns to be used in field, perimeter, and corner, based on third party test data.
 7. Specifically identify and define any deviations.
- F. Product Test Reports: For components of roofing system, for tests performed by manufacturer and witnessed by a qualified testing agency. Test reports must indicate they meet or exceed the uplift pressures shown in the Drawings.
- G. Research/Evaluation Reports: For components of roofing system, from ICC-ES.
- H. Laboratory Test Reports:
1. For each adhesive used, provide documentation indicating that the adhesive contains no urea formaldehyde.
 2. For each adhesive used, provide documentation of VOC content.
- I. Contractor Daily Construction report form.
- J. Plan for protecting installed materials during construction and staged materials.
- K. Sample Warranties: For manufacturer's special warranties.
- L. All torching operations must be performed by CERTA (Certified Roofing Torch Applicator) trained applicators with up to date certifications. Submit copies of certifications for all torch operators.
- 1.6 CLOSEOUT SUBMITTALS
- A. Maintenance Data: For roofing system to include in maintenance manuals.
- 1.7 QUALITY ASSURANCE
- A. General: Competition shall be maintained at every level of the project, including the following:
1. Architect/Engineer shall not be affiliated with or be employed by a Manufacturer or Contractor.
 2. Manufacturer shall not be affiliated with or provide compensation to Architect/Engineer. Selection of manufacturer shall be open and based on product performance meeting or exceeding the requirements of this Section.
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1. Company specializing in manufacturing the products specified in this Section with a minimum of five years documented experience.
 2. Obtain primary products, including roof membrane, base flashings, membrane adhesives and adhesives products from a single manufacturer. Provide

secondary products recommended by the manufacturer of primary products for use with roofing system provided.

3. The roofing systems manufacturer shall provide non-sales related field auditors for the purpose of performing quality assurance inspections, both in-progress and final inspections. Provide copies of the manufacturer's field auditor inspection report to the contractor, roof consultant, and building owner.

C. Contractor:

1. Be currently approved and certified to install low slope roof systems that qualify for the primary roofing material manufacturer's 20-Year No Dollar Limit (NDL) Guarantee; and use only skilled roofers completely familiar with the products and the manufacturer's current recommended methods of installation.
2. Contractor shall maintain a permanent office for conduct of business and shall operate its own full-service sheet metal shop.
3. Submit a letter from the roofing material manufacturer proposed for the project, stating that your company has been an approved and certified applicator for a minimum of three (3) years prior to the bid date, and that your company is approved to install that manufacturer's Twenty (20) Year No Dollar Limit (NDL) Guarantee.
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5. Evidence of Contractor's qualification to do business in the State of Texas where the project is located or covenant to obtain such qualification prior to award of the contract.
6. All torching operations must be performed by CERTA (Certified Roofing Torch Applicator) trained applicators with up to date certifications.
7. Workers:
 - a. Project Manager and Superintendent: Minimum five years roofing experience and employed by Contractor for a minimum one year prior to Bid Date.
 - b. Non-working Full Time Superintendent: Able to communicate effectively with School staff and Applicator's workers and employed by Contractor for a minimum one year prior to Bid Date. PROVIDE A FULL TIME SUPERINTENDENT AT ALL TIMES ROOFING WORK IS IN PROGRESS. Failure to provide full time supervision of the work will result in immediate stoppage of the work by A/E until specified supervision is provided by the Contractor.
 - c. Designate a responsible Project Manager or Superintendent to inspect all installed Work, particularly tie-ins and temporary flashings, at end of each working day and as otherwise required to ensure water-tightness.
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 - 1. If inside storage is not available at the job site, protect materials by covering with breathable tarpaulins. Polyethylene covers are not acceptable field storage coverings.
 - 2. Store rolled goods on end on raised platforms, and protected from the weather until installed in the roofing system.
- C. Damaged materials (moisture, fire, or other) resulting from noncompliant storage practices shall be removed and replaced at Contractor's expense. Water stains on insulation facers will be deemed as damaged and require to be removed from the project.
- D. Adhesives, flashing cements, and pail goods must be stored inside lockable trailers and in original containers with lids tightly in place.

1.9 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
 - 1. Do not apply roofing membrane during inclement weather.
 - 2. Do not apply roofing membrane to damp or frozen substrates.
 - 3. Observe wind chill and other cold weather conditions for proper application.
 - 4. The Contractor shall have the final decision as to whether to chance roofing operations in the event wet conditions threaten,
 - 5. The Contractor shall suspend Work, if in his/her opinion, wind speed will impede the proper installation of the roofing Work, or cause a danger to its personnel, or the Owner's property.

1.10 WARRANTY

- A. Provide a two-year written warranty covering defects in the roofing materials and labor, on the form at the end of this Section.
- B. Provide the roofing materials manufacturer's 20-year no-dollar-limit type warranty covering repair of defects in the insulation, roofing and flashings. Commence all warranties on the Date of Substantial Completion for the overall project.
 - 1. Wind Rider: Manufacturers warranty to include wind speed coverages up to 90 mph.

- C. Provide a minimum of six (6) Roof Warranty Signs for each roof section at the completion of the project. Signs shall be placed on roof at locations determined by the Owner. Fasten signs to existing masonry walls with stainless steel 3/16" masonry screws.
1. Warranty Signs: 24" x 24" x .080 aluminum with a baked enamel background and black lettering, in a non-penetrating manner, to read as follows:

WARNING:
ROOF AREA: (Roof designation)
ROOF WARRANTY NO.: (Warranty number)
THIS ROOF IS UNDER WARRANTY UNTIL
(Date)
(MANUFACTURER)
(Manufacturer's Phone No.)

DO NOT MAKE ALTERATIONS OR REPAIRS
TO THIS ROOF WITHOUT APPROVAL FROM AISD

CONTACT
AISD DEPARTMENT OF CONSTRUCTION MANAGEMENT
512-414-1715
FOR APPROVAL AND/OR TO REPORT DAMAGE REQUIRING REPAIRS

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. FiberTite
- B. Carlisle-Syntec Inc.
- C. Versico
- D. Sarnafil
- E. Johns-Manville
- F. Pre-bid approved equivalent.

2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and base flashings shall remain watertight.
 1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
 2. Impact Resistance: Roofing system shall resist impact damage when tested according to ASTM D 3746 or ASTM D 4272.

- B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Roof System Design: Provide a roofing system that meets or exceeds the more stringent of the following designations:
 - 1. Provide a roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist wind uplift pressures calculated according to ASCE 7, edition as adopted by the current City of Austin Building Code.
 - 2. Wind Uplift Resistance Values: A minimum of two (2.0) times the wind uplift pressures. Contractor shall submit the calculated wind uplift resistance values for the selected roof membrane, as well as the actual calculations performed by the roof membrane manufacturer.
- D. Approval Standards: Meet testing standards of FM 4450 and FM 4470.
- E. Solar Reflectance Index: Minimum initial solar reflectance of 0.70 and initial thermal emittance of 0.75, OR minimum initial solar reflectance index of 82.
- F. Energy Performance: Refer to Section 018113, Sustainable Construction Requirements.
- G. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- H. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

2.3 ROOF MEMBRANE

- A. PVC or KEE membrane
 - 1. Fibertite, 50 mil XT-FB
 - 2. Carlisle-Syntec Inc., 60 mil FleeceBACK KEE HP
 - 3. Versico, 60 mil VersiFleece KEE HP
 - 4. Sarnafil, 60 mil G410 Feltback
 - 5. **Johns-Manville, JM PVC FB 60**
- B. Modified Base Ply
 - 1. SBS modified base ply, torch-grade, 120 mils minimum thickness, and meets ASTM D6164, or approved equivalent.

2.4 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing.
- B. Sheet flashing:

1. PVC: Provide 60 mil thick flashing membrane for use with 60 mil PVC roof membranes.
2. KEE: Provide 50 mil thick flashing membrane for use with 50 mil KEE roof membrane.
- C. Bonding Adhesive: Manufacturer's standard.
- D. Slip Sheet: Manufacturer's standard, of thickness required for application.
- E. Metal Termination Bars: Manufacturer's standard, pre-drilled stainless-steel or aluminum bars, approximately 1 by 1/8-inch thick, pre-punched at 6" o.c.; with anchors.
- F. Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1-inch wide by 0.05 inch thick, pre-punched.
- G. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roofing to substrate, and acceptable to roofing system manufacturer.
- H. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.
- I. PVC Self-Adhered Membrane Flashings: Manufacturers pressure sensitive cover strips or standard self-adhered PVC membrane.
- J. Liquid Flashings: Manufacturers cold applied two-component flashings system with reinforcing fleece and compatible with the roof membrane.
- K. Membrane Coated Metal: Manufacturer's standard 24 gauge, G-90 galvanized metal sheet, coated with PVC membrane coating.
 1. Color: As selected by Owner.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Ensure that surfaces and site conditions are ready to receive Work and are acceptable to membrane manufacturer for required warranty.
- B. Ensure existing roof surface is clean and smooth, free of depressions, waves or projections and is properly sloped to drains or eaves.
- C. Ensure that roof surfaces are dry and free of snow or ice. Confirm dryness in the field by moisture meter; maximum allowable: 12-percent.
- D. Ensure that roof openings, curbs, pipes, sleeves, ducts and vents through roof are solidly set, and any required wood nailing strips are in place.

- E. Beginning of installation means installer accepts existing surfaces.

3.2 PREPARATION

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

3.3 ROOFING INSTALLATION, GENERAL

- A. Install roofing system according to roofing system manufacturer's written instructions.
- B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
- C. Install roofing and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition and to prevent voiding of manufacturer's warranty for existing roofing system.

3.4 ADHERED ROOFING INSTALLATION

- A. Base Ply Installation:
 1. Apply roof system in strict accordance with manufacturer's published recommendations. Do not use membrane roll hooks in a manner that damages roof ply during torching operations
 2. Heat weld SBS base ply membrane in accordance with the manufacturer's published instructions.
 3. Base Ply Membrane Application: Over the specified insulation system, embed the base ply, starting at the low point, laying sheets at a right angle to the slope of the deck, heat welding to the specified substrate, lapping sides and ends a minimum of 3 inches. Ensure sufficient "bleed out" along laps to provide full adhesion without damaging membrane.
 4. Perform light rolling or brooming promptly to eliminate air pockets, wrinkles, creases, and fishmouths, and to insure proper adhesion.
 5. Extend base ply up cant strips, extending two inches (2") minimum above cant. Lap end joints at least 3 inches.
 6. Install base ply continuously in one direction from the field of the roof to the top of the cant.

7. At end laps, cut the under ply side lap 45 degrees as recommended by the membrane Manufacturer.
 8. Prevent foot or vehicle traffic from crossing newly laid base ply sheets until bitumen cools to below softening point.
 9. Install water cutoffs at the end of the day's operation. Remove prior to resuming additional work. Seal perimeters into watertight condition.
- B. PVC Membrane Adhesive:
1. Apply bonding adhesive as a continuous spray, or in ribbons spaced no more than 4" o.c. and dispensing adhesive at the rate in accordance with the manufacturer's published instructions, to the exposed underside of the membrane and the corresponding substrate area.
 2. Do not apply bonding adhesive along the splice edge of the membrane to be hot air welded over the adjoining sheet. Allow the adhesive to dry until it is tacky but will not string or stick to a dry finger touch.
- C. PVC Membrane Installation:
1. Roll the membrane into the substrate while avoiding wrinkles. Roll the bonded section of the membrane sheet immediately after rolling the membrane into the adhesive with a 150 lb, 24" diameter roller to achieve maximum contact.
 2. Fold back the un-bonded half of the sheet lengthwise and repeat the bonding procedures.
- D. Mechanical Fasteners: In addition to adhering, mechanically fasten roofing securely at terminations, penetrations, and perimeter of roofing in accordance with manufacturer requirements.
- E. PVC Membrane Placement:
1. Apply roofing with side laps shingled with slope of roof deck where possible. Position adjoining sheets to allow a minimum overlap of 2 inches.
 2. Continue to install adjoining membrane sheets in the same manner, overlapping edges a minimum of 2 inches and complete the bonding procedures as stated previously, in accordance with the manufacturer's specifications.
- F. Apply roofing with side laps shingled with slope of roof deck where possible.
- G. Seams: Clean seam areas, overlap roofing, and hot-air weld side and end laps of roofing and sheet flashings according to manufacturer's written instructions, to ensure a watertight seam installation.
1. Equipment: Use an Automatic Hot Air Welding Machine for all field seams. Hot Air Hand Welders are acceptable at flashings only.
 2. Quality Control:
 - a. Probe all seams once the hot air welds have thoroughly cooled (approximately 30 minutes). Repair all seam deficiencies the same day they are discovered.

- b. Seam Testing: Verify strength of seams on sample material a minimum of twice daily, and provide samples or photographs of samples with Contractor's Daily Report. NOTE: failure to provide evidence of daily seam testing for both automatic and hand welding for review by A/E will result in seam testing performed on installed roofing at substantial completion. Seam welds require to be a minimum of 1-1/2 inch.

Contractor shall provide repairs at all samples removed for seam testing. If seams do not comply with the minimum width specified, Contractor shall provide repair patches along all seams at all roof areas within 10,000 square feet of the noncompliant seam.

- H. Roof Drains: Spread sealant bed over deck-drain flange at roof drains, and securely seal roofing in place with clamping ring.
- I. Cut Edge Sealant: Apply manufacturer's sealant to all cut edges of reinforced membrane.

3.5 FLASHING INSTALLATION

- A. After SBS base ply field sheet has been applied to the top of the cant, install the sheet flashing in uniform cold adhesive to the vertical substrate, cant and roof level. Lap each adjacent sheet three inches and extend the cant onto the roof surface by six (6) inches. Mechanically fasten sheet flashing eight inches on-center to vertical surface. At torch-welded flashings, install the sheet flashing in accordance with the primary membrane manufacturer's published recommendations and details.
- B. After installation of PVC membrane install sheet flashings and preformed flashing accessories, and adhere to substrates according to roofing system manufacturer's written instructions. Heat weld all edge flashings to coated metal edge fascia, ensuring that strip in membrane fully covers all horizontal portions of edge fascia.
- C. Apply bonding adhesive to substrate and underside of sheet flashing at required rate, and allow to partially dry. Do not apply to seam area of flashing.
- D. Flash penetrations per manufacturer requirements and the Drawings.
- E. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.
- F. Terminate, anchor and seal top of sheet flashings per manufacturer requirements, incorporating any additional requirements indicated in the Drawings.

3.6 FIELD QUALITY CONTROL

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.

- B. Repair or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

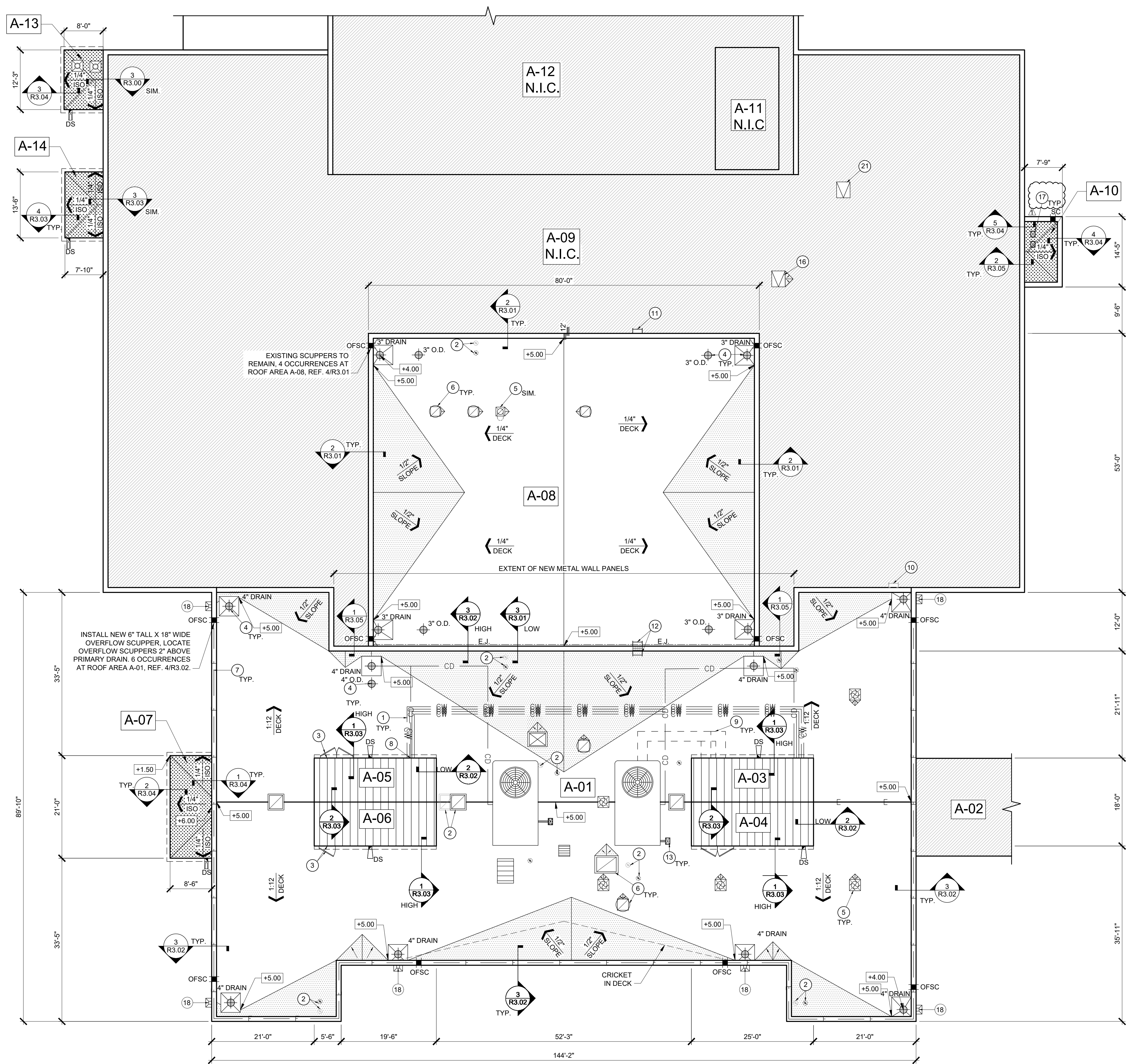
3.7 PROTECTING AND CLEANING

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

3.8 MANUFACTURER'S FIELD SERVICES

- A. The Contractor shall coordinate with the primary roofing material manufacturer's representative to provide the following:
 - B. Attendance at the pre-roofing conference;
 - C. Manufacturer shall provide a minimum of four (4) site visits for roof replacement projects, one at commencement of construction, two during construction, and at substantial completion.
 - D. The Contractor shall obtain written reports of the visits and shall submit to the Owner and A/E, in accordance with Section 013300, Submittals.

END OF SECTION



LEGEND

- ROOF AREA I.D.	- PROTECTION PAD
- KEYED NOTE	- ROOF TOP UNIT 1A&1B/R4.00 & 5/R4.00
- DIRECTION OF SLOPE INSULATION (ISO) OR DECK	- CONDENSING UNIT
- ELEVATION CHANGE	- PIPE/CONDUIT PENETRATION CURB REF 6/R4.00
- INSULATION THICKNESS (EXCLUDING COVERBOARD)	- XX" ROOF DRAIN
- ROOF EDGE	- PRIMARY SUMPED ROOF DRAIN REF 2&3/R4.01
- ROOF EXPANSION JOINT	- OVERFLOW ROOF DRAIN 2&3/R4.01 SIM
- GUTTER AND DOWNSPOUT	- PIPE PENETRATION THROUGH ROOF REF 1/R4.01 & 4/R4.00
- GUTTER EXPANSION JOINT	- FLUE STACK ON CURB REF 5/R4.00
- PRIMARY AND OVERFLOW SCUPPER	- GOOSENECK ON CURB 1A&1B/R4.00 & 5/R4.00
- COLLECTOR HEAD	- GRAVITY EXHAUST VENT ON CURB 5/R4.00
- SPLASH BLOCK & SPLASH PAN	- POWERED EXHAUST VENT ON CURB 1A&1B/R4.00 & 5/R4.00
- ELECTRICAL CONDUIT	- EQUIPMENT CURB AND/OR GUY WIRE PENETRATION REF 1A & 1B/ R4.00
- CONDENSATE DRAIN PIPE	- ABANDONED PENETRATION REF 3/R4.02
- GAS PIPING	- ROOF HATCH REF 2/R4.00
- REFRIGERANT & CHILL WATER PIPING	- WALL MOUNTED LADDERS - CAGED AND NON-CAGED
- 1/2" PER FT. INSULATION	

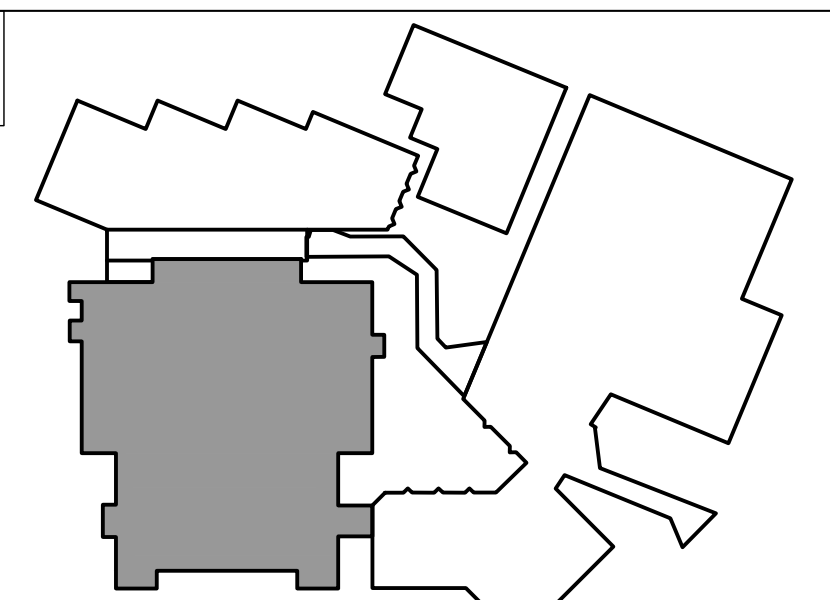
KEYED PLAN NOTES

- 1 - RAISE M.E.P. LINES 8" MIN. ABOVE NEW FINISHED ROOF AND PROVIDE NEW PORTABLE PIPE SUPPORTS.
- 2 - RELOCATE M.E.P. EQUIPMENT A MINIMUM OF 24" FROM ADJACENT WALLS, CURBS, OR OTHER PENETRATIONS AS SHOWN IN DRAWINGS. REFERENCE M.E.P. DRAWINGS
- 3 - CLEAN, PRIME, AND PAINT MECHANICAL DOORS AND FRAME WITH COLOR SELECTED BY OWNER ON ALL SIDES. REPLACE HARDWARE TO MATCH EXISTING
- 4 - REPLACE ALL EXISTING ROOF DRAIN BODIES AND STRAINERS WITH NEW CAST IRON DRAIN BODIES AND STRAINERS. REPLACE REPAIR DRAIN LINES AS REQUIRED FOR NEW DRAIN BODY INSTALLATION
- 5 - FURNISH AND INSTALL NEW CURBS AT EXISTING MEP EQUIPMENT AND PROVIDE 12" BASE FLASHING HEIGHTS. REF. MEP DRAWINGS FOR ADDITIONAL REQUIREMENTS
- 6 - RAISE MEP EQUIPMENT CURBS AND PROVIDE 12" BASE FLASHING HEIGHTS.
- 7 - RELOCATE ELECTRICAL LINES TO ROOF SET ON PORTABLE PIPE SUPPORTS. REPLACE CONDUITS, JUNCTION BOXES, AND ELECTRICAL LINES. ADJUST HEIGHT OF LIGHTS TO ALLOW INSTALLATION OF SHEET METAL COPINGS AND FLASHINGS. REF. MEP DETAILS 11&11.1
- 8 - RELOCATE CONDENSATION LINE ABOVE ROOF FLASHINGS. PENETRATE THROUGH THE METAL WALL PANELS ABOVE THE ROOF SHEET METAL FLASHINGS.
- 9 - REPLACE DUCT SUPPORT STANDS WITH NEW PORTABLE MASONRY WALL.
- 10 - REMOVE EXISTING ROOF LADDER AND SEAL ANCHOR HOLES IN MASONRY WALL.
- 11 - INSTALL NEW EXTERIOR LADDER. EXACT LOCATION TO BE DETERMINED BY THE OWNER.
- 12 - INSTALL NEW EXTERIOR LADDERS WITH CROSSOVER PLATFORM AND RETURN LADDER OVER NEW COPING. EXACT LOCATION TO BE DETERMINED BY THE OWNER.
- 13 - FURNISH AND INSTALL HOODED SHEET METAL CURBS WITH 12" BASE FLASHING HEIGHTS AT MEP PENETRATION LINES THROUGH THE ROOF.
- 14 - FURNISH AND INSTALL HOODED SHEET METAL CURBS WITH 12" BASE FLASHING HEIGHTS AT MEP GUY WIRE PENETRATIONS.
- 15 - FURNISH AND INSTALL NEW ROOF HATCH AND CURB. PROVIDE 12" BASE FLASHING HEIGHTS. INSTALL GUARDRAILS AND REPLACE ROOF HATCH INTERIOR ROOF LADDER.
- 16 - FURNISH AND INSTALL NEW ROOF HATCH, GUARDRAILS, INTERIOR LADDER, CRICKET ON HIGH SIDE, AND CURB WITH 12" BASE FLASHING HEIGHTS. EXACT LOCATION TO BE DETERMINED IN THE FIELD WITH THE OWNER. EXISTING ROOF SYSTEM IS UNDER AN ACTIVE 20 YEAR WARRANTY. CONTRACTOR TO COORDINATE WITH OWNER AND MANUFACTURER.
- 17 - ROOF TOP UNITS SET ON THE CURBS TO BE REMOVED AND RE-INSTALLED ON PORTABLE PLATFORMS.
- 18 - NEW DOWNSPOUTS WITH EXISTING CAST IRON BOOT. DOWNSPOUT BOOT TO BE REMOVED, CLEANED, AND COATED AS SPECIFIED TO MATCH THE COLOR OF THE NEW SHEET METAL DOWNSPOUT AND REINSTALL.
- 19 - FURNISH AND INSTALL NEW DOWNSPOUT AND CAST IRON DOWNSPOUT BOOT. COAT DOWNSPOUT BOOT AS SPECIFIED, TO MATCH THE COLOR OF THE SHEET METAL DOWNSPOUT. CONTRACTOR TO FIELD VERIFY IF DOWNSPOUT BOOTS REQUIRE TO TIE - IN WITH BELOW GRADE DRAINAGE LINES.
- 20 - NEW GUY WIRE PENETRATION CURB. CONTRACTOR TO PROVIDE SUPPORT UNDER DECK TO MATCH EXISTING GUY WIRE.
- 21 - EXISTING ROOF HATCH TO REMAIN

SHEET NOTES

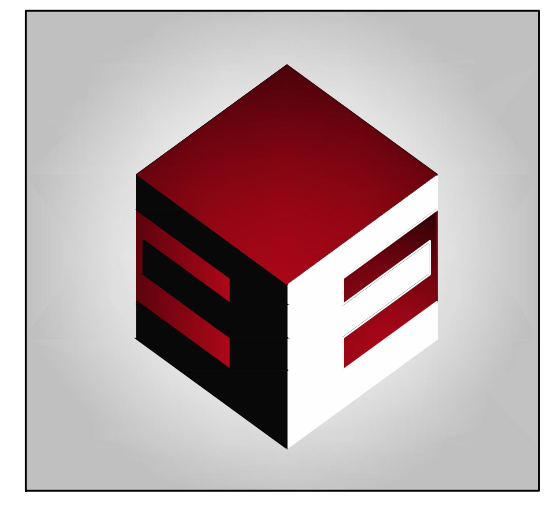
1. TYPICAL ROOF PENETRATIONS ARE SHOWN IN THE DRAWINGS AND REFERENCED IN THE LEGEND. IT IS INTENDED THAT CONDITIONS SIMILAR TO THOSE SHOWN IN DETAIL, DRAWING, AND/OR LEGEND ARE TO BE TREATED IN A SIMILAR MANNER.
2. TYPICAL ITEMS KEYED AND LABELED ARE SHOWN IN THE DRAWINGS AND REFERENCED IN THE KEYED PLAN NOTES. IT IS INTENDED THAT CONDITIONS AND/OR ITEMS SIMILAR TO THOSE SHOWN IN DRAWING ARE TO BE TREATED IN A SIMILAR MANNER AS DESCRIBED IN THE KEYED PLAN NOTES.
3. LOCATION AND QUANTITY OF ROOF OBJECTS, PENETRATIONS AND EQUIPMENT ARE FOR REFERENCE ONLY. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS, QUANTITIES, AND LOCATIONS PRIOR TO BIDDING.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THE DRAWINGS, SPECIFICATIONS, AND FIELD CONDITIONS. FAILURE TO NOTIFY THE ENGINEER MAY BE SUBJECT TO REMOVAL AND REWORK AT NO COST TO THE OWNER.
5. TAPERED INSULATION THICKNESS NOTED DO NOT INCLUDE THE THICKNESS OF COVERBOARD.
6. REFERENCE MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION. CONTRACTOR TO NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BETWEEN THE DRAWINGS.

KEY PLAN



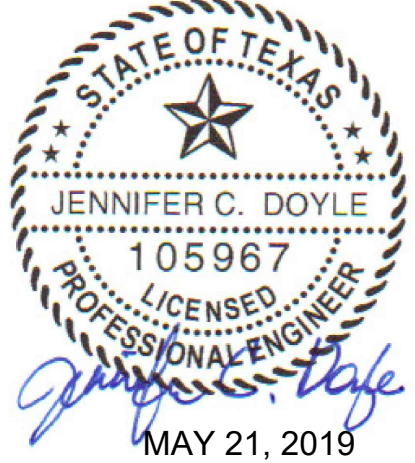
1 PARTIAL ROOF PLAN - ROOFS A-01 THROUGH A-14
Scale: 3/32"=1'-0"

PARTIAL ROOF PLANS - ROOFS A-01 THROUGH A-14



ENGINEERED EXTERIORS, LLC
ARCHITECTURAL ENGINEERING & CONSULTING
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Roof Replacement & Roof Related Work
Fulmore Middle School
201 E. Mary Street
Austin, Texas 78704

Austin Independent School District
111 W. SIXTH STREET, AUSTIN, TX 78703
EE Project No. 004-012 / AISD Project No. 19-0036-FULMR

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THIS SHEET IS ONLY ONE COMPONENT OF THE TOTAL DOCUMENT PACKAGE WHICH CONSISTS OF ALL SHEETS OF DRAWINGS AND THE PROJECT MANUAL.

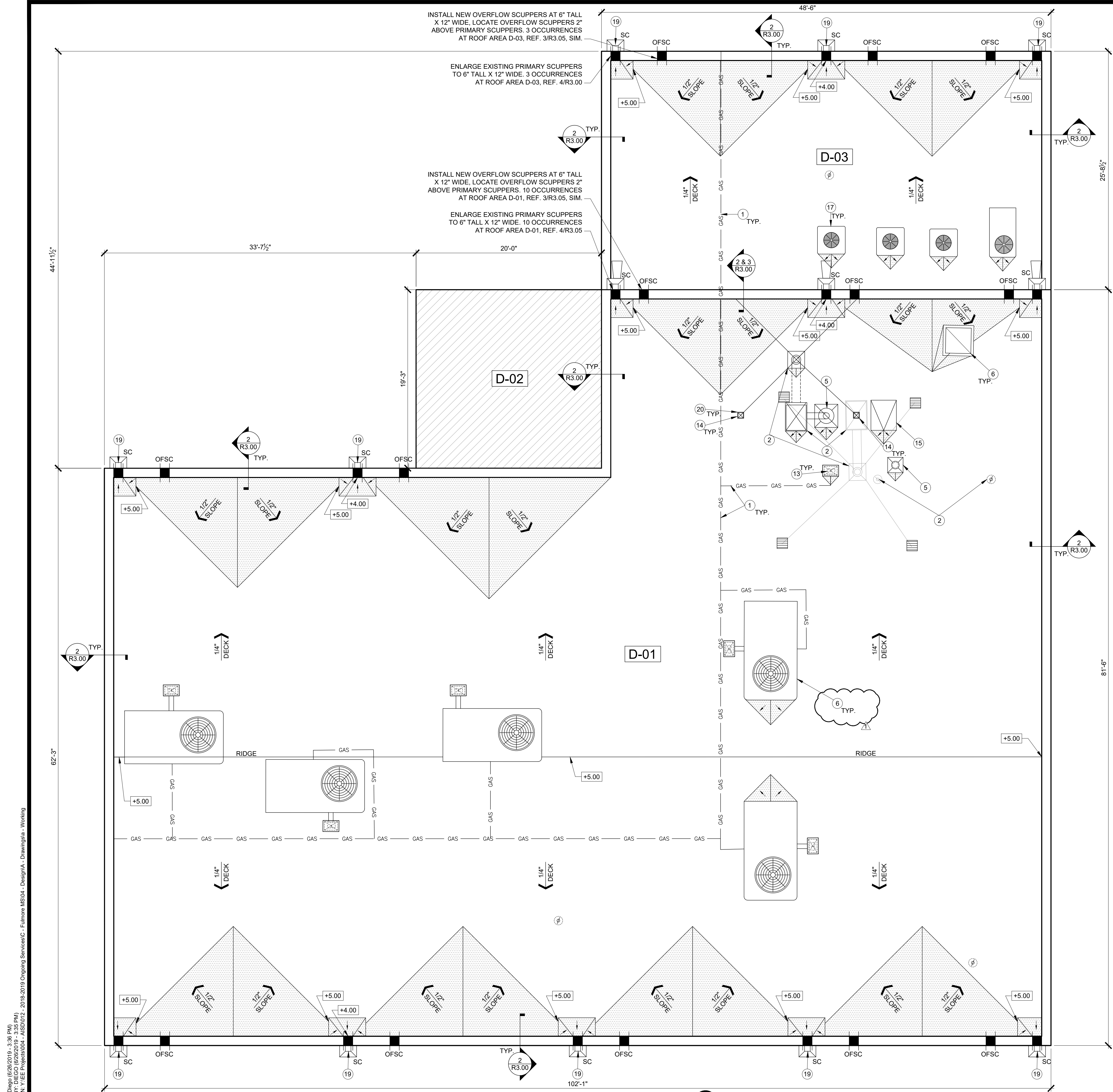
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REV. NO.	DATE	DESCRIPTION
1	8/26/2019	ADDENDUM 1

DRAWN BY: DR. TH. AC
DATE: May 21, 2019
EE PROJECT NO. 004-012
SHEET NO.

R2.00

PLOTTED BY: Diego (6/26/2019 - 3:36 PM)
 LAST SAVED BY: DIEGO (6/26/2019 - 3:36 PM)
 FILE LOCATION: \\EE-Proj\004 - AISD012 - 2019-2019 Ongoing Services\C - Fulmore MS04 - Design\A - Drawings\... Working



1 PARTIAL ROOF PLAN - ROOFS D-01 & D-03
Scale: 3/16"=1'-0"

LEGEND

A-1	- ROOF AREA I.D.		- PROTECTION PAD
(X)	- KEYED NOTE		- ROOF TOP UNIT 1A&1B/R4.00 & 5/R4.00
1/4" ISO	- DIRECTION OF SLOPE INSULATION (ISO) OR DECK		- CONDENSING UNIT
+X.XX	- ELEVATION CHANGE		- PIPE/CONDUIT PENETRATION CURB REF 6/4R4.00
XX	- INSULATION THICKNESS (EXCLUDING COVERBOARD)		- PRIMARY SUMPED ROOF DRAIN REF 2&3/R4.01
---	- ROOF EDGE		- OVERFLOW ROOF DRAIN 2&3/R4.01 SIM
DS	- ROOF EXPANSION JOINT		- PIPE PENETRATION THROUGH ROOF REF 1/R4.01 & 4/R4.00
GEJ	- GUTTER AND DOWNSPOUT		- FLUE STACK ON CURB REF 5/R4.00
SC OFSC	- GUTTER EXPANSION JOINT		- GOOSENECK ON CURB 1A&1B/R4.00 & 5/R4.00
---	- PRIMARY AND OVERFLOW SCUPPER		- GRAVITY EXHAUST VENT ON CURB 5/R4.00
---	- COLLECTOR HEAD		- POWERED EXHAUST VENT ON CURB 1A&1B/R4.00 & 5/R4.00
---	- SPLASH BLOCK & SPLASH PAN		- EQUIPMENT CURB AND/OR GUY WIRE PENETRATION REF 1A & 1B/R4.00
---	- ELECTRICAL CONDUIT		- ABANDONED PENETRATION REF 3/R4.02
---	- CONDENSATE DRAIN PIPE		- ROOF HATCH REF 2/R4.00
---	- GAS PIPING		- WALL MOUNTED LADDERS - CAGED AND NON-CAGED
---	- REFRIGERANT & CHILL WATER PIPING		
---	- 1/2" PER FT. INSULATION		

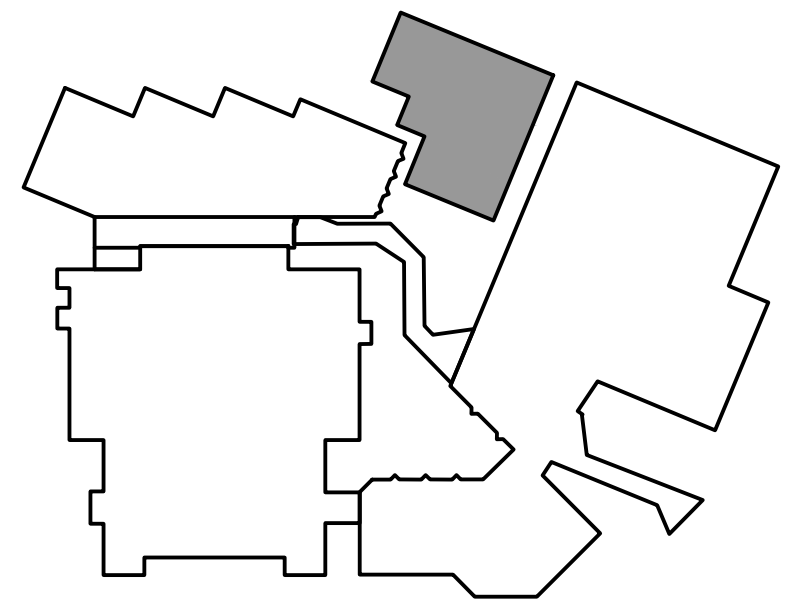
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- 6 - RAISE MEP EQUIPMENT CURBS AND PROVIDE 12" BASE FLASHING HEIGHTS.
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- 12 - INSTALL NEW EXTERIOR LADDERS WITH CROSSOVER PLATFORM AND RETURN LADDER OVER NEW COPING. EXACT LOCATION TO BE DETERMINED BY THE OWNER.
- 13 - FURNISH AND INSTALL HOODED SHEET METAL CURBS WITH 12" BASE FLASHING HEIGHTS AT MEP PENETRATION LINES THROUGH THE ROOF.
- 14 - FURNISH AND INSTALL HOODED SHEET METAL CURBS WITH 12" BASE FLASHING HEIGHTS AT MEP GUY WIRE PENETRATIONS.
- 15 - FURNISH AND INSTALL NEW ROOF HATCH AND CURB. PROVIDE 12" BASE FLASHING HEIGHTS. INSTALL GUARDRAILS AND REPLACE ROOF HATCH INTERIOR ROOF LADDER.
- 16 - FURNISH AND INSTALL NEW ROOF HATCH, GUARDRAILS, INTERIOR LADDER, CRICKET ON HIGH SIDE, AND CURB WITH 12" BASE FLASHING HEIGHTS. EXACT LOCATION TO BE DETERMINED IN THE FIELD WITH THE OWNER. EXISTING ROOF SYSTEM IS UNDER AN ACTIVE 20 YEAR WARRANTY. CONTRACTOR TO COORDINATE WITH OWNER AND MANUFACTURE.
- 17 - ROOF TOP UNITS SET ON THE CURBS TO BE REMOVED AND RE-INSTALLED ON PORTABLE PLATFORMS.
- 18 - NEW DOWNSPOUTS WITH EXISTING CAST IRON BOOT. DOWNSPOUT BOOT TO BE REMOVED, CLEANED, AND COATED AS SPECIFIED TO MATCH THE COLOR OF THE NEW SHEET METAL DOWNSPOUT AND REINSTALL.
- 19 - FURNISH AND INSTALL NEW DOWNSPOUT AND CAST IRON DOWNSPOUT BOOT COAT DOWNSPOUT BOOT AS SPECIFIED. TO MATCH THE COLOR OF THE SHEET METAL DOWNSPOUT. CONTRACTOR TO FIELD VERIFY IF DOWNSPOUT BOOTS REQUIRE TO TIE - IN WITH BELOW GRADE DRAINAGE LINES.
- 20 - NEW GUY WIRE PENETRATION CURB. CONTRACTOR TO PROVIDE SUPPORT UNDER DECK TO MATCH EXISTING GUY WIRE.
- 21 - EXISTING ROOF HATCH TO REMAIN.

SHEET NOTES

1. TYPICAL ROOF PENETRATIONS ARE SHOWN IN THE DRAWINGS AND REFERENCED IN THE LEGEND. IT IS INTENDED THAT CONDITIONS SIMILAR TO THOSE SHOWN IN DETAIL, DRAWING, AND/OR LEGEND ARE TO BE TREATED IN A SIMILAR MANNER.
2. TYPICAL ITEMS KEYED AND LABELED ARE SHOWN IN THE DRAWINGS AND REFERENCED IN THE KEYED PLAN NOTES. IT IS INTENDED THAT CONDITIONS AND/OR ITEMS SIMILAR TO THOSE SHOWN IN DRAWINGS ARE TO BE TREATED IN A SIMILAR MANNER AS DESCRIBED IN THE KEYED PLAN NOTES.
3. LOCATION AND QUANTITY OF ROOF OBJECTS, PENETRATIONS AND EQUIPMENT ARE FOR REFERENCE ONLY. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS, QUANTITIES, AND LOCATIONS PRIOR TO BIDDING.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THE DRAWINGS, SPECIFICATIONS, AND FIELD CONDITIONS. FAILURE TO NOTIFY THE ENGINEER MAY BE SUBJECT TO REMOVAL AND REWORK AT NO COST TO THE OWNER.
5. TAPERED INSULATION THICKNESSES NOTED DO NOT INCLUDE THE THICKNESS OF COVERBOARD.
6. REFERENCE MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION. CONTRACTOR TO NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BETWEEN THE DRAWINGS.

KEY PLAN



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JENNIFER C. DOYLE
105967
LICENSED PROFESSIONAL ENGINEER
MAY 21, 2019

Roof Replacement & Roof Related Work
Fulmore Middle School
201 E. Mary Street
Austin, Texas 78704

Austin Independent School District
111 W. SIXTH STREET, AUSTIN, TX 78703
EE Project No. 004-012 / AISD Project No. 19-0036-FULMR

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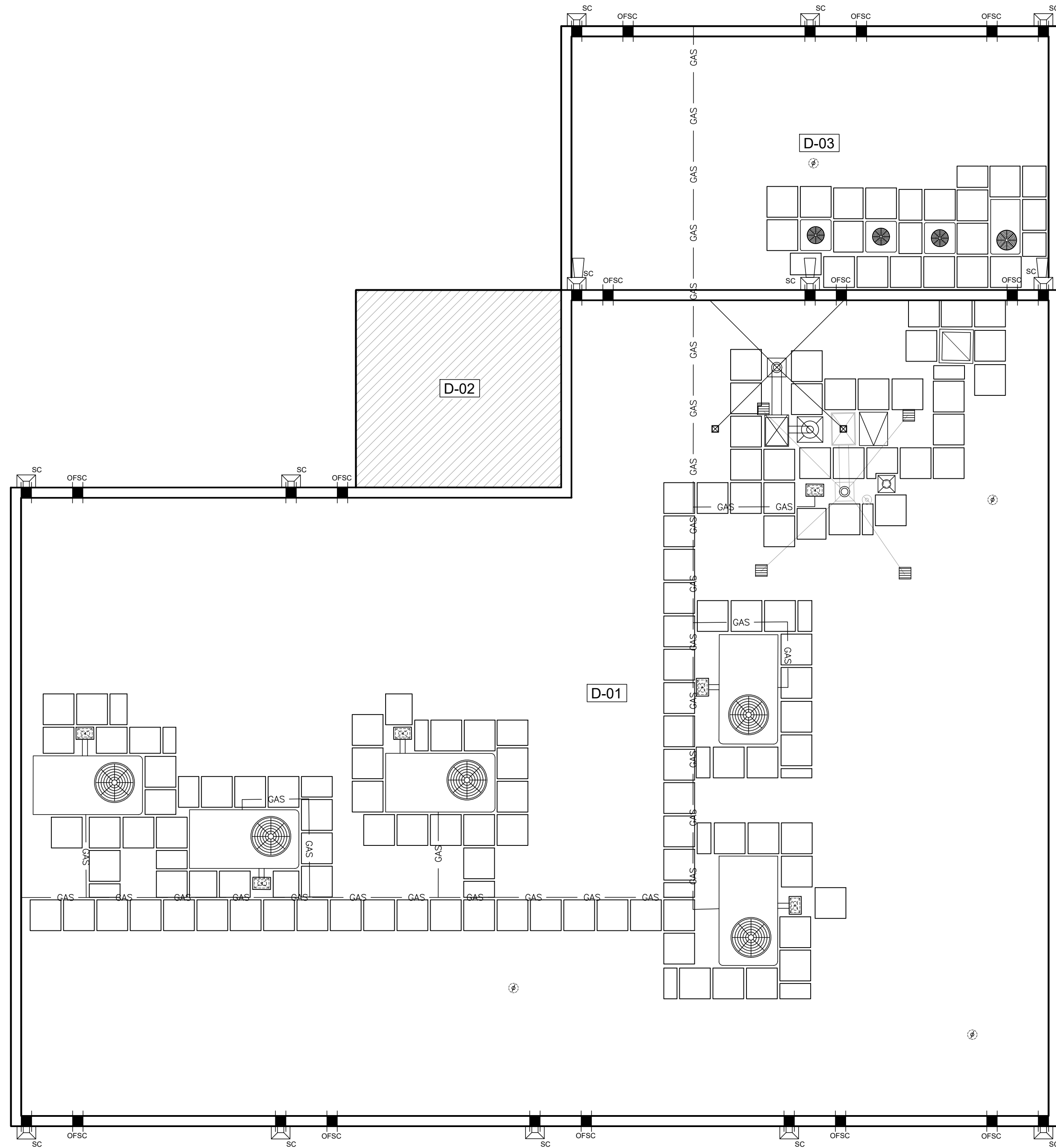
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1	6/26/2019	ADDENDUM 1

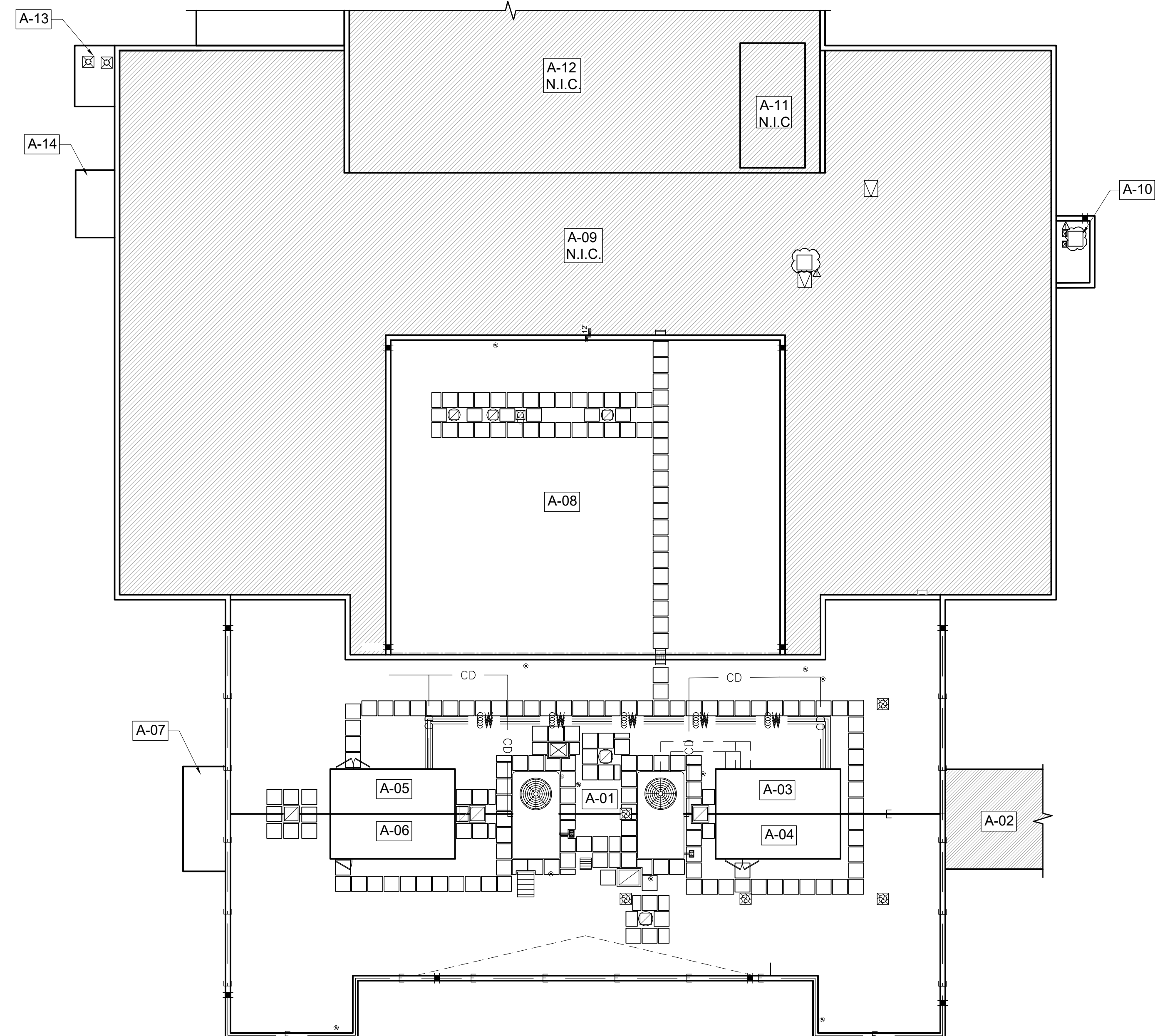
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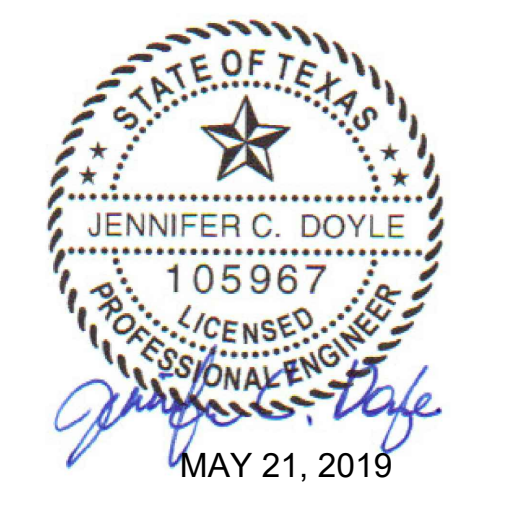
1 PARTIAL ROOF PLAN - ROOFS D-01 THROUGH 03
Scale: 1/8"=1'-0"



2 PARTIAL ROOF PLAN - ROOFS A-01 THROUGH A-14
Scale: 1/16"=1'-0"



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DRAWN BY:	DR. TH. AC
DATE:	May 21, 2019
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R2.02

WALKWAY PROTECTION PLANS - PARTIAL ROOF AREAS A-01 - A-14 & D-1 - D-3

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