PROJECT MANUAL

TEXAS SOUTHMOST COLLEGE

CAMPUS SELECTIVE ROOF REPLACEMENT AND REPAIRS

REQUEST FOR COMPETITIVE SEALED PROPOSAL (RFP): 19-10

SUBMISSION DEADLINE:
MAY 8, 2019 - 2:00 PM CST

TEXAS SOUTHMOST COLLEGE
80 FORT BROWN ST., BROWNSVILLE, TEXAS 78520

AMTECH SOLUTIONS

1600 N. Jackson Road, Suite 3
Pharr, Texas 78577

Phone: (956) 686-3095
Fax: (956) 686-2233

Austin ▪ Dallas ▪ Denver ▪ Houston ▪ Rio Grande Valley

March 20, 2019

SET NO. _____

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SECTION 1. INQUIRIES AND INTERPRETATIONS

Responses to inquiries which directly affect an interpretation or change to this Request for Competitive Sealed Proposals (RFP) will be issued in writing by the College as an addendum and faxed or mailed to all parties recorded by the College as having received a copy of this RFP.

All such addenda issued by the College prior to the time that proposals are received shall be considered part of this RFP, and the Respondent shall be required to consider and acknowledge receipt of each addendum in its proposals. Only those inquiries the College replies to by addenda shall be binding. Oral and other interpretations or clarifications will be without legal effect. All addendums, if any, can be obtained at the following website:

http://tsc.edu/index.php/about/purchasingqx/vendor-information.html

SECTION 2. POINT OF CONTACT

The College requires that Respondents restrict all contact and questions regarding this RFP to the individual named below.

Any questions or concerns regarding this solicitation including terms and conditions, submission requirements, technical requirements and contract award shall be directed in writing to:

Raul A. Garza
Purchasing Specialist
Purchasing Office
Tandy 207
80 Fort Brown
Brownsville, Texas 78520
Phone: 956-295-3438
Fax: 956-295-3408
raul.garza1@tsc.edu

It is Texas Southmost College's (TSC) intent to respond to all appropriate questions and concerns; however, TSC reserves the right to decline to respond to any question or concern.

SECTION 3. SUBMISSION OF PROPOSALS

Submittal Deadline: College will accept proposals until Wednesday, May 8, 2019 before 2:00 p.m. Proposals in print format shall be submitted to the TSC Purchasing Office located at Tandy 207; 80 Fort Brown; Brownsville, Texas 78520 in attention to Ms. Patricia G. Saldivar, Director of Purchasing. At 2:30 p.m., proposals will be read aloud in Tandy 212 Conference Room of the Fort Brown Campus.

The proposal(s) must be received on or before the time and date specified above to the point-of-contact identified above. College delivery hours are from Monday thru Friday from 8:00 a.m. to 5:00 p.m. except during holidays and other College closures. Late submissions will be returned

to the Respondent unopened. The College will not accept submissions delivered by telephone, email, or facsimile (fax). Proposals properly received will not be returned to Respondents.

A non-mandatory pre-proposal conference is scheduled for Tuesday, April 23, 2019 at 3:30 p.m. in Tandy Conference Room 212 of the TSC Fort Brown Campus.

SECTION 4. CONSIDERATION OF PROPOSALS

All proposals must be complete and convey all of the information requested to be considered responsive. If the proposal fails to conform to the essential requirements of this RFP, TSC alone will determine whether it is a candidate for further consideration.

Pursuant to Texas Education Code, Chapter 44, Subchapter B, a College shall select the Respondent that offers the best value for the College based on its published selection criteria and on its ranking evaluation. In determining the best value, the College is not restricted to considering price alone but may consider any other factors stated in the selection criteria. All properly submitted Proposals will be reviewed in consideration to the following selection criteria factors in determining to whom to award a contract:

Selection Criteria	Weights
(1)The pricing of services.	35 %
(2)The reputation of the Respondent and Respondent's goods and/or services.	10 %
(3)The quality of the Respondent's good and/or services.	10 %
(4)The extent to which the Respondent's services meet the College's needs.	10 %
(5) The Respondent's past relationship with the College.	10 %
(6)The impact on the ability of the College to comply with laws and rules relating to historically underutilized businesses.	5%
(7)The total long-term cost to the College to acquire the Respondent's goods and/or services.	5%
(8)The Respondent's principal place of business in the State of Texas and/or Respondent number of employees of at least 500 persons in this state.	5%
(9) Any other relevant factor provided in response to the request contained herein.	10%
Total	100%

SECTION 5. PROPOSAL SUBMISSION REQUIREMENTS: Please provide a response to the each of the following sections:

1. THE PRICING OF SERVICES.
   Please complete Pricing Proposal Form Exhibit A.

2. THE REPUTATION OF THE RESPONDENT AND RESPONDENT'S GOODS AND/OR SERVICES.
   Reference checks are a part of TSC's procedure for evaluation. Reference checks may be in writing or by telephone. The submission of reference information authorizes TSC to request release of information concerning related projects from the references provided. Provide a minimum of 3 references. The references should include: institution/client's

name and representative name who served as the day-to-day liaison including telephone number and e-mail address.

3. THE QUALITY OF THE RESPONDENT'S GOODS AND/OR SERVICES.

   Provide a general statement of the company history including how many years in business, including legal name of firm. (*If the firm has multiple locations, TSC is primarily interested in the capabilities and experience of the office that will provide the majority of the required services to TSC).*

   Provide resumes of the team that will be directly involved in the project, including their experience with similar projects.

   Provide a list of any lawsuits or litigations in which the company is or was a party, for the preceding ten (10) years, and the resulting outcomes. If the company becomes a party of any lawsuit within 60 days after proposal submission, the proposer must notify TSC immediately.

   Provide a statement if the company has filed bankruptcy within the past ten (10) years.

4. THE EXTENT TO WHICH THE GOODS OR SERVICES MEET THE COLLEGE'S NEEDS.

   Provide responses to any questions or requirements addressed in the "Description of Services" Section 7 of this RFP document.

   Identify and describe the team past experience for providing services to higher education institutions, school districts, and/or other public entities that are most related to this project within the last ten (ten) years.

   *Provide institution name/client name
   *Representative name, contact information
   *Location
   *Project Name
   *Description of services provided
   *Years of service
   *Project Size
   *Number of Days Contracted for Completion
   *Number of Days to Actual Completion
   *Contracted Budget
   *Actual Budget

   If available, provide color images (photographic reproductions) of proposed good and/or services and other information such as specifications, manufacturer's data sheet, etc.

5. THE RESPONDENT'S PAST RELATIONSHIP WITH THE COLLEGE.
   Identify and describe the company's past experience for providing services for TSC projects within the last ten (10) years. Provide the following information for each project listed:

   *Project name
   *Representative name
   *Description of services provided
   *Years of service
   *Project size

6. THE IMPACT OF THE ABILITY OF THE COLLEGE TO COMPLY WITH LAWS AND RULES RELATING TO HISTORICALLY UNDERUTILIZED BUSINESSES. Please indicate if the company is a Historically Underutilized Business (HUB) certified by the State of Texas. Y___N___.

7. THE TOTAL LONG-TERM COST TO THE COLLEGE TO ACQUIRE THE RESPONDENT'S GOODS AND/OR SERVICES. Describe your warranty service support philosophy and service implementation plan for this project.

8. PRINCIPAL PLACE OF BUSINESS IN THE STATE OF TEXAS AND/OR EMPOYMENT OF AT LEAST 500 PERSONS IN THE STATE OF TEXAS. Please Provide the number of employees in the State of Texas.

9. ANY OTHER RELEVANT FACTOR PROVIDED IN RESPONSE TO THE REQUEST CONTAINED HEREIN.

   - Ability to provide timely professional services from the awarded Respondent by having office or business presence within Texas Southmost College District.

   - Demonstration of past projects which were substantially completed early and/or under budget, citing specific project examples and owner contact.

SECTION 6. PROPOSAL SUBMISSION FORMAT: Submittals should be on letter-size (8-1/2"x11") paper and assembled with spiral-type bindings or staples. Do not use metal-ring hard cover binders. Preprinted material should be referenced in the submittal and included as labeled attachments. Each part of the proposal should be separated by use of a divider sheet with an integral tab for ready reference.

All submittals should include a Table of Contents for the Proposal and page numbers for each part of the Proposal as well as any separate attachments. Supplementary information not required should be clearly identified in the Table of Contents and provided as a separate part.

Submit three (5) copies of the proposal in print format and one (1) copy of the proposal in electronic format. The electronic copy shall be submitted in a USB/Flash Drive or in a CD in the same envelope as the hard-copy (print format) original proposal.

Important Proposal Submittal Documents: The following documents, at minimum, must be filled out, signed by an authorized representative, and returned as part of the proposal submittal:

1. Exhibit A – PRICING FORM
2. Exhibit B – ANTI-COLLUSION CERTIFICATION
3. Exhibit C – EXECUTION OF OFFER
4. Exhibit F – CONFLICT OF INTEREST QUESTIONNAIRE
5. Certification of Franchise Taxes of Account Status
6. Certification of Authority to conduct business in the State of Texas (or other state)
7. Proof of Insurance
8. Completed Form 1295
9. Each proposal shall include a cashier's check or certified check, or acceptable Respondent's bond payable to the Owner in the amount of not less than 5% of the largest total of the proposal submitted.
10. Sample of all proposed contractual documents that may result from this solicitation such as: contract, agreement, terms and conditions sheet, etc. (*Not signed)*

SECTION 7. DESCRIPTION OF SERVICES:

The Work includes selective roof system replacement, overlays and repairs, as indicated, for designated buildings of Texas Southmost College. Other work includes: thru-wall flashings at masonry walls and mechanical work as indicated in the Contract Documents.

SECTION 8. CONTRACT AWARD PROCESS

RFP Project Schedule:

Pre-proposal conference: Tuesday April 23, 2019
Deadline to receive questions: Friday April 26, 2019 before 5:00 PM
Deadline to submit proposals: Wednesday, May 8, 2019 before 2:00 PM
Estimated award: June 2019 or after.

Evaluation Process: By submitting a Proposal in response to this Request for Competitive Sealed Proposals, the Respondent(s) accepts the "Competitive Sealed Proposals" method selection process and acknowledges and accepts that determination of the Best Value Respondent(s) will require subjective judgments by TSC.

All submitted and qualified proposals will be reviewed, evaluated, and ranked by an evaluation committee. However, as part of the award process, TSC may request interviews or oral presentations from the highest ranked Respondents that are identified in the initial ranking conducted by the evaluation committee.

In the case that interviews or oral presentations are conducted by the highest Respondents, a final selection or determination of the Best Value Respondent(s) will be based on demonstrated competence at the interviews or oral presentations. The interviews or oral presentations may be made to the following audience: TSC administration, faculty, staff, or board members. TSC will not be responsible for any costs incurred for interviews or oral presentations.

One or more Respondents can be awarded. If the College awards a contract, it will award the contract to the Respondent(s) whose proposal (s) is considered to be the most advantageous to College and is determined to be the best qualified.

The TSC Board of Trustees will have the final determination to award a contract (s).

TSC reserves the right to consider any proposal "non-responsive" if the fees or prices are determined to be unreasonable or irresponsible in relation to the other submitted proposals.

Respondent(s) will be notified of any decision made after a contract is approved and awarded by the TSC Board of Trustees.

Reservation of Rights: TSC reserves the right to award one or multiple Proposals, reject any and all Proposals and re-solicit for new Proposals, or to temporarily or permanently abandon the Project.

TSC makes no representations, written or oral, that it will enter into any form of agreement with any respondent(s) to this Request for Competitive Sealed Proposals for any project and no such representation is intended or should be construed by the issuance of this solicitation.

Contract Terms: The estimated initial contract resulting from this RFP will be for a period of 240 days commencing on the date designated in the "Notice to Proceed." However, nothing in this RFP prohibits the College to negotiate different contract terms not specified herein, at the sole discretion of the College.

Cancellation Provisions: The College may cancel the contract should the present or any future Board of Trustees not appropriate funds in any fiscal year for the payments required by this agreement. No penalty shall be assessed against the College in the event of any such non-appropriation. In the event of non-appropriation, the College shall give the successful Respondent advance written notice before cancellation of the contract, and the College shall not be obligated to make any payments beyond the end of the fiscal year.

The College, without cause, will have the option to terminate the contract resulting from this RFP at any time upon giving sixty (60) days in advance written notice to Respondent. Upon termination, the Respondent is entitled to payment of an amount that will compensate Respondent for services satisfactorily performed from the time of the last payment to the termination date in accordance with this contract.

Open Records: TSC considers all information, documentation and other materials submitted in response to this solicitation to be of a non-confidential and/or non-proprietary nature and therefore shall be subject to public disclosure under the Texas Public Information Act (Texas Government Code, Chapter 552). Notwithstanding the foregoing, disclosure of information related to this solicitation shall be made only after a purchase order and contract is award.

SECTION 9. GENERAL TERMS AND CONDITIONS

These general terms and conditions shall be made a part of and govern any purchase order/contract resulting from this Request for Proposals.

CONFLICT OF INTEREST: The selected company must agree to disclose all potential, current conflicts of interest, as well as potential conflicts as they might occur, and be willing annually to disclose all sources of revenue and all affiliations.

In accordance with House Bill 1295, which amended the Texas Government Code by adding Section 2252.908, Disclosure of Interested Parties. Section 2252.908, all vendors submitting proposals must file form 1295 electronically with the Texas Ethics Commission using the online filing application. Information regarding this law, and the required form may be found at the following website: https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm.
Respondents must use the filing application on the Texas Ethics Commission's website to enter the required information on Form 1295. Respondents must:

-Print a copy of the completed form, which will include a certification of filing containing a unique certification number.
-The Form 1295 must be signed by an authorized agent of the business entity, and the form must be notarized.
-The completed Form 1295 with the certification of filing must be included with your proposal/proposal response.

DELINQUENT FRANCHISE TAXES: Each corporation contracting with the College shall certify that its franchise taxes are current. If the corporation is exempt from payment of franchise taxes or is an out-of-state corporation not subject to Texas franchise tax, it shall certify a statement to that effect. Making a false statement as to corporate franchise tax status shall be considered a material breach of the contract and shall be grounds for cancellation of the contract.

CERTIFICATION: Proposer shall furnish certification of authority demonstrating authority to conduct business in the State of Texas. Registration is obtained from the Texas Secretary of State, who will also provide certification thereof.

TITLE AND RISK OF LOSS: The title and risk of loss for goods delivered under this contract, if any, shall not pass to TSC until it actually receives, takes possession and accepts the goods at the point or points of delivery.

ACCEPTANCE OF PRODUCTS AND SERVICES: All products furnished and/or services performed under this Contract shall be to the satisfaction of TSC and in accordance with the specifications, terms, and conditions of the Contract.

INDEMNIFICATION: To the fullest extent permitted by law, the Respondent agrees to indemnify and hold harmless TSC, its officers, employees, and agents harmless from and against all claims of any nature or kind arising out of or caused from the performance of services, or provision of goods, by the Respondent pursuant to this contract, which are caused, in whole or in part, by any negligent act or omission of the Respondent.

COMPLIANCE WITH LAW: Respondent is aware of and in full compliance with its obligations under existing applicable law and regulations, including the Immigration Reform and Control Act of 1986, Title VI of the Civil Rights Act of 1964 (as amended), the Age Discrimination Act of 1975, the Fair Labor Standards Act (as amended), the Americans with Disabilities Act of 1990, *Affordable Care Act of 2010*, and all other applicable laws and regulations.

COMPLIANCE WITH COLLEGE POLICIES: Respondents must abide by all applicable TSC policies and procedures, including but not limited to those relating to safety, confidentiality, use of technology, harassment, and drug and alcohol use. On-site Respondent's personnel may be required a criminal background check.

PAYMENTS: Payment for services/goods will be made after acceptable performance of services and/or receipt of items in good condition and after receipt of a valid invoice. Payment shall be in accordance with the State of Texas Prompt Payment Act, Chapter 225 of the Government Code.

CONTRACT AMENDMENTS: The Contract may be amended within the Contract period by mutual consent of the parties. No modification or amendment to the Contract shall become valid unless in writing and signed by both parties.

INDEPENDENT RESPONDENT STATUS: Respondent agrees that it is engaged as an independent Respondent and acknowledges that TSC will have no responsibility to provide benefits normally associated with an employer-employee relationship such as transportation, insurance, vacation, or other fringe benefits. Respondent agrees that it will neither hold itself out as nor claim to be an officer, partner, employee or agent of TSC, including unemployment, insurance benefits, social security coverage, or retirement benefits. Respondent agrees to make its own arrangements for any fringe benefits as it may desire and agrees that it is responsible for all income taxes required by applicable laws.

NON-DISCLOSURE: Respondent and TSC acknowledge that they or their employees may, in the performance of this contract, come into the possession of proprietary or confidential information owned by or in the possession of the other. Neither party shall use any such information for its own benefit or make such information available to any person, firm, corporation, or other organizations, whether directly or indirectly affiliated with Respondent or TSC, unless required by law.

PUBLICITY: Respondent agrees that it shall not publicize this Contract or disclose, confirm or deny any details thereof to third parties or use any photographs or video recordings of TSC's name in connection with any sales promotion or publicity event without the prior express written approval of TSC.

SEVERABILITY: If any provision of this Contract, or the application of any provision to any party or circumstance is held invalid, unenforceable, or illegal in any respect, the remainder of the Contract and the application of the provision to other parties or circumstances shall remain valid and in full force and effect.

FORCE MAJEURE: If either TSC or Respondent is delayed at any time in the performance of its obligations under this contract by economic industry-wide strikes, fire, floods, acts of

government, unavoidable casualties, or other causes reasonably beyond the control of either party and which could not have been reasonably anticipated, then the party affected by such an event shall give notice to the other party of the probable extent to which the affected party will be unable to perform or be delayed in performing its obligations hereunder. If the performance of either party is delayed or prevented by such an event, both parties shall be excused from performing their obligations hereunder while and to the extent the conditions arising from the event exist, after which the parties' performance shall be resumed. A delay or failure in performance by either party under this paragraph shall not constitute default hereunder, or give rise to any claim for damages.

GOVERNING LAW: This contract will be governed and construed according to the laws of the State of Texas. Both parties agree that venue for any litigation arising from this contract shall lie in Cameron County, Texas.

ASSIGNMENT: The Respondent shall not sell, assign, transfer or convey this contract, in whole or in part, without the prior written consent of TSC.

RIGHT TO A JURY TRIAL: Neither TSC nor Respondent shall waive its right to a jury trial for any claims arising out of the formation, performance, breach or enforcement of this contract, or any claim for damages resulting therefrom.

INSURANCE: Respondent shall obtain and keep in effect during the term of this contract, insurance coverage in the below listed types and amounts. As evidence of insurance coverage, Respondent shall furnish to TSC certificate(s) of insurance before commencement of any work under this contract.

TYPE OF COVERAGE	LIMITS
A. Worker's Compensation	Statutory
B. Comprehensive General Liability	$1,000,000 Ea. occurrence $2,000,000 aggregate
C. Automobile Liability (owned/leased, non-owned, and hired)	
(1) Bodily Injury	$1,000,000 Ea. Person $1,000,000 Ea. Occurrence
(2) Property Damage	$1,000,000 Ea. Occurrence

MINIMUM WAGE: TSC requires that all employees of prime and respondents who submit proposals for, and perform contractual work for TSC receive a living wage consistent with human dignity and the needs of life. TSC policy requires that the Respondent pay all employees' wages at least **$8.50** per hour as per Resolution in Support of a Living Wage Requirement for Those Employed By, and Those Doing Business With, TSC. Resolution passed by the Board of Trustees on September 30, 2009.

E X H I B I T S

Exhibit A

PRICING FORM

Note: Mark outside of envelope, Proposal For:

"Campus Selective Roof Replacement and Repairs"
TSC RFP 19-10

In submitting this proposal, I agree:

1. To hold price open for a period of ninety (90) days after the opening date.

2. To enter into and execute a Purchase order/contract with the Texas Southmost College, if awarded on the basis of the proposal, and to furnish Bonds if required, in accordance with the owner's requirements and instructions.

3. To accomplish the work in accordance with the statement of work, description of services, and other terms provided including labor, supplies, and materials necessary.

One or more Respondents can be selected. If the College awards a contract, it will award the contract to the Respondent(s) whose proposal (s) is considered to be the most advantageous to College and is determined to be the best qualified.

REQUEST FOR COMPETITIVE SEALED PROPOSAL
PROPOSAL FORM

Date: _____

Gentlemen:

This proposal is submitted by _____

whose address is _____

(hereafter called "Offeror") for construction of

Selective Campus Roof Replacement and Repairs

REQUEST FOR COMPETITIVE SEALED PROPOSAL RFP 19-10

Brownsville, Texas (hereafter called "Project")
Base Proposal: All Work Specified:

Offeror shall submit line item pricing for each location and the total sum base Proposal for all locations:

The **Contingency Allowance** amount described in Section 01 2100 - Allowances of the Project Manual is to be included in the Proposal Price. The criteria for evaluation and selection of the successful Offeror, will be based upon the document: "**Texas Southmost College Selective Campus Roof Replacement and Repairs**" - Evaluation Criteria" as bound in the Project Manual.

All labor, services, materials, tools, equipment and supervision necessary to the full and final completion of the Project, and everything incidental thereto, as shown on the Drawings, stated in the specifications, or properly inferable there from, all in accordance with Contract Documents governing the construction of such Project prepared by Amtech Solutions, Inc. (hereafter called "Architect").

1. PROPOSED AMOUNT(s)

PART 1 - FORT BROWN MEMORIAL CENTER

PART 1A **BASE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED 2-PLY SBS MODIFIED BITUMEN MEMBRANE SYSTEM WITH A MECHANICALLY ATTACHED BASE SHEET OVER ½" COVERBOARD AND R25 POLYISOCYANURATE INSULATION (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____
PART 1B **ALTERNATE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED 2-PLY SBS MODIFIED BITUMEN MEMBRANE SYSTEM WITH A MECHANICALLY ATTACHED BASE SHEET OVER R25 POLYISOCYANURATE INSULATION (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____

PART 2 - MUSIC BUILDING

PART 2A **BASE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED 2-PLY SBS MODIFIED BITUMEN MEMBRANE SYSTEM WITH A MECHANICALLY ATTACHED BASE SHEET OVER ½" COVERBOARD AND R25 POLYISOCYANURATE INSULATION OVER 22 GAUGE METAL DECKING (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____
PART 2B **ALTERNATE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED 2-PLY SBS MODIFIED BITUMEN MEMBRANE SYSTEM WITH A MECHANICALLY ATTACHED BASE SHEET OVER R25 POLYISOCYANURATE INSULATION OVER 22 GAUGE METAL DECKING (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____
PART 2C **SKIRT BASE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED REMOVAL OF SKIRT WITH NEW METAL WALL PANELS (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____
PART 2D **SKIRT ALTERNATE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED REMOVAL OF SKIRT WITH NEW PARAPET KNEE WALL AND METAL WALL PANELS (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE).**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____
PART 2E **INTERIORS BASE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED REPLACEMENT OF DROP CEILING TILES AFTER ROOF REPLACEMENT (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____

PART 3 - GUERRA EARLY CHILDHOOD CENTER

PART 3A **BASE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED 2-PLY SBS MODIFIED BITUMEN MEMBRANE SYSTEM WITH A MECHANICALLY ATTACHED BASE SHEET OVER ½" COVERBOARD AND R25 POLYISOCYANURATE INSULATION WITH SELECTIVE REPAIRS (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____
PART 3B **ALTERNATE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED 2-PLY SBS MODIFIED BITUMEN MEMBRANE SYSTEM WITH A MECHANICALLY ATTACHED BASE SHEET OVER R25 POLYISOCYANURATE INSULATION WITH SELECTIVE REPAIRS (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____

PART 4 - BOOK STORE

PART 4A **BASE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED 2-PLY SBS MODIFIED BITUMEN MEMBRANE SYSTEM WITH A MECHANICALLY ATTACHED BASE SHEET OVER ½" COVERBOARD AND R25 POLYISOCYANURATE INSULATION WITH SELECTIVE REPAIRS (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____
PART 4B **ALTERNATE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED 2-PLY SBS MODIFIED BITUMEN MEMBRANE SYSTEM WITH A MECHANICALLY ATTACHED BASE SHEET OVER R25 POLYISOCYANURATE INSULATION WITH SELECTIVE REPAIRS (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____

PART 5 - CAVALRY HALL

PART 5A **BASE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED 2-PLY SBS MODIFIED BITUMEN MEMBRANE SYSTEM WITH A MECHANICALLY ATTACHED BASE SHEET OVER ½" COVERBOARD AND R25 POLYISOCYANURATE INSULATION (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____
PART 5B **ALTERNATE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED 2-PLY SBS MODIFIED BITUMEN MEMBRANE SYSTEM WITH A MECHANICALLY ATTACHED BASE SHEET OVER R25 POLYISOCYANURATE INSULATION (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____

PART 6 - OLIVERA STUDENT CENTER

PART 6A **BASE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED STANDING SEAM METAL ROOF SYSTEM AND 2-PLY SBS MODIFIED BITUMEN MEMBRANE SYSTEM WITH A MECHANICALLY ATTACHED BASE SHEET OVER ½" COVERBOARD AND R25 POLYISOCYANURATE INSULATION WITH SELECTIVE REPAIRS (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____
PART 6B **ALTERNATE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED STANDING SEAM METAL ROOF SYSTEM AND 2-PLY SBS MODIFIED BITUMEN MEMBRANE SYSTEM WITH A MECHANICALLY ATTACHED BASE SHEET OVER R25 POLYISOCYANURATE INSULATION WITH SELECTIVE REPAIRS (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____

PART 7 - GARZA GYMNASIUM

PART 7A **BASE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED STANDING SEAM METAL ROOF SYSTEM AND 2-PLY SBS MODIFIED BITUMEN MEMBRANE SYSTEM WITH A MECHANICALLY ATTACHED BASE SHEET OVER ½" COVERBOARD AND R25 POLYISOCYANURATE INSULATION WITH SELECTIVE REPAIRS (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____
PART 7B **ALTERNATE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED STANDING SEAM METAL ROOF SYSTEM AND 2-PLY SBS MODIFIED BITUMEN MEMBRANE SYSTEM WITH A MECHANICALLY ATTACHED BASE SHEET OVER R25 POLYISOCYANURATE INSULATION WITH SELECTIVE REPAIRS (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____

PART 8 - CORTEZ HALL

PART 8A **BASE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED 2-PLY SBS MODIFIED BITUMEN MEMBRANE SYSTEM WITH A MECHANICALLY ATTACHED BASE SHEET OVER ½" COVERBOARD AND R25 POLYISOCYANURATE INSULATION (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____
PART 8B **ALTERNATE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED 2-PLY SBS MODIFIED BITUMEN MEMBRANE SYSTEM WITH A MECHANICALLY ATTACHED BASE SHEET OVER R25 POLYISOCYANURATE INSULATION (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____

PART 9 - SCIENCE ENGINEERING

PART 9A **BASE PROPOSAL**	**TOTAL LUMP SUM PRICE FOR SPECIFIED REPAIRS (NOT INCLUDING DESIGNATED CONTINGENCY ALLOWANCE)**	Offeror agrees to furnish for the sum of _____ _____ Dollars, $_____

PART 10 – CONTINGENCY ALLOWANCE (PARTS 1 – 9)

PART 10A	**TOTAL LUMP SUM PRICE FOR DESIGNATED CONTINGENCY ALLOWANCE**	Offeror agrees to furnish for the sum of Fifty Thousand Dollars. **$50,000**

2. CONTINGENCY FUND ALLOWANCE:

2.1 Total Contingency Fund Allowance(s) as described in Section 01 2100 and listed in Proposal Form Part 10A.

2.2 Fifty Thousand Dollars ($50,000)

3. CONTRACT TIME:

3.1 Proposer agrees to substantially complete all work, based on the following schedule, from the date established in the Notice to Proceed.

Base Proposal Parts 1-9 _____ Calendar Days.

4. CONTRACTORS QUALIFICATION STATEMENT:

4.1 Completed AIA FORM A305 – Contractor's Qualification Statement must be attached as an integral part of this Proposal Form. Failure to include a completed copy of this form may cause proposal to be rejected.

5. SCHEDULE OF ROOF AREAS AND INTENDED MANUFACTURER:
Provide roof areas and proposed membrane manufacturer in spaces below.

Building	Sq. ft.	Proposed Manufacturer for Base Proposal	Proposed Manufacturer for Alternate(s)
Fort Brown Memorial Center			
Music			
Guerra Early Childhood Center			
Book Store			
Cavalry Hall			
Olivera Student Center			
Garza Gymnasium			
Cortez Hall			
Science Engineering			**N/A**

6. CONTRACTOR'S PERSONNEL:

6.1 Proposer proposes the following full-time, fluent English-speaking employees for this Project. If acceptable to the Owner and Architect, Proposer agrees to employ them for duration of the Work at the positions indicated and agrees not to remove them from the Work nor replace them with others except as otherwise allowed in the Contract Documents.

Project Manager: _____

Project Superintendent: _____

7. **PROPOSED SUBCONTRACTORS**:

7.1 Proposer proposes following Subcontractors for the Work indicated. If acceptable to by the Owner and Architect, Proposer agrees to use the named Subcontractors for duration of the Project on Work indicated and agrees not to remove them from the Work nor replace them with others except as otherwise allowed in the Contract Documents. Insert only <u>one</u> (1) name for each Work item, or if Work item is not to be subcontracted, insert Proposer's name:

	Work Item	**Proposed Subcontractor**	**Contract Amount**
7.2	Carpentry	_____	($ _____)
7.3	Structural	_____	($ _____)
7.4	Mechanical	_____	($ _____)
7.5	Plumbing	_____	($ _____)
7.6	Electrical	_____	($ _____)
7.7	Masonry	_____	($ _____)

(Please note, the "Contract Amount" for Items 7.2, 7.3, 7.4, 7.5, 7.6 and 7.7 is for the Base Proposal only. No Breakdown is required for individual Roof Areas for this item.)

8. UNIT PRICES:

Proposer proposes the following sums as additions to or deductions from the Base Proposal amount for Unit Price Work more fully described in referenced Specification Sections in the Contract Documents. Proposer must provide an amount for each Unit Price item listed or entire Proposal may be considered non-responsive. All items listed below include all labor, materials and OH & P, to install.

	SPECIFICATION SECTION	ITEM	UNIT PRICE	UNIT OF MEASURE
	07 0150.19	**Replace insulation and Membrane (at wet areas):**		
8.1		Less than 200 Square feet in one area	$ _____	Per Square Ft
8.2		Over 200 Square feet in one area	$ _____	Per Square Ft
	07 0150.19	**Replace Metal Roof Deck (Following Sizes):**		
8.3		20 GA, G90 Galvanized 1.5 A, B or F Deck	$ _____	Per 3' x 20' Sheet
8.4		1" x 10" Wood Plank Decking	_____	Per Ten Linear Ft
	07 5216	**SBS Modified Bitumuous Membrane Roofing**		
8.5		Polyisocyanurate Board 1" thickness 20 psi	$ _____	Per Square Ft.
8.6		Gypsum ½" Cover Board	$ _____	Per Square Ft.
8.7		SBS Mod Bit Cap Sheet TG with SRI < 0.75	$ _____	Per Square Ft.
8.8		SBS Mod Bit Cap Sheet TG with SRI ≥ 0.75	$ _____	Per Square Ft.
	07 6200	**Sheet Metal Work (Following Sizes):**		
8.9		5" x 5" Sheet Metal Downspout	$ _____	Per Ten Linear Ft
8.10		18" ES-1 Coping w/ 1 Cleat & Standing Seam	$ _____	Per Each
8.11		4" Face ES-1 Fascia w/ Continuous Cleat	$ _____	Per Each
8.12		8" 1-piece Fascia/Coping Face Extension	$ _____	Per Each
8.13		6' Downspout Boot	$ _____	Per Each
8.14		Collector Head	$ _____	Per Each
8.15		Hooded Pitch Pan	$ _____	Per Each
8.16		Conc. Splash block on Traffic Pad	$ _____	Per Each
8.17		Scupper 11" x 4"	$ _____	Per Each
	06 1055	**Treated Wood Blocking Replacement (Following Nominal Sizes):**		
8.18		2x4	$ _____	Per Ten Linear Ft
8.19		2x6	$ _____	Per Ten Linear Ft
8.20		2x8	$	Per Ten Linear Ft

Respondent acknowledges receipt of the following addenda to the captioned RFP (initial if applicable):

Failure to properly acknowledge addenda may result in disqualification.

Addendum #_____ Initials: _____
Addendum #_____ Initials: _____
Addendum #_____ Initials: _____

In submitting this proposal, I certify that _____ (Name of Individual/Firm) has not been found guilty in a judicial or state administrative insurer proceeding for unfair business practices within the year preceding the date of this statement.

I further certify that I, or any officer of _____ (name of individual/firm), has not served within the past years as an officer of another company which has been found guilty in a judicial or state administrative insurer proceeding of unfair business practice.
Respectfully submitted,

_____
By: Signature and Title

_____
Date

_____
Firm

_____
Address

_____
City

_____
State

_____
Phone Number

_____
Email address

Exhibit B

ANTI-COLLUSION CERTIFICATION

By submission of this proposal, the Respondent certifies that:

1. This proposal has been independently arrived at without collusion with any other Respondent or with any competitor;

2. This proposal has not been knowingly disclosed and will not be knowingly disclosed, prior to the opening of proposals for this project, to any other offer or competitor or potential competitor;

3. No attempt has been or will be made to induce any other person, partnership or corporation to submit or not to submit a proposal;

4. The person signing this proposal certifies that he has fully informed himself regarding the accuracy of the statements contained in this certification, and under the penalties being applicable to the Offer or as well as to the person signing in its behalf.

_____ _____

By: Signature and Title Firm

_____

Date

Exhibit C

EXECUTION OF OFFER

THIS EXECUTION OF OFFER MUST BE COMPLETED, SIGNED AND RETURNED WITH RESPONDENT'S PROPOSAL. FAILURE TO COMPLETE, SIGN AND RETURN THIS EXECUTION OF OFFER WITH THE PROPOSER'S PROPOSAL WILL RESULT IN THE REJECTION OF THE PROPOSAL.

2.1 By signature hereon, Respondent represents and warrants the following:

2.1.1 Respondent acknowledges and agrees that (1) this RFP/ is a solicitation for a proposal and is not a contract or an offer to contract; (2) the submission of a proposal by Respondent in response to this RFP/ will not create a contract between Texas Southmost College (TSC) and Proposer; (3) College has made no representation or warranty, written or oral, that one or more contracts with College will be awarded under this RFP/; and (4) Respondent will bear, as its sole risk and responsibility, any cost arising from Proposer's preparation of a response to this RFP/.

2.1.2 Respondent is a reputable company that is lawfully and regularly engaged in providing the Services.

2.1.3 Respondent has the necessary experience, knowledge, abilities, skills, and resources to perform the Services.

2.1.4 Respondent is aware of, is fully informed about, and is in full compliance with all applicable federal, state and local laws, rules, regulations and ordinances.

2.1.5 Respondent understands (i) the requirements and specifications set forth in this RFP/ and (ii) the terms and conditions set forth in the Agreement under which Respondent will be required to operate.

2.1.6 If selected by TSC, Respondent will not delegate any of its duties or responsibilities under this RFP/ or the Agreement to any sub-Respondent, except as expressly provided in the Agreement.

2.1.7 If selected by TSC, Respondent will maintain any insurance coverage as required by the Agreement during the term thereof.

2.1.8 All statements, information and representations prepared and submitted in response to this RFP/ are current, complete, true and accurate. Respondent acknowledges that College will rely on such statements, information and representations in selecting the Respondent. If selected by the College, Respondent will notify College immediately of any material change in any matters with regard to which Respondent has made a statement or representation or provided information.

2.1.9 Respondent will defend with counsel approved by TSC, indemnify, and hold harmless, The College, the State of Texas, and all of their regents, officers, agents and employees, from and against all actions, suits, demands, costs, damages, liabilities and other claims of any nature, kind or description, including reasonable attorneys' fees incurred in investigating, defending or settling any of the foregoing, arising out of, connected with, or resulting from any negligent acts or omissions or willful misconduct of Respondent or any agent, employee, subRespondent, or supplier of Respondent in the execution or performance of any contract or agreement resulting from this RFP/.

2.1.10 Pursuant to Sections 2107.008 and 2252.903, *Government Code*, any payments owing to Respondent under any contract or agreement resulting from this RFP/ may be applied directly to any debt or delinquency that Respondent owes the State of Texas or any agency of the State of Texas regardless of when it arises, until such debt or delinquency is paid in full.

2.1.11 Pursuant to the provisions of Chapter 2270 of the Texas Government Code, Respondent verifies that it does not boycott Israel and will not boycott Israel during the term of the Agreement.

2.2 By signature hereon, Respondent offers and agrees to furnish the Services to College and comply with all terms, conditions, requirements and specifications set forth in this RFP.

2.3 By signature hereon, Respondent affirms that it has not been identified on a scrutinized company list prepared and maintained by the comptroller under Government Code 806.051, 807.051, or 2252.153.

2.4 By signature hereon, Respondent affirms that it has not given or offered to give, nor does Respondent intend to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor or service to a public servant in connection with its submitted proposal. Failure to sign this Execution of Offer, or signing with a false statement, may void the submitted proposal or any resulting contracts, and the Respondent may be removed from all proposal lists.

2.5 By signature hereon, Respondent certifies that it is not currently delinquent in the payment of any taxes due under Chapter 171, *Tax Code*, or that Respondent is exempt from the payment of those taxes, or that Respondent is an out-of-state taxable entity that is not subject to those taxes, whichever is applicable. A false certification will be deemed a material breach of any resulting contract or agreement and, at University's option, may result in termination of any resulting contract or agreement.

2.6 By signature hereon, Respondent hereby certifies that neither Respondent nor any firm, corporation, partnership or institution represented by Proposer, or anyone acting for such firm, corporation or institution, has violated the antitrust laws of the State of Texas,

codified in Section 15.01, et seq., *Business and Commerce Code*, or the Federal antitrust laws, nor communicated directly or indirectly the proposal made to any competitor or any other person engaged in such line of business.

2.7 By signature hereon, Respondent certifies that the individual signing this document and the documents made a part of this RFP/, is authorized to sign such documents on behalf of Respondent and to bind Respondent under any agreements and other contractual arrangements that may result from the submission of Proposer's proposal.

2.8 By signature hereon, Respondent certifies as follows: "Under Section 231.006, *Family Code,* relating to child support, Respondent certifies that the individual or business entity named in the Proposer's proposal is not ineligible to receive the specified contract award and acknowledges that any agreements or other contractual arrangements resulting from this RFP/ may be terminated if this certification is inaccurate."

2.9 By signature hereon, Respondent certifies that (i) no relationship, whether by blood, marriage, business association, capital funding agreement or by any other such kinship or connection exists between the owner of any Respondent that is a sole proprietorship, the officers, or directors of any Respondent that is a corporation, the partners of any Respondent that is a partnership, the joint venturers of any Respondent that is a joint venture or the members or managers of any Respondent that is a limited liability company, on one hand, and an employee of any component of the College, on the other hand, other than the relationships which have been previously disclosed to College in writing and (ii) Respondent has not been an employee of any component institution of TSC within the immediate twelve (12) months prior to the Submittal Deadline. All disclosures by Respondent in connection with this certification will be subject to administrative review and approval before College enters into a contract or agreement with Proposer.

2.10 By signature hereon, Respondent certifies that in accordance with Section 2155.004, *Government Code*, no compensation has been received for its participation in the preparation of the requirements or specifications for this RFP/. In addition, Respondent certifies that an award of a contract to Respondent will not violate Section 2155.006, *Government Code*, prohibiting College from entering into a contract that involves financial participation by a person who, during the previous five years, has been convicted of violating federal law or assessed a penalty in a federal civil or administrative enforcement action in connection with a contract awarded by the federal government for relief, recovery, or reconstruction efforts as a result of Hurricane Rita, Hurricane Katrina, or any other disaster occurring after September 24, 2005. Pursuant to Sections 2155.004 and 2155.006, *Government Code*, Respondent certifies that Respondent is not ineligible to receive the award of or payments under the Agreement and acknowledges that the Agreement may be terminated and payment withheld if these certifications are inaccurate.

2.11 By signature hereon, Respondent certifies its compliance with all federal laws and regulations pertaining to Equal Employment Opportunities and Affirmative Action.

2.12 By signature hereon, Respondent represents and warrants that all products and services offered to College in response to this RFP/ meet or exceed the safety standards established and promulgated under the Federal Occupational Safety and Health Law (Public Law 91-596) and the *Texas Hazard Communication Act*, Chapter 502, *Health and Safety Code*, and all related regulations in effect or proposed as of the date of this RFP/.

2.13 Respondent will and has disclosed, as part of its proposal, any exceptions to the certifications stated in this Execution of Offer. All such disclosures will be subject to administrative review and approval prior to the time College makes an award or enters into any contract or agreement with Proposer.

2.14 Respondent should complete the following information:

If Respondent is a Corporation, then State of Incorporation: _____

If Respondent is a Corporation then Proposer's Corporate Charter Number: _____

RFP/ No.:_____

NOTICE: WITH FEW EXCEPTIONS, INDIVIDUALS ARE ENTITLED ON REQUEST TO BE INFORMED ABOUT THE INFORMATION THAT GOVERNMENTAL BODIES OF THE STATE OF TEXAS COLLECT ABOUT SUCH INDIVIDUALS. UNDER SECTIONS 552.021 AND 552.023, *GOVERNMENT CODE*, INDIVIDUALS ARE ENTITLED TO RECEIVE AND REVIEW SUCH INFORMATION. UNDER SECTION 559.004, *GOVERNMENT CODE*, INDIVIDUALS ARE ENTITLED TO HAVE GOVERNMENTAL BODIES OF THE STATE OF TEXAS CORRECT INFORMATION ABOUT SUCH INDIVIDUALS THAT IS INCORRECT.

Submitted and Certified By:

_____
(Respondent Institution's Name)

_____
(Signature of Duly Authorized Representative)

_____
(Printed Name/Title)

_____
(Date Signed)

_____
(Proposer's Street Address)

(City, State, Zip Code)

(Telephone Number)

(FAX Number)

Exhibit D

TERMS AND CONDITIONS

1. PROPOSAL REQUIREMENTS:

1.1 Proposal must be properly identified with a Proposal No. and Opening Date. Proposals must be time-stamped at Texas Southmost College, 80 Fort Brown St., Brownsville, TX 78520 on or before opening date and time shown on other side of this form. Late proposals will not be considered.

1.2 Proposals should be quoted F.O.B. Destination. If otherwise, proposal will show exact cost to deliver. Proposal unit price on the quantity specified, extend and show total. In case of errors, unit prices shall govern. Proposal prices will be considered firm for acceptance within 90 days after the proposal opening date unless otherwise specified. Cash discounts will not be considered in determining award; all cash discounts offered will be taken if earned. Proposal will list and deduct all trade discounts, educational discounts, and other discounts, not based on early payment from the proposal's prices quoted.

1.3 College is exempt from State Sales Tax and Federal Excise Tax. Do not include in proposal. Tax Exemption Certificate furnished upon request.

1.4 College reserves the right to accept or reject all or part of any proposal, waive any formalities or technical inconsistencies, delete any requirement or specification from this invitation, or terminate this solicitation when deemed to be in College's best interest.

1.5 Facsimile proposals, telephone proposals and/or email proposals are not acceptable in response to this invitation.

1.6 Respondent hereby assigns to College any and all claims for overcharges associated with any resulting contract arising under antitrust laws of the United States, 15 U.S.C.A. Sec. 1 et seq. (1973) and the State of Texas, Tex. Bus. &. Comm. Code Ann. Sec. 15.01, at seq. (1967).

1.7 The Respondent ID number is the taxpayer number assigned and used by the Comptroller of Public Accounts of Texas. If the Respondent ID number is not known, enter Respondent's Federal Employer's Identification Number, or Social Security Number if a sole owner. (Disclosure of SSN, if applicable, is mandatory pursuant to Section 231.005, Texas Family Code, and will be used in determining whether any person having 25% or greater ownership interest in the proposal company is more than 30 days delinquent in paying child support.)

1.8 In case of tie proposals, any award will be made pursuant to Texas Bldg. & Procurement Comm. Rule 1; T.A.C. Section 113.6 (b)(3)(8) (preferences).

1.9 Respondent shall not assign any resulting Respondent Purchase order/contract without prior written approval from the College.

1.10 Substitutions will not be allowed after a proposal has been submitted for consideration.

1.11 Each sealed proposal shall constitute an offer to the Board of Trustees, as outlined therein, and shall be irrevocable after the time announced for the opening thereof. TSC reserves the right to reject any and all proposals and to waive informalities in proposals and to resolve ambiguities in the District's favor.

1.12 Each proposal shall include a cashier's check or certified check, or acceptable Respondent's bond payable to the Owner in the amount of not less than 5% of the largest total of the proposal submitted.

1.13 A payment bond in the amount of 100% of the full contract amount <u>will be required</u> on all contracts over $25,000.

1.14 A payment performance bond in the amount of 100% of the full contract amount <u>will be required</u> on all contracts over $100,000. If the Respondents fails to execute the contract and provide satisfactory payment and performance bonds and insurance certificates within ten (10) days of the day on which Respondent is notified that said proposal was accepted or Notice to Proceed is issued, the proposal security shall be forfeited to TSC.

2. SPECIFICATIONS

2.1 Unless specifically stated otherwise, any catalog, brand name or manufacturer's reference used in this Invitation is descriptive (not restrictive), and is used to indicate type and quality desired. Proposals on brands of like nature and quality will be considered. If proposing on other than referenced specifications, the proposal MUST show manufacturer brand or trade name and description of product offered. Illustrations and complete descriptions of product offered should be made part of the proposal. If Respondent does not identify exceptions to the specifications shown in this Request for Competitive Sealed Proposals it will be required to furnish brand names, numbers, etc., as shown in the Request.

2.2 All items shall be new, in first class condition, including containers suitable for shipment and storage, unless otherwise indicated in this solicitation. Verbal agreements to the contrary will not be recognized.

2.3 Respondent warrants fault free performance in the processing of date and date related data (including, but not limited to, calculating, comparing and sequencing) by the product(s) identified on this Invitation. Fault free performance includes, but is not limited to, the manipulation of data with dates prior to, through, and beyond January 1, 2000, and during leap years, and performance shall be transparent to the user.

3. DELIVERY

3.1 Proposal should show the number of days required to deliver items to College's designated location under normal conditions. Unrealistically short or long delivery promises may cause proposal to be disregarded. Failure to state delivery time obligates Respondent to complete delivery in 14 calendar days.

3.2 The Texas Hazard Communication Act (Article 5182b, VTCS) requires chemical manufacturers and distributors to provide Material Safety Data Sheets (MSDSs) for hazardous materials sold. Products covered by this Act must be accompanied by a MSDS, and such products must be labeled in compliance with the law. For any product not covered under the Act, a statement of exemption must be provided.

3.3 Deliveries are accepted from Monday thru Friday from 8:00 a.m. to 5:00 p.m.

4. PROPOSALDER AFFIRMATION: BY SIGNATURE HEREON

4.1 Respondents affirms that it has not given or offered to give, and does not intend to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the submitted proposal. Failure to sign the proposal may, and signing it with a false statement shall, void the submitted proposal or any resulting contract and Respondent will be removed from all proposal lists.

4.2 Respondent affirms that no kinship, relationship, or affiliation exists between owners, officers, administrators and employees of the Respondent and the College which could be construed as a conflict of interest.

4.3 Respondent certifies that it is not currently delinquent in the payment of any franchise tax owed the State of Texas under Chapter 171, Texas Tax Code. Respondent acknowledges that making a false statement as to its corporate tax status is a material breach of any resulting contract.

4.4 Respondent certifies that neither the Respondent nor any firm, corporation, partnership or institution represented by Respondent or anyone acting for any such entity, has violated the antitrust laws of this State, (codified in Section 15.01 et seq., Texas Business and Commerce Code), or the Federal Antitrust Laws, or communicated directly or indirectly the proposal made to any competitor or any other person engaged in such line of business.

4.5 Respondent has not received compensation for participation in the preparation of the specifications for this Competitive Sealed Proposals.

4.6 Under Section 2155.004, Texas Government Code (re: collecting state and local sales and use taxes) Respondent certifies that the individual or entity named in its proposal is not ineligible to receive the specified contract, which may be terminated and/or payment withheld if certification is inaccurate.

4.7 Respondent agrees that any payments due under any resulting contract will be applied towards any debt, including but not limited to delinquent taxes and child support' that is owed to the State of Texas.

4.8 Respondent certifies, if awarded a contract, that Respondent shall defend, indemnity, and hold harmless the Board of Trustees of Texas Southmost College, and all of their respective officers, agents and employees from and against all claims, actions, suits, demands, proceedings costs, damages, and liabilities, arising out of, connected with, or resulting from any acts or omissions of Respondent, or any agent, employee, respondent or supplier of Respondent in the execution or performance of the contract.

Exhibit E

PURCHASE ORDER/CONTRACT
TERMS AND CONDITIONS

1. Except when issued to carry out a written agreement signed by Respondent and TSC, these Terms and Conditions constitute the entire agreement for the sale and purchase of the goods and/or services covered by this Purchase Order.

2. By acceptance of this Purchase Order, Respondent affirms that it has not given or offered to give, and does not intend to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with this Purchase Order. In addition, Respondent affirms that no kinship, relationship, or affiliation exists between owners, officers, administrators and employees of the der and the College which could be construed as a conflict of interest

3. The Respondent certifies that neither the Respondent nor any firm, corporation, partnership or institution represented by Vendor, or anyone acting for any such entity, has violated the antitrust laws of this State, (codified in Section 15.01 et seq., Texas Business and Commerce Code), or the Federal Antitrust Laws.

4. The Respondent agrees to protect, indemnify and hold harmless TSC from and against any claim, damage or liability arising out of or in connection with this Purchase Order, except to the extent that it is directly due to the negligent acts or omissions of any of the officers, employees or agents of TSC.

5. The Respondent certifies that it is not currently delinquent in the payment of any franchise tax owed the State of Texas under Chapter 171, Texas Tax Code

6. The Respondent warrants that it will comply with all federal, State of Texas, and local laws and ordinances and regulations as applicable to its performance under this Purchase Order, including, without limitation, the Fair Labor Standards Act of 1938 as amended, the Equal Employment Opportunity clauses prescribed by Executive Order 11246, as amended by Executive Order 11375, the Contract Work Hours and Safety Standards Act, the Americans with Disabilities Act of 1990 and Title VI of the Civil Rights Act of 1964 as amended.

7. The Respondent certifies that Public Liability Property Damage and Worker's Compensation Insurance will be carried for all personnel making deliveries to or performing services at College's premises.

SPECIFICATIONS

8. The Respondent warrants that the goods and/or services supplied to TSC will conform to the specifications, drawings or other referenced description upon which this Purchase order/contract is based. In the event of a conflict between the specifications, drawings and description, the specifications should govern.

9. All products shall be new, in first class condition, including containers suitable for shipment and storage, unless otherwise indicated. Verbal agreements to the contrary will not be recognized.

10. The Respondent warrants fault free performance in the processing of date and date related data (including, but not limited to, calculating, comparing and sequencing) by the product(s) identified on the Purchase Order. Fault free performance includes, but is not limited to, the manipulation of data with dates prior to through, and beyond January 1, 2000, and during leap years, and performance shall be transparent to the user.

DELIVERY

11. F.O.B Destination Freight prepaid unless delivery terms are specified otherwise in the quote/.

12. Deliveries are accepted from Monday thru Friday from 8:00 a.m. to 5:00 p.m. except during Holidays.

13. The place for delivery should be that set forth in the block of the Purchase order/contract entitled "Shipping Address".

14. Unless otherwise stated in this Purchase Order, title and risk of loss to the goods shall remain with the Respondent until the goods are delivered at the point or points specified in the Purchase Order.

15. The Texas Hazard Communication Act (Article 5182b, VTCS) requires chemical manufacturers and distributors to provide Material Safety Data Sheets (MSDSs) for hazardous materials sold. Products covered by this Act must be accompanied by a MSDS, and such products must be labeled in compliance with the law. For any product not covered under the Act, a statement of exemption must be provided.

PACKING AND RECEIVING

16. The Purchase order/contract number must appear on all invoices, packages, statements, and delivery tickets.

17. Respondent shall be responsible for industry standard packaging, which conforms to requirements of carrier tariffs and ICC regulations. Containers must be clearly marked as to lot number, destination, address and Purchase order/contract number.

INSPECTION

18. Unless otherwise specified in this Purchase Order, the goods shall be new and unused. Respondent warrants that it will deliver to TSC title to the goods free of all security interests, liens, charges, restrictions or encumbrances of any kind, nature or description and that the goods shall be free from defects in material and/or workmanship.

19. TSC shall have the right to inspect any and all goods upon receipt. TSC, by reason of its election to not inspect any goods immediately upon receipt, shall not be deemed to have accepted any defective goods or goods which do not conform to the specifications herein, or to have waived any of its rights or remedies arising by virtue of such defect or non-conformance.

INVOICING AND PAYMENT

20. College is exempt from State Sales Tax and Federal Excise Tax. Do not include in invoice. Tax Exemption Certificate furnished upon request.

21. Payment by TSC for goods and/or services provided by Respondent under this Purchase order/contract shall be subject to the provisions of Texas Government Code, Chapter 2251.

22. TSC shall tender payment within 30 days upon receipt of invoice. Invoices should be prepared and delivered after acceptance of goods and/or completion of services.

23. Price(s) quoted by Respondent's representative(s) shall not be changed after receipt of Purchase Order. For this purpose, such order shall be deemed to have been received on the date it is mailed or transmitted by electronic means such as electronic mail or facsimile.

24. Invoices should be submitted to the TSC authorized Accounts Payable representative as stated in the block of the Purchase order/contract entitled "Billing Address".

MODIFICATION AND CANCELLATION

25. Changes or substitutions in merchandise order will not be permitted, unless expressly assented to in writing. No modification of this Purchase order/contract shall be binding unless TSC agrees to the modification in writing.

26. TSC reserves the right to cancel this Purchase order/contract at any time upon written notice hereof.

27. However, this Purchase order/contract will automatically terminate upon occurrence of the following conditions unless specified in writing: a) incomplete order, where not all merchandise is received by TSC according to the specified delivery date; or b) outstanding orders that are not received on or before the end of the College's fiscal year (August 31st).

GOVERNING LAW

28. This Purchase order/contract shall be governed by the laws of the State of Texas and suits pertaining to this Purchase order/contract may be brought only in the courts of the State of Texas, with venue in Brownsville, Texas.

Exhibit F

Texas Southmost College is required to comply with TEX. LOCAL GOV'T CODE, Chapter 176, *Disclosure of Certain Relationships with Local Government Officers*. Any company that does business with ASC must fill out a Conflict of Interest Questionnaire (CIQ) whether or not a conflict of interest exists.

In no conflict of interest exist, please state "NONE" in section one, sign and submit.

CONFLICT OF INTEREST QUESTIONNAIRE **FORM CIQ**

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

_____
Name of Officer

4 **Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.**

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

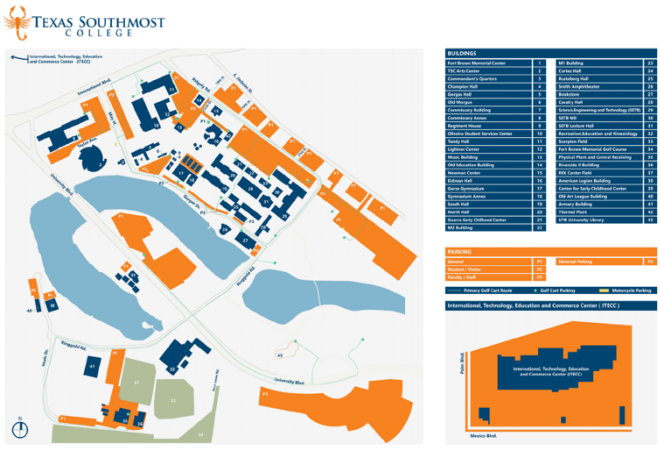
6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

_____ _____
Signature of vendor doing business with the governmental entity Date

Form provided by Texas Ethics Commission www.ethics.state.tx.us Revised 11/30/2015

Exhibit G
Campus Map



http://tsc.edu/index.php/mytsc/campus-map.html

Section 01 1000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
1. Work covered by the Contract Documents.
2. Type of the Contract.
3. Work under other contracts.
4. Use of premises.
5. Owner's occupancy requirements.
6. Work restrictions.
7. Specification formats and conventions.

B. Related Sections include the following:
1. Notice and Information for Proposers: Instructions for Proposal submittal; Notification of Pre-Proposal Conference; Locations for Drawings and Specifications Review; Proposing Procedures; and Award of Contract and Notice to Proceed Information.
2. Proposal Forms: Breakdown of Contract Price; Schedule for Completion; Addenda acknowledgment; Required Proposal Documents and Due Times and Dates.
3. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: Texas Southmost College.
1. Project Location(s):

Texas Southmost College
80 Fort Brown
Brownsville, Texas 78520

B. Owner: **Texas Southmost College,** 80 Fort Brown, Brownsville TX 78520

1. Owner's Representative: Raul A. Garza, Purchasing Specialist, Purchasing Office Tandy 207, 80 Fort Brown, Brownsville TX 78520, (956) 295-3438. Raul.garza@tsc.edu

C. Architect: **Amtech Solutions, Inc.**, 1600 N. Jackson Rd., Suite, 3, Pharr, TX 78577
1. Architect's Representative: Chris Garza, Associate AIA, (956) 686-3095.

D. The Work consists of the following:
1. The Work includes roof system replacement, overlays and repairs, as indicated, for designated portions of buildings at Texas Southmost College. Other work includes; thru-wall flashings at masonry walls and mechanical, plumbing and electrical work, skylight replacements and access and safety enhancements, as indicated in the Contract Documents.

1.4 WORK UNDER OTHER CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.

1.5 USE OF PREMISES

A. General: Each Contractor shall have limited use of premises for construction operations, including use of Project site, during construction period. Each Contractor's use of premises is limited only by Owner's occupancy and right to perform work or to retain other contractors on portions of Project.

B. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
   1. Limits: Confine constructions operations to building areas where work is indicated and immediately surrounding site areas, as agreed upon by Owner.
   2. Owner Occupancy: Owner does not intend to hold classes in building areas where work is indicated, however furnishings and equipment will remain in place. Allow for Owner access to entire Project site.
   3. Driveways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
      a. Schedule deliveries to minimize use of driveways and entrances.
      b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Use of Existing Building: Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

1.6 OWNER'S OCCUPANCY REQUIREMENTS

A. Full Owner Occupancy: Owner will occupy site and existing buildings during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits, unless otherwise indicated.
   1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
   2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

1.7 WORK RESTRICTIONS

A. On-Site Work Hours: Work shall be generally performed inside the existing building during normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, except otherwise indicated.
   1. Weekend Hours: No restrictions with Owner approval for interior access if required.
   2. Early Morning Hours: Comply with Owners ordinances.
   3. Hours for Utility Shutdowns: Only with Owner’s written permission.

B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
   1. Notify Architect and Owner not less than four days in advance of proposed utility interruptions.
   2. Do not proceed with utility interruptions without Owner's written permission.

C. Tobacco-Free Site: Tobacco products are not permitted anywhere on Owners Property.

1.8 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the 50-division format and CSI/CSC's "MasterFormat" numbering system.
   1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
   2. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
   1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
   2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
      a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 1000

SECTION 01 2100 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements governing allowances.
   1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.

B. Types of allowances include the following:
   1. Contingency allowances.
   2. Unit Price Work Allowances

C. Related Sections include the following:
   1. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders for allowances.
   2. Division 01 Section "Unit Prices" for procedures for using unit prices.
   3. Divisions 02 through 49 Sections for items of Work covered by allowances.

1.3 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by Architect from the designated supplier.

1.4 SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6 CONTINGENCY ALLOWANCE

A. Use the CONTINGENCY ALLOWANCE only as directed by Architect for Owner's purposes and only by Allowance Authorization or Change Orders that indicate amounts to be charged to the CONTINGENCY ALLOWANCE.

B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the CONTINGENCY ALLOWANCE are included in the allowance and are part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.

C. Allowance Authorization or Change Orders authorizing use of funds from the CONTINGENCY ALLOWANCE will include Contractor's related costs and reasonable overhead and profit margins.

D. At Project closeout, credit unused amounts remaining in the CONTINGENCY ALLOWANCE to Owner by Change Order.

1.7 ALLOWANCES

A. Contractor shall Maintain detailed records of work done under these Allowances, including photographs and size and location notations on Record Drawings. Submit full information for all Allowance work on a bi-weekly basis.

1. If installed quantities exceed Allowance amounts, all additional work shall be undertaken under a Unit Pricing basis.

2. If final installed quantities are less than Allowance amounts, at contract closeout, funds remaining will be credited to the owner by Change Order.

PART 2 - EXECUTION

2.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

2.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

2.3 SCHEDULE OF AMOUNT OF **CONTINGENCY ALLOWANCE**

A. **Contingency Allowance**: Include in Proposal Form, stipulated sum/prices as follows for use upon Owner's instruction: **$50,000.00**

B. Provide a Line Item in the Schedule of Values for the **Contingency Allowance**.

END OF SECTION 01 2100

SECTION 01 2200 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for unit prices.

B. Related Sections include the following:
   1. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

1.3 DEFINITIONS

A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to the Contract Sum or deducted from the Betterment Fund, Allowances or the Contract Sum by appropriate modification, as quantities of Work required by the Contract Documents are completed, increased or decreased.

1.4 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.

B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

A. Required Unit Prices are listed in the Proposal Form.

END OF SECTION 01 2200

SECTION 01 2500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Sections:
   1. Division 01 Section "Allowances" for products selected under an allowance.
   2. Division 01 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.
   3. Divisions 02 through 49 Sections for specific requirements and limitations for substitutions.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
   1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
   2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
   1. Substitution Request Form: Use facsimile of form provided in the Project Manual.
   2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
      a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
      b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
      c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
   a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
   b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Modify or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
   1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied,

Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Substitution request is fully documented and properly submitted.
c. Requested substitution will not adversely affect Contractor's construction schedule.
d. Requested substitution has received necessary approvals of authorities having jurisdiction.
e. Requested substitution is compatible with other portions of the Work.
f. Requested substitution has been coordinated with other portions of the Work.
g. Requested substitution provides specified warranty.
h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 15 days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
b. Requested substitution does not require extensive revisions to the Contract Documents.
c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Substitution request is fully documented and properly submitted.
e. Requested substitution will not adversely affect Contractor's construction schedule.
f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.
i. Requested substitution provides specified warranty.
j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 2500

SECTION 01 2600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. Related Sections include the following:
   1. Division 01 Section "Unit Prices" for administrative requirements for using unit prices.
   2. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.3 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.4 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
   1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
   2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
      a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
      b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
      c. Include costs of labor and supervision directly attributable to the change.
      d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 2600

SECTION 01 2900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Sections include the following:
   1. Division 01 Section "Allowances" for procedural requirements governing handling and processing of allowances.
   2. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
   3. Division 01 Section "Unit Prices" for administrative requirements governing use of unit prices.
   4. Division 01 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
   1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
      a. Application for Payment forms with Continuation Sheets.
      b. Submittals Schedule.
      c. Contractor's Construction Schedule.
   2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
   1. Identification: Include the following Project identification on the Schedule of Values:
      a. Project name and location.
      b. Name of Architect.
      c. Architect's project number.
      d. Contractor's name and address.
      e. Date of submittal.
   2. Submit draft of AIA Document G703 Continuation Sheets.

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
    a. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.
6. Contingency Allowances: Provide a separate line item in the Schedule of Values for each contingency allowance.
7. Complete each item in the Schedule of Values and Applications for Payment. Include total cost and proportionate share of general overhead and profit for each item.
    a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
8. Windstorm Certification: The cost of obtaining windstorm certification shall be included in the Base Bid and Alternate Bid Amounts and expressed as a line item in the Schedule of Values.
9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
    1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Times: Progress payments shall be submitted to Architect by the 25th of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.

D. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.

E. Payment Application Forms: Use forms provided by Owner for Applications for Payment. Sample copies are included at end of this Section.

F. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
    1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
    2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

G. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
   1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
   1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
   2. When an application shows completion of an item, submit final or full waivers.
   3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
   4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

I. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
   1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
   2. When an application shows completion of an item, submit final or full waivers.
   3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
   4. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
   5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

J. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
   1. List of subcontractors.
   2. Schedule of Values.
   3. Contractor's Construction Schedule (preliminary if not final).
   4. Products list.
   5. List of Contractor's staff assignments.
   6. Copies of building permits.
   7. Initial progress report.
   8. Report of preconstruction conference.
   9. Certificates of insurance and insurance policies.
   10. Performance and payment bonds.
   11. Data needed to acquire Owner's insurance.
   12. Initial settlement survey and damage report if required.

K. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
   1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

L. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
   1. Evidence of completion of Project closeout requirements.
   2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
   3. Updated final statement, accounting for final changes to the Contract Sum.
   4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
   5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
   6. AIA Document G707, "Consent of Surety to Final Payment."
   7. Evidence that claims have been settled.
   8. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 2900

SECTION 01 3100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
   1. Administrative and supervisory personnel.
   2. Project meetings.
   3. Requests for Interpretation (RFIs).

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.

C. Related Sections include the following:
   1. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
   2. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
   3. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.4 COORDINATION

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
   1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
   1. Preparation of Contractor's Construction Schedule.
   2. Preparation of the Schedule of Values.
   3. Installation and removal of temporary facilities and controls.
   4. Delivery and processing of submittals.
   5. Progress meetings.

6. Preinstallation conferences.
7. Project closeout activities.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.5 SUBMITTALS

A. Key Personnel Names: Within 7 days of Notice from Owner of Intent to Award Contract, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.6 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.

1.7 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.

B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 7 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:
a. Tentative construction schedule.
b. Critical work sequencing and long-lead items.
c. Designation of key personnel and their duties.
d. Procedures for processing field decisions and Change Orders.
e. Procedures for RFIs.
f. Procedures for testing and inspecting.
g. Procedures for processing Applications for Payment.
h. Distribution of the Contract Documents.
i. Submittal procedures.

j. Preparation of Record Documents.
k. Use of the premises and existing building.
l. Work restrictions.
m. Owner's occupancy requirements.
n. Responsibility for temporary facilities and controls.
o. Construction waste management and recycling.
p. Parking availability.
q. Office, work, and storage areas.
r. Equipment deliveries and priorities.
s. First aid.
t. Security.
u. Progress cleaning.
v. Working hours.

3. Minutes: Architect will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
   a. The Contract Documents.
   b. Related RFIs.
   c. Related Change Orders.
   d. Purchases.
   e. Deliveries.
   f. Submittals.
   g. Possible conflicts.
   h. Compatibility problems.
   i. Time schedules.
   j. Weather limitations.
   k. Manufacturer's written recommendations.
   l. Warranty requirements.
   m. Compatibility of materials.
   n. Acceptability of substrates.
   o. Temporary facilities and controls.
   p. Space and access limitations.
   q. Regulations of authorities having jurisdiction.
   r. Testing and inspecting requirements.
   s. Installation procedures.
   t. Coordination with other work.
   u. Required performance results.
   v. Protection of adjacent work.
   w. Protection of construction and personnel.
3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

1.8 REQUESTS FOR INTERPRETATION (RFIs)

A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.
   1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
   2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
   1. Project name.
   2. Date.
   3. Name of Contractor.
   4. Name of Architect.
   5. RFI number, numbered sequentially.
   6. Specification Section number and title and related paragraphs, as appropriate.
   7. Drawing number and detail references, as appropriate.
   8. Field dimensions and conditions, as appropriate.
   9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
   10. Contractor's signature.
   11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
      a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.

C. Hard-Copy RFIs: CSI Form 13.2A.
   1. Identify each page of attachments with the RFI number and sequential page number.

D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.
   1. Attachments shall be electronic files in Adobe Acrobat PDF format.

E. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow three working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
   1. The following RFIs will be returned without action:
      a. Requests for approval of submittals.
      b. Requests for approval of substitutions.
      c. Requests for coordination information already indicated in the Contract Documents.
      d. Requests for adjustments in the Contract Time or the Contract Sum.
      e. Requests for interpretation of Architect's actions on submittals.
      f. Incomplete RFIs or RFIs with numerous errors.
   2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.

3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
    a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 5 days of receipt of the RFI response.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within three days if Contractor disagrees with response.

G. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log monthly. Use CSI Log Form 13.2B or Software log with not less than the following:
1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 3100

SECTION 01 3200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
   1. Contractor's Construction Schedule.
   2. Daily construction reports.
   3. Field condition reports.
   4. Special reports.

B. Related Sections include the following:
   1. Division 01 Section "Payment Procedures" for submitting the Schedule of Values.
   2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
   3. Division 01 Section "Photographic Documentation" for submitting construction photographs.
   4. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
   5. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
   1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
   2. Predecessor Activity: An activity that precedes another activity in the network.
   3. Successor Activity: An activity that follows another activity in the network.

B. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

C. Event: The starting or ending point of an activity.

D. Major Area: A story of construction, a separate building, or a similar significant construction element.

E. Milestone: A key or critical point in time for reference or measurement.

F. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 SUBMITTALS

A. Contractor's Construction Schedule: Submit three opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

B. Daily Construction Reports: Submit three copies at weekly intervals.

C. Field Condition Reports: Submit three copies at time of discovery of differing conditions.

D. Special Reports: Submit three copies at time of unusual event.

1.5 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
   1. Secure time commitments for performing critical elements of the Work from parties involved.
   2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."

B. Time Frame: Extend schedule from date established for the Notice of Award to date of Final Completion.
   1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
   1. Activity Duration: Define activities so no activity is longer than 5 days, unless specifically allowed by Architect.
   2. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
   3. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
   1. Work Restrictions: Show the effect of the following items on the schedule:
      a. Coordination with existing construction.
      b. Limitations of continued occupancies.
      c. Uninterruptible services.
      d. Use of premises restrictions.
      e. Seasonal variations.
      f. Environmental control.

E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.

F. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

G. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within 15 days of date established for the Notice of Award. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
1. For construction activities that require 3 months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

2.3 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events (refer to special reports).
10. Stoppages, delays, shortages, and losses.
11. Emergency procedures.
12. Orders and requests of authorities having jurisdiction.
13. Change Orders received and implemented.
14. Construction Change Directives received and implemented.
15. Services connected and disconnected.
16. Substantial Completions authorized.

B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation on CSI Form 13.2A. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.4 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule with Application for Payment.

B. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 3200

SECTION 01 3233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for the following:
   1. Preconstruction photographs.
   2. Periodic construction photographs.

B. Related Sections include the following:
   1. Division 01 Section "Submittal Procedures" for submitting photographic documentation.
   2. Division 01 Section "Closeout Procedures" for submitting digital media as Project Record Documents at Project closeout.

1.3 SUBMITTALS

A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph and videotape. Indicate elevation or story of construction. Include same label information as corresponding set of photographs and videotape.

B. Construction Photographs: Submit two prints of each photographic view within seven days of taking photographs.
   1. Format: 8-by-10-inch smooth-surface matte prints on single-weight commercial-grade photographic paper, enclosed back to back in clear plastic sleeves that are punched for standard 3-ring binder.
   2. Identification: On back of each print, provide an applied label or rubber-stamped impression with the following information:
      a. Name of Project.
      b. Name of Architect.
      c. Name of Contractor.
      d. Date photograph was taken if not date stamped by camera.
      e. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
      f. Unique sequential identifier.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in uncompressed TIFF format, produced by a digital camera with minimum sensor size of 4.0 megapixels, and at an image resolution of not less than 1024 by 768 pixels.

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
   1. Maintain key plan with each set of construction photographs that identifies each photographic location.

B. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
   1. Date and Time: Include date and time in filename for each image.
   2. Field Office Images: Maintain one set of images on CD-ROM in the field office at Project site, available at all times for reference. Identify images same as for those submitted to Architect.

C. Preconstruction Photographs: Before starting construction, take, digital photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect.
   1. Take photographs to show existing conditions adjacent to property before starting the Work.
   2. Take photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
   3. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

D. Periodic Construction Photographs: Take digital photographs weekly, with timing each month adjusted to coincide with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.

E. Additional Photographs: Architect may issue requests for additional photographs, in addition to periodic photographs specified. Additional photographs will be paid for by Change Order and are not included in the Contract Sum.
   1. Three days' notice will be given, where feasible.
   2. In emergency situations, take additional photographs within 24 hours of request.
   3. Circumstances that could require additional photographs include, but are not limited to, the following:
      a. Special events planned at Project site.
      b. Immediate follow-up when on-site events result in construction damage or losses.
      c. Photographs to be taken at fabrication locations away from Project site. These photographs are not subject to unit prices or unit-cost allowances.
      d. Substantial Completion of a major phase or component of the Work.
      e. Extra record photographs at time of final acceptance.
      f. Owner's request for special publicity photographs.

END OF SECTION 01 3233

SECTION 01 3300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals, including the following:
   a. Manufacturers' Instructions.
   b. Alteration Procedures.

B. Related Sections include the following:
   1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
   2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
   3. Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
   4. Division 01 Section "Photographic Documentation" for submitting construction photographs and construction videotapes.
   5. Division 01 Section "Quality Requirements" for submitting test and inspection reports.
   6. Division 01 Section "Closeout Procedures" for submitting warranties.
   7. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
   8. Divisions 02 through 49 Sections for specific requirements for submittals in those Sections.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect’s responsive action.

B. Informational Submittals: Written information that does not require Architect’s responsive action. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

A. General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.

D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 7 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 7 days for review of each resubmittal.

E. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Include the following information on label for processing and recording action taken:
    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name and address of Contractor.
    e. Name and address of subcontractor.
    f. Name and address of supplier.
    g. Name of manufacturer.
    h. Submittal number or other unique identifier, including revision identifier.
        1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06 1000.01.A).
    i. Number and title of appropriate Specification Section.
    j. Drawing number and detail references, as appropriate.
    k. Location(s) where product is to be installed, as appropriate.
    l. Other necessary identification.

F. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

G. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
1. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.

H. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will discard submittals received from sources other than Contractor.
   1. Transmittal Form: Use AIA Document G810 or CSI Form 12.1A.
   2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.

I. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
   1. Note date and content of previous submittal.
   2. Note date and content of revision in label or title block and clearly indicate extent of revision.
   1. Resubmit submittals until they are marked "Approved" or "Approved as Corrected."

J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

K. Use for Construction: Use only final submittals with mark indicating "Approved" or "Approved as Corrected" taken by Architect.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

B. Product List: Prepare list of products that Contractor intends to utilize for Project, based on Part 2 for each Specification Section. List by paragraph and subparagraph number every Product included in Part 2 of each Section. For Product not required for the Work, indicate "Not Applicable" or "N/A" to indicate Contractor believes Product is not required to comply with Contract Documents and manufacturer's written installation instructions.
   1. Architect may accept a complete Product List based on specified Products as a replacement for Product Data.

C. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
   1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
   2. Mark each copy of each submittal to show which products and options are applicable.
   3. Include the following information, as applicable:
      a. Manufacturer's written recommendations.
      b. Manufacturer's product specifications.
      c. Manufacturer's installation instructions.
      d. Standard color charts.
      e. Manufacturer's catalog cuts.
      f. Mill reports.
      g. Standard product operation and maintenance manuals.

h. Compliance with specified referenced standards.
i. Testing by recognized testing agency.
j. Application of testing agency labels and seals.
k. Notation of coordination requirements.

4. Submit Product Data before or concurrent with Samples.
5. Number of Copies: Submit five copies of Product Data, unless otherwise indicated. Architect will return two copies. Mark up and retain one returned copy as a Project Record Document.

D. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
a. Dimensions.
b. Identification of products.
c. Fabrication and installation drawings.
d. Roughing-in and setting diagrams.
e. Shopwork manufacturing instructions.
f. Templates and patterns.
g. Schedules.
h. Design calculations.
i. Compliance with specified standards.
j. Notation of coordination requirements.
k. Notation of dimensions established by field measurement.
l. Relationship to adjoining construction clearly indicated.
m. Seal and signature of professional engineer if specified.
2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
3. Number of Copies: Submit three opaque copies of each submittal, unless copies are required for operation and maintenance manuals. Submit five copies where copies are required for operation and maintenance manuals. Architect will retain three copies; remainder will be returned. Mark up and retain one returned copy as a Project Record Drawing.

E. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:
a. Generic description of Sample.
b. Product name and name of manufacturer.
c. Sample source.
d. Number and title of appropriate Specification Section.
3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
a. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    a. Number of Samples: Submit three full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
    a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.
        1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
        2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

F. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."

G. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

H. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use CSI Form 1.5A. Include the following information in tabular form:
1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.
4. Number of Copies: Submit five copies of subcontractor list, unless otherwise indicated. Architect will return two copies.
    a. Mark up and retain one returned copy as a Project Record Document.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.
1. Number of Copies: Submit three copies of each submittal, unless otherwise indicated. Architect will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."

B. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

D. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

F. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

G. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

I. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

J. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

K. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
   1. Name of evaluation organization.
   2. Date of evaluation.
   3. Time period when report is in effect.
   4. Product and manufacturers' names.
   5. Description of product.
   6. Test procedures and results.
   7. Limitations of use.

L. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

M. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

N. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

O. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
1. Preparation of substrates.
2. Required substrate tolerances.
3. Sequence of installation or erection.
4. Required installation tolerances.
5. Required adjustments.
6. Recommendations for cleaning and protection.

P. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

Q. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

R. Construction Photographs and Videotapes: Comply with requirements specified in Division 01 Section "Photographic Documentation."

S. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect.

2.3 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit five copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
   1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S / ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
   1. "Approved": Fabrication / installation may be undertaken. Approval does not authorize changes to Contract Sum or Contract Time.
   2. "Approved as Corrected": Fabrication / installation may be undertaken by including notations and corrections indicated. Approval does not authorize changes to Contract Sum or Contract Time.
   3. "Revise and Resubmit": Fabrication and / or installation MAY NOT be undertaken. In resubmitting, limit corrections to items marked.
   4. "Rejected": Fabrication and / or installation MAY NOT be undertaken. In resubmitting, limit corrections to items marked.

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 01 3300

SECTION 01 4000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
   1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
   2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
   3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

C. Related Sections include the following:
   1. Division 01 Section "Construction Progress Documentation" for developing a schedule of required tests and inspections.
   2. Division 01 Section "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
   3. Divisions 02 through 49 Sections for specific test and inspection requirements.

1.3 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

C. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

D. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

E. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

F. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

G. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
   1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.

H. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 SUBMITTALS

A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Reports: Prepare and submit certified written reports that include the following:
   1. Date of issue.
   2. Project title and number.
   3. Name, address, and telephone number of testing agency.
   4. Dates and locations of samples and tests or inspections.
   5. Names of individuals making tests and inspections.
   6. Description of the Work and test and inspection method.
   7. Identification of product and Specification Section.
   8. Complete test or inspection data.
   9. Test and inspection results and an interpretation of test results.
   10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
   11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
   12. Name and signature of laboratory inspector.
   13. Recommendations on retesting and reinspecting.

C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

F. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
   1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
   2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

G. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

H. Windstorm Certification: The Roof System and all rooftop equipment, accessories and appurtenances shall be installed, or otherwise secured in a manner to resist wind pressures as calculated by ASCE-7. All necessary requirements for Compliance with Windstorm Certification (as per the Texas Department of Insurance) shall be provided by the Roofing Contractor and the cost of obtaining windstorm certification shall be included in the Base Bid and Alternate Bid Amounts.

1.7 QUALITY CONTROL

A. Contractor Responsibilities: When specified in individual sections, restrict execution of specified Work to Applicators and Personnel meeting indicated qualifications.

1. Install all roofing materials using personnel directly employed by Roofing Contractor with NDL certification from roofing material manufacturer - no Sub-Contracting permitted.
2. Assign a qualified, full time, non-working supervisor to be on Project site at all times during installation of Work. This supervisor to have good communication skills and be able to communicate with School staff and Applicator's workers.
3. 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. Inspection to be verified by signature on a Form signifying installation is in accordance with specified requirements.

B. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

C. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
   a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

D. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."

E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

F. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Prepare a record of tests and inspections. Include the following:
1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
2. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 4000

SECTION 01 4200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes:
   1. Schedule of references.
   2. Definitions of terms commonly used in Contract Documents.
   3. Applicability of Industry Standards and abbreviations and acronyms for Standards and Regulations.
   4. Abbreviations and acronyms for Industry Organizations, Code Agencies, Federal and State Governmental Agencies.

B. Related Sections include:
   1. Division 01 Section “Quality Requirements” for procedures for applying standards.
   2. Divisions 02 through 49 Sections for specific Reference Standards that apply to Work in those Sections.

1.3 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.4 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
   1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.5 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association, Inc. (The) www.aluminum.org	(703) 358-2960
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
ACI	ACI International (American Concrete Institute) www.aci-int.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AGC	Associated General Contractors of America (The) www.agc.org	(703) 548-3118
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.aia.org	(800) 242-3837 (202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400

AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
ALSC	American Lumber Standard Committee, Incorporated www.alsc.org	(301) 972-1700
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
ARMA	Asphalt Roofing Manufacturers Association www.asphaltroofing.org	(202) 207-0917
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)	
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (The American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (973) 882-1170
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9585
AWPA	American Wood-Preservers' Association www.awpa.com	(205) 733-4077
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583
CRRC	Cool Roof Rating Council www.coolroofs.org	(866) 465-2523 (510) 485-7175

CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
EIMA	EIFS Industry Members Association www.eima.com	(800) 294-3462 (770) 968-7945
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
FM Approvals	FM Approvals www.fmglobal.com	(781) 762-4300
FM Global	FM Global (Formerly: FMG - FM Global) www.fmglobal.com	(401) 275-3000
FMRC	Factory Mutual Research (Now FM Global)	
GA	Gypsum Association www.gypsum.org	(202) 289-5440
GANA	Glass Association of North America www.glasswebsite.com	(785) 271-0208
GRI	(Now GSI)	
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)	
ICRI	International Concrete Repair Institute, Inc. www.icri.org	(847) 827-0830
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MHIA	Material Handling Industry of America www.mhia.org	(800) 345-1815 (704) 676-1190
MPI	Master Painters Institute www.paintinfo.com	(888) 674-8937
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc. www.mss-hq.com	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(312) 332-0405
NAIMA	North American Insulation Manufacturers Association www.naima.org	(703) 684-0084

NCMA	National Concrete Masonry Association www.ncma.org	(703) 713-1900
NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NeLMA	Northeastern Lumber Manufacturers' Association www.nelma.org	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NFPA	NFPA (National Fire Protection Association) www.nfpa.org	(800) 344-3555 (617) 770-3000
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(800) 933-0318 (901) 377-1818
NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
PDCA	Painting & Decorating Contractors of America www.pdca.com	(800) 332-7322 (314) 514-7322
PDI	Plumbing & Drainage Institute www.pdionline.org	(800) 589-8956 (978) 557-0720
SDI	Steel Deck Institute www.sdi.org	(847) 458-4647
SDI	Steel Door Institute www.steeldoor.org	(440) 899-0010
SJI	Steel Joist Institute www.steeljoist.org	(843) 626-1995
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SPIB	Southern Pine Inspection Bureau (The) www.spib.org	(850) 434-2611
SPRI	Single Ply Roofing Industry www.spri.org	(781) 647-7026

TMS	The Masonry Society www.masonrysociety.org	(303) 939-9700
UL	Underwriters Laboratories Inc. www.ul.com	(877) 854-3577 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902
WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ICC	International Code Council www.iccsafe.org	(888) 422-7233 (703) 931-4533
ICC-ES	ICC Evaluation Service, Inc. www.icc-es.org	(800) 423-6587 (562) 699-0543

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CPSC	Consumer Product Safety Commission www.cpsc.gov	(800) 638-2772 (301) 504-7923
DOE	Department of Energy www.energy.gov	(202) 586-9220
EPA	Environmental Protection Agency www.epa.gov	(202) 272-0167
GSA	General Services Administration www.gsa.gov	(800) 488-3111
NIST	National Institute of Standards and Technology www.nist.gov	(301) 975-6478
OSHA	Occupational Safety & Health Administration www.osha.gov	(800) 321-6742 (202) 693-1999
PHS	Office of Public Health and Science www.osophs.dhhs.gov/ophs	(202) 690-7694

USPS	Postal Service www.usps.com	(202) 268-2000

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080
CFR	Code of Federal Regulations Available from Government Printing Office www.gpoaccess.gov/cfr/index.html	(866) 512-1800 (202) 512-1800
FED-STD	Federal Standard (See FS)	
FS	Federal Specification Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664
	Available from Defense Standardization Program www.dps.dla.mil	
	Available from General Services Administration www.gsa.gov	(202) 619-8925
	Available from National Institute of Building Sciences www.wbdg.org/ccb	(202) 289-7800
FTMS	Federal Test Method Standard (See FS)	
MILSPEC	Military Specification and Standards Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664
UFAS	Uniform Federal Accessibility Standards Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 4200

SECTION 01 5000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Sections include the following:
1. Division 01 Section "Summary" for limitations on utility interruptions and other work restrictions.
2. Division 01 Section "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
3. Division 01 Section "Execution" for progress cleaning requirements.

1.3 USE CHARGES

A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.

B. Water Service: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

C. Electric Power Service: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.4 SUBMITTALS

A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

1.5 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.6 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top rails.

B. Portable Chain-Link Fencing: Minimum 2-inch, 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide concrete or galvanized steel bases for supporting posts.

C. Lumber and Plywood: Comply with requirements in Division 06 Section "Roofing Carpentry."

2.2 TEMPORARY FACILITIES

A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
   1. Store combustible materials apart from building.

2.3 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.
   1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Water Service: Use of Owner's existing water service facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
   1. Where installations below an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize water damage. Drain accumulated water promptly from pans.

C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

D. Electric Power Service: Use of Owner's existing electric power service will be permitted, as long as equipment is maintained in a condition acceptable to Owner.

E. Telephone Service: Provide temporary or cellular telephone service accessible for use by all construction personnel. Install one telephone line(s) for each field office.
   1. At each telephone, provide a list of important telephone numbers.
      a. Police and fire departments.
      b. Ambulance service.
      c. Contractor's home office.
      d. Architect's office.
      e. Engineers' offices.
      f. Owner's office.
      g. Principal subcontractors' field and home offices.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:
   1. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines. Comply with NFPA 241.
   2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Parking: Arrange with Owner for temporary parking areas for construction personnel.
   1. Restrict Contractors' personnel to assigned areas.
   2. When site space is not adequate, provide additional off-site parking.

C. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Division 01 Section "Execution" for progress cleaning requirements.

D. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
   1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
   1. Comply with work restrictions specified in Division 01 Section "Summary."

B. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

C. Equipment Enclosure Fence: Before construction operations begin, furnish and install enclosure fence around operating equipment in a manner that will prevent people and animals from easily entering area except by entrance gates.
   1. Extent of Fence: As required to enclose operating equipment and staging areas or as determined sufficient to accommodate construction operations.

D. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

E. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
   1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
   1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
   2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 01 5000

SECTION 01 6000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

B. Related Sections include the following:
   1. Document 00 2000 “Instructions to Bidders” for Product options and substitution procedures during Bidding.
   2. Division 01 Section "Alternates" for products selected under an alternate.
   3. Division 01 Section "References" for applicable industry standards for products specified.
   4. Division 01 Section "Substitution Request Form" to submit Substitution Requests.
   5. Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.
   6. Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.3 DEFINITIONS

A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
   1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
   2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
   3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.4 SUBMITTALS

A. Product List: Submit a list in tabular form, showing Contractor's selections from specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
   1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
   2. Form: Tabulate information for each product under the following column headings:
      a. Specification Section number and title.
      b. Generic name used in the Contract Documents.
      c. Proprietary name, model number, and similar designations.
      d. Manufacturer's name and address.
      e. Supplier's name and address.
      f. Installer's name and address.
      g. Projected delivery date or time span of delivery period.
      h. Identification of items that require early submittal approval for scheduled delivery date.
   3. Completed List: Within 10 days after date of Notice to Proceed, submit 3 copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
   4. Architect's Action: Architect will respond in writing to Contractor within 5 days of receipt of completed product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response, or lack of response, does not constitute a waiver of requirement to comply with the Contract Documents.

B. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
   1. Substitution Request Form: Facsimile of Division 01 Section "Substitution Request Form" provided at end of Section.
   2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
      a. Statement indicating why specified material or product cannot be provided.
      b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
      c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
      d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
      e. Samples, where applicable or requested.
      f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
      g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
      h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.

i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.

j. Cost information, including a proposal of change, if any, in the Contract Sum.

k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.

l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 10 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

a. Form of Acceptance: Signed Division 01 Section “Substitution Request Form”.

b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.

C. Comparable Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 10 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."

b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.

D. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.

2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

B. Delivery and Handling:
   1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
   2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
   3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
   4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

C. Storage:
   1. Store products to allow for inspection and measurement of quantity or counting of units.
   2. Store materials in a manner that will not endanger Project structure.
   3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
   4. Store cementitious products and materials on elevated platforms.
   5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
   6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
   7. Protect stored products from damage and liquids from freezing.
   8. For exterior storage of fabricated Products, place on sloped supports, above ground.
   9. Periodically inspect to assure Products are undamaged and are maintained under specified conditions.
   10. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
   1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
   2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
   1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
   2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
   3. Refer to Divisions 02 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
   1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
   2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
   3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
   4. Where products are accompanied by the term "as selected," Architect will make selection.
   5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
   6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.

B. Product Selection Procedures:
   1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
   2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
   3. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
   4. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
   5. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
   6. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.
      a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
      b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT SUBSTITUTIONS

A. Timing: Architect will consider requests for substitution if received within 10 days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Architect.

B. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
2. Requested substitution does not require extensive revisions to the Contract Documents.
3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
4. Substitution request is fully documented and properly submitted.
5. Requested substitution will not adversely affect Contractor's Construction Schedule.
6. Requested substitution has received necessary approvals of authorities having jurisdiction.
7. Requested substitution is compatible with other portions of the Work.
8. Requested substitution has been coordinated with other portions of the Work.
9. Requested substitution provides specified warranty.
10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

2.3 COMPARABLE PRODUCTS

A. Conditions: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 6000

SECTION 01 6100 - SUBSTITUTION REQUEST FORM

TO: **AMTECH SOLUTIONS, INC.** DATE:

PROJECT: **TEXAS SOUTHMOST COLLEGE CAMPUS SELECTIVE ROOF REPLACEMENT & REPAIRS**

This Proposed Substitution is hereby submitted for consideration for the Specified Product listed below.

Section Paragraph Specified Product

Proposed Substitution:

Provide complete technical information on Proposed Substitution, including laboratory tests, if applicable. Include complete information on changes to the Work required for proper installation of proposed Product, including revisions to Contract Documents; effect on other Sections or other Trades. Provide specific information on manufacturer, model, accessories, options, etc.

❑ Information Attached ❑ No Changes Required

Does proposed substitution affect dimensions shown on Contract Drawings in any way?

Primary effect(s) on other Trades?

Primary difference(s) between Proposed Substitution and Specified Product (if none, state none):

Location and source for service and parts for Proposed Substitution:

Contract Time will be:

❑ Increased ❑ Decreased ❑ Unchanged

By: Days

Contract Sum will be:

❑ Increased ❑ Decreased ❑ Unchanged

By: $ (Amount)

Reason for substitution:

The undersigned Contractor (Design/Builder) has reviewed fully this Proposed Substitution, including its impact on the Work, and certifies it matches or exceeds the performance, durability, appearance, size and other characteristics of the Specified Product. The Contractor (Design/Builder) further agrees to execute all work required to properly install the Proposed Substitution in accordance with the Contract Documents.

SUBMITTED:	APPROVED:	ACCEPTED:
	Amtech Solutions, Inc.	**Texas Southmost College**
CONTRACTOR	Architect	OWNER
	1600 N. Jackson Rd, Suite 3	80 Fort Brown
	Pharr, TX 78577	Brownsville, TX 78520
ADDRESS	ADDRESS	ADDRESS
SIGNATURE	SIGNATURE:	SIGNATURE
PRINTED NAME AND TITLE	PRINTED NAME AND TITLE	PRINTED NAME AND TITLE
DATE	DATE	DATE

END OF DOCUMENT 01 6100

SECTION 01 7300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
   1. General installation of products.
   2. Progress cleaning.
   3. Protection of installed construction.
   4. Correction of the Work.

B. Related Sections include the following:
   1. Division 01 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
   2. Division 01 Section "Submittal Procedures" for submitting surveys.
   3. Division 01 Section "Cutting and Patching" for procedural requirements for cutting and patching necessary for the installation or performance of other components of the Work.
   4. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
   1. Before construction, verify the location and points of connection of utility services.

B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
   1. Before construction, verify the location and points of connection of utility services.
   2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
   a. Description of the Work.
   b. List of detrimental conditions, including substrates.
   c. List of unacceptable installation tolerances.
   d. Recommended corrections.
2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents. Submit requests on CSI Form 13.2A, "Request for Interpretation."

3.3 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
   1. Make vertical work plumb and make horizontal work level.
   2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
   3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
   1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
   2. Allow for building movement, including thermal expansion and contraction.
   3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.4 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
   1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
   2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
   3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
   1. Remove liquid spills promptly.
   2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.6 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."
   1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 01 7300

SECTION 01 7329 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes procedural requirements for cutting and patching.

B. Related Sections include the following:
1. Divisions 02 through 49 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 SUBMITTALS

A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 5 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
3. Products: List products to be used and firms or entities that will perform the Work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.
6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.5 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
   1. Fire-suppression systems.
   2. Mechanical systems piping and ducts.
   3. Control systems.
   4. Communication systems.
   5. Electrical wiring systems.

C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Miscellaneous elements include the following:
   1. Exterior curtain-wall construction.
   2. Equipment supports.
   3. Piping, ductwork, vessels, and equipment.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
   1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
   1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
   2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

3.3 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
   1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
   1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
   2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
   3. Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
   4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
   5. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
   1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
   2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
      a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
      b. Restore damaged pipe covering to its original condition.
   3. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
   4. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 01 7329

SECTION 01 7700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
   1. Inspection procedures.
   2. Warranties.
   3. Final cleaning.

B. Related Sections include the following:
   1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
   2. Division 01 Section "Photographic Documentation" for submitting Final Completion construction photographs and negatives.
   3. Division 01 Section "Execution" for progress cleaning of Project site.
   4. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
   5. Divisions 02 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
   1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
   2. Advise Owner of pending insurance changeover requirements.
   3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
   4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
   5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
   6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
   7. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
   8. Complete final cleaning requirements, including touchup painting.
   9. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
   1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
   2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
   1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
   2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
   3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
   1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Use CSI Form 14.1A.
   1. Include the following information at the top of each page:
      a. Project name.
      b. Date.
      c. Name of Architect.
      d. Name of Contractor.
      e. Page number.

1.6 WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
   1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.

2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Include Warranties in “PROJECT CLOSEOUT DOCUMENTS” binder.
4. Identify each binder on the front and spine with the typed or printed title "PROJECT CLOSEOUT DOUUMENTS," Project name, and name of Contractor.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

2.2 CLOSEOUT DOCUMENTS

A. Prepare all data in the form of an informational manual.

B. Submittal Time: Submit Closeout Documents for all portions of the Work with Final Completion documentation.

C. Organize Closeout Documents into an orderly sequence based on the table of contents of the Project Manual.
1. Binders: Bind documents in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Dividers: Provide heavy paper dividers with plastic-covered tabs for each separate Part. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Covers: Identify each binder with typed or printed titles, “PROJECT CLOSEOUT DOCUMENTS”, list title of Project; identify subject matter of contents.
4. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified.
5. Arrangement: Internally subdivide binder contents into logically organized parts as described below.
    a. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Contractor, Subcontractors, and major equipment suppliers.
    b. Part 2: Items Required by Document 00 0700 “General Conditions” including:
        1) Certificate of Substantial Completion.
        2) Contractor’s Affidavit of Payment of Debts and Claims (*AIA Document G706).*
        3) Contractor’s Affidavit of Release of Liens (*AIA Document G706A).*
        4) Release of Lien from all Subcontractors.
        5) Release of Lien from all Suppliers.
        6) Certificate of Liability Insurance (ACORD 25-S 1/95).
        7) Consent of Surety.
    c. Part 3: Project documents and certificates, including the following:
        1) Declaration, Certificates and other submittals listed above.

2) Original and photocopies of Contractor's and Manufacturers' warranties.
3) Shop drawings and product data.

d. Part 4 (if required): Operation and maintenance instructions arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
1) Significant design criteria.
2) List of equipment.
3) Parts list for each component.
4) Operating instructions.
5) Maintenance instructions for equipment and systems.
6) Maintenance instructions for finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.

6. Text: Manufacturer's printed data or typewritten data on 20-pound white paper.
7. Drawings: Provide with reinforced punched binder tab. Bind in with text; folded to size of text.

D. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of manual assembly. Architect will review draft and return one copy with comments.

2.3 OPERATION AND MAINTENANCE DATA

A. Prepare data in the form of an instructional manual. Include in "PROJECT CLOSEOUT DOCUMENTS" binder if possible.

B. Submit two copies of completed volumes in final form 10 days prior to final inspection. This copy will be returned after final inspection, with Owner comments. Revise content of documents as required prior to final submittal.

C. Submit three final volumes revised, within ten days after final inspection.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
f. Remove labels that are not permanent.
g. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
    1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
h. Leave Project clean and ready for occupancy.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

3.2 POST CONSTRUCTION INSPECTION

A. Inspection: Architect will submit a request for Contractor to participate in an inspection prior to expiration of Contractor's Two-Year Warranty period. Contractor may inspect separately and remedy any deficiencies not acceptable to manufacturer's Warranty requirements and terms. Architect may proceed with inspection alone and notify Contractor of deficiencies that need to be resolved prior to release from Contractor Warranty. Architect will prepare a notice of acceptance after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before release from Contractor Warranty will be issued.
    1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
    2. Results of completed inspection will form the basis for release from Contractor Warranty.

END OF SECTION 01 7700

SECTION 01 7839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
   1. Record Drawings.
   2. Record Specifications.
   3. Record Product Data.

B. Related Sections include the following:
   1. Division 01 Section "Closeout Procedures" for general closeout procedures.
   2. Divisions 02 through 49 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.3 SUBMITTALS

A. Record Drawings: Comply with the following:
   1. Number of Copies: Submit one set(s) of marked-up Record Prints.

B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit one copy of each Product Data submittal.
   1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
   1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
      a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
      b. Accurately record information in an understandable drawing technique.
      c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
   2. Content: Types of items requiring marking include, but are not limited to, the following:
      a. Dimensional changes to Drawings.
      b. Revisions to details shown on Drawings.
      c. Revisions to routing of piping and conduits.

d. Revisions to electrical circuitry.
e. Actual equipment locations.
f. Locations of concealed internal utilities.
g. Changes made by Change Order or Construction Change Directive.
h. Changes made following Architect's written orders.
i. Details not on the original Contract Drawings.
j. Field records for variable and concealed conditions.
k. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Identification: As follows:
a. Project name.
b. Date.
c. Designation "PROJECT RECORD DRAWINGS."
d. Name of Architect.
e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION 01 7839

SECTION 01 7850 - APPLICATOR WARRANTY

WHEREAS _____

[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE]

OF (ADDRESS): _____

HEREIN CALLED THE "CONTRACTOR", HAS PERFORMED ROOFING AND ASSOCIATED WORK ON THE FOLLOWING PROJECT.

OWNER:	**TEXAS SOUTHMOST COLLEGE**		
ADDRESS:	80 FORT BROWN, BROWNSVILLE, TEXAS 78520		
BUILDING NAME AND AREAS:	**FORT BROWN MEMORIAL CENTER**		
BUILDING ADDRESS:			
AREA (S) OF WORK:		DATE OF ACCEPTANCE:	
WARRANTY PERIOD:	**TWO (2) YEARS**	DATE OF EXPIRATION:	

AND WHEREAS THE CONTRACTOR HAS CONTRACTED WITH OWNER TO WARRANT SAID WORK AGAINST LEAKS AND FAULTY OR DEFECTIVE MATERIALS AND WORKMANSHIP FOR DESIGNATED WARRANTY PERIOD.

NOW THEREFORE THE CONTRACTOR HEREBY WARRANTS, SUBJECT TO TERMS AND CONDITIONS HEREIN SET FORTH, THAT DURING WARRANTY PERIOD HE WILL AT HIS OWN COST AND EXPENSE, MAKE OR CAUSE TO BE MADE SUCH REPAIRS TO OR REPLACEMENTS OF SAID WORK AS ARE NECESSARY TO CORRECT FAULTY AND DEFECTIVE WORK, AND AS ARE NECESSARY TO MAINTAIN SAID WORK IN WATERTIGHT CONDITION.

THIS WARRANTY IS MADE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

1. SPECIFICALLY EXCLUDED FROM THIS WARRANTY ARE DAMAGES TO WORK AND OTHER PARTS OF THE BUILDING, AND TO BUILDING CONTENTS, CAUSED BY: (A) LIGHTNING, WINDSTORM IN EXCESS OF 90 MILES PER HOUR WINDSPEED, HAILSTORM, AND OTHER UNUSUAL PHENOMENA OF THE ELEMENTS; (B) FIRE; (C) FAILURE OF ROOFING SYSTEM SUBSTRATE INCLUDING CRACKING, SETTLEMENT, EXCESSIVE DEFLECTION, DETERIORATION, AND DECOMPOSITION; (D) FAULTY CONSTRUCTION OF VENTS, EQUIPMENT SUPPORTS, AND OTHER PENETRATIONS OF THE WORK; (E) REPEATED VAPOR CONDENSATION ON BOTTOM OF ROOFING; AND (F) ACTIVITY ON ROOFING BY OTHER PERSONS INCLUDING CONSTRUCTION CONTRACTORS AND MAINTENANCE PERSONNEL, WHETHER AUTHORIZED OR UNAUTHORIZED BY OWNER. WHEN WORK HAS BEEN DAMAGED BY ANY OF THE FOREGOING CAUSES, WARRANTY SHALL BE NULL AND VOID UNTIL SUCH DAMAGE HAS BEEN REPAIRED BY THE CONTRACTOR, AND UNTIL COST AND EXPENSE THEREOF HAS BEEN PAID BY THE OWNER OR BY ANOTHER RESPONSIBLE PARTY SO DESIGNATED.

2. THE CONTRACTOR IS RESPONSIBLE FOR WORK COVERED BY THIS WARRANTY, BUT IS NOT LIABLE FOR CONSEQUENTIAL DAMAGES TO BUILDING OR BUILDING CONTENTS RESULTING FROM LEAKS OR FAULTS OR DEFECTS OF WORK.

3. DURING WARRANTY PERIOD, IF THE OWNER ALLOWS ALTERATIONS OF WORK BY ANYONE OTHER THAN THE CONTRACTOR, INCLUDING CUTTING, PATCHING AND MAINTENANCE IN CONNECTION WITH

PENETRATIONS, ATTACHMENT OF OTHER WORK, AND POSITIONING OF ANYTHING ON ROOF, THIS WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID ALTERATIONS, BUT ONLY TO EXTENT SAID ALTERATIONS AFFECT WORK COVERED BY THIS WARRANTY. IF THE OWNER ENGAGES THE CONTRACTOR TO PERFORM SAID ALTERATIONS, WARRANTY SHALL NOT BECOME NULL AND VOID, UNLESS THE CONTRACTOR, PRIOR TO PROCEEDING WITH SAID WORK, SHALL HAVE NOTIFIED THE OWNER IN WRITING THAT SAID ALTERATIONS WOULD LIKELY DAMAGE OR DETERIORATE THE WORK, THEREBY REASONABLY JUSTIFYING A LIMITATION OR TERMINATION OF THIS WARRANTY.

4. DURING WARRANTY PERIOD, IF ORIGINAL USE OF ROOF IS CHANGED AND IT BECOMES USED FOR, BUT WAS NOT ORIGINALLY SPECIFIED FOR, A PROMENADE, WORK DECK, SPRAY COOLED SURFACE, FLOODED BASIN, OR OTHER USE OR SERVICE MORE SEVERE THAN ORIGINALLY SPECIFIED, THIS WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID CHANGE, BUT ONLY TO EXTENT SAID CHANGES AFFECT WORK COVERED BY THIS WARRANTY.
5. THE OWNER SHALL PROMPTLY NOTIFY THE CONTRACTOR OF OBSERVED, KNOWN, OR SUSPECTED LEAKS, DEFECT OR DETERIORATION, AND SHALL AFFORD REASONABLE OPPORTUNITY FOR THE CONTRACTOR TO INSPECT THE WORK, AND TO EXAMINE EVIDENCE OF SUCH LEAKS, DEFECTS OR DETERIORATION.
6. THIS WARRANTY IS RECOGNIZED TO BE THE ONLY WARRANTY OF THE CONTRACTOR ON SAID WORK, AND SHALL NOT OPERATE TO RESTRICT OR CUT OFF THE OWNER FROM OTHER REMEDIES AND RESOURCES LAWFULLY AVAILABLE TO HIM IN CASES OF ROOFING FAILURE. SPECIFICALLY, THIS WARRANTY SHALL NOT OPERATE TO RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PERFORMANCE OF ORIGINAL WORK.

IN WITNESS THEREOF, THIS INSTRUMENT HAS BEEN DULY EXECUTED THIS _____ DAY OF _____, **20**_____.

SIGNATURES:

CONTRACTOR: _____
[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE*]

ORGANIZATION: ☐ PROPRIETORSHIP ☐ PARTNERSHIP ☐ CORPORATION ☐ JOINT VENTURE
[CHECK **ONE]** * IF JOINT VENTURE, ADD ADDITIONAL BID FORM SIGNATURE SHEETS FOR EACH JOINT VENTURE MEMBER.

BY: _____ _____
[SIGNATURE] [DATE]

NAME: _____ _____
[PRINT OR TYPE NAME] **[TITLE]**

ADDRESS: _____
[MAILING]

_____
[STREET, IF DIFFERENT THAN MAILING]

TELEPHONE: _____ _____
[PRINT OR TYPE TELEPHONE NUMBER] **[PRINT OR TYPE FAX NUMBER]**

STATE OF INCORPORATION: (IF APPLICABLE) _____

END OF APPLICATOR WARRANTY – FORT BROWN MEMORIAL CENTER

SECTION 01 7850 - APPLICATOR WARRANTY

WHEREAS _____

[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE]

OF (ADDRESS): _____

HEREIN CALLED THE "CONTRACTOR", HAS PERFORMED ROOFING AND ASSOCIATED WORK ON THE FOLLOWING PROJECT.

OWNER:	**TEXAS SOUTHMOST COLLEGE**		
ADDRESS:	80 FORT BROWN, BROWNSVILLE, TEXAS 78520		
BUILDING NAME AND AREAS:	**OLIVEIRA STUDENT SERVICES CENTER**		
BUILDING ADDRESS:			
AREA (S) OF WORK:		DATE OF ACCEPTANCE:	
WARRANTY PERIOD:	**TWO (2) YEARS**	DATE OF EXPIRATION:	

AND WHEREAS THE CONTRACTOR HAS CONTRACTED WITH OWNER TO WARRANT SAID WORK AGAINST LEAKS AND FAULTY OR DEFECTIVE MATERIALS AND WORKMANSHIP FOR DESIGNATED WARRANTY PERIOD.

NOW THEREFORE THE CONTRACTOR HEREBY WARRANTS, SUBJECT TO TERMS AND CONDITIONS HEREIN SET FORTH, THAT DURING WARRANTY PERIOD HE WILL AT HIS OWN COST AND EXPENSE, MAKE OR CAUSE TO BE MADE SUCH REPAIRS TO OR REPLACEMENTS OF SAID WORK AS ARE NECESSARY TO CORRECT FAULTY AND DEFECTIVE WORK, AND AS ARE NECESSARY TO MAINTAIN SAID WORK IN WATERTIGHT CONDITION.

THIS WARRANTY IS MADE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

7. SPECIFICALLY EXCLUDED FROM THIS WARRANTY ARE DAMAGES TO WORK AND OTHER PARTS OF THE BUILDING, AND TO BUILDING CONTENTS, CAUSED BY: (A) LIGHTNING, WINDSTORM IN EXCESS OF 90 MILES PER HOUR WINDSPEED, HAILSTORM, AND OTHER UNUSUAL PHENOMENA OF THE ELEMENTS; (B) FIRE; (C) FAILURE OF ROOFING SYSTEM SUBSTRATE INCLUDING CRACKING, SETTLEMENT, EXCESSIVE DEFLECTION, DETERIORATION, AND DECOMPOSITION; (D) FAULTY CONSTRUCTION OF VENTS, EQUIPMENT SUPPORTS, AND OTHER PENETRATIONS OF THE WORK; (E) REPEATED VAPOR CONDENSATION ON BOTTOM OF ROOFING; AND (F) ACTIVITY ON ROOFING BY OTHER PERSONS INCLUDING CONSTRUCTION CONTRACTORS AND MAINTENANCE PERSONNEL, WHETHER AUTHORIZED OR UNAUTHORIZED BY OWNER. WHEN WORK HAS BEEN DAMAGED BY ANY OF THE FOREGOING CAUSES, WARRANTY SHALL BE NULL AND VOID UNTIL SUCH DAMAGE HAS BEEN REPAIRED BY THE CONTRACTOR, AND UNTIL COST AND EXPENSE THEREOF HAS BEEN PAID BY THE OWNER OR BY ANOTHER RESPONSIBLE PARTY SO DESIGNATED.

8. THE CONTRACTOR IS RESPONSIBLE FOR WORK COVERED BY THIS WARRANTY, BUT IS NOT LIABLE FOR CONSEQUENTIAL DAMAGES TO BUILDING OR BUILDING CONTENTS RESULTING FROM LEAKS OR FAULTS OR DEFECTS OF WORK.

9. DURING WARRANTY PERIOD, IF THE OWNER ALLOWS ALTERATIONS OF WORK BY ANYONE OTHER THAN THE CONTRACTOR, INCLUDING CUTTING, PATCHING AND MAINTENANCE IN CONNECTION WITH PENETRATIONS, ATTACHMENT OF OTHER WORK, AND POSITIONING OF ANYTHING ON ROOF, THIS

WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID ALTERATIONS, BUT ONLY TO EXTENT SAID ALTERATIONS AFFECT WORK COVERED BY THIS WARRANTY. IF THE OWNER ENGAGES THE CONTRACTOR TO PERFORM SAID ALTERATIONS, WARRANTY SHALL NOT BECOME NULL AND VOID, UNLESS THE CONTRACTOR, PRIOR TO PROCEEDING WITH SAID WORK, SHALL HAVE NOTIFIED THE OWNER IN WRITING THAT SAID ALTERATIONS WOULD LIKELY DAMAGE OR DETERIORATE THE WORK, THEREBY REASONABLY JUSTIFYING A LIMITATION OR TERMINATION OF THIS WARRANTY.

10. DURING WARRANTY PERIOD, IF ORIGINAL USE OF ROOF IS CHANGED AND IT BECOMES USED FOR, BUT WAS NOT ORIGINALLY SPECIFIED FOR, A PROMENADE, WORK DECK, SPRAY COOLED SURFACE, FLOODED BASIN, OR OTHER USE OR SERVICE MORE SEVERE THAN ORIGINALLY SPECIFIED, THIS WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID CHANGE, BUT ONLY TO EXTENT SAID CHANGES AFFECT WORK COVERED BY THIS WARRANTY.
11. THE OWNER SHALL PROMPTLY NOTIFY THE CONTRACTOR OF OBSERVED, KNOWN, OR SUSPECTED LEAKS, DEFECT OR DETERIORATION, AND SHALL AFFORD REASONABLE OPPORTUNITY FOR THE CONTRACTOR TO INSPECT THE WORK, AND TO EXAMINE EVIDENCE OF SUCH LEAKS, DEFECTS OR DETERIORATION.
12. THIS WARRANTY IS RECOGNIZED TO BE THE ONLY WARRANTY OF THE CONTRACTOR ON SAID WORK, AND SHALL NOT OPERATE TO RESTRICT OR CUT OFF THE OWNER FROM OTHER REMEDIES AND RESOURCES LAWFULLY AVAILABLE TO HIM IN CASES OF ROOFING FAILURE. SPECIFICALLY, THIS WARRANTY SHALL NOT OPERATE TO RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PERFORMANCE OF ORIGINAL WORK.

IN WITNESS THEREOF, THIS INSTRUMENT HAS BEEN DULY EXECUTED THIS _____ DAY OF _____, **20**_____.

SIGNATURES:

CONTRACTOR: _____
[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE*]

ORGANIZATION: ☐ PROPRIETORSHIP ☐ PARTNERSHIP ☐ CORPORATION ☐ JOINT VENTURE
[CHECK **ONE]** * IF JOINT VENTURE, ADD ADDITIONAL BID FORM SIGNATURE SHEETS FOR EACH JOINT VENTURE MEMBER.

BY: _____ _____
[SIGNATURE] [DATE]

NAME: _____ _____
[PRINT OR TYPE NAME] **[TITLE]**

ADDRESS: _____
[MAILING]

_____
[STREET, IF DIFFERENT THAN MAILING]

TELEPHONE: _____ _____
[PRINT OR TYPE TELEPHONE NUMBER] **[PRINT OR TYPE FAX NUMBER]**

STATE OF INCORPORATION: (IF APPLICABLE) _____

END OF APPLICATOR WARRANTY – OLIVEIRA STUDENT SERVICES CENTER

SECTION 01 7850 - APPLICATOR WARRANTY

WHEREAS _____

[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE]

OF (ADDRESS): _____

HEREIN CALLED THE "CONTRACTOR", HAS PERFORMED ROOFING AND ASSOCIATED WORK ON THE FOLLOWING PROJECT.

OWNER:	**TEXAS SOUTHMOST COLLEGE**		
ADDRESS:	80 FORT BROWN, BROWNSVILLE, TEXAS 78520		
BUILDING NAME AND AREAS:	**MUSIC BUILDING**		
BUILDING ADDRESS:			
AREA (S) OF WORK:		DATE OF ACCEPTANCE:	
WARRANTY PERIOD:	**TWO (2) YEARS**	DATE OF EXPIRATION:	

AND WHEREAS THE CONTRACTOR HAS CONTRACTED WITH OWNER TO WARRANT SAID WORK AGAINST LEAKS AND FAULTY OR DEFECTIVE MATERIALS AND WORKMANSHIP FOR DESIGNATED WARRANTY PERIOD.

NOW THEREFORE THE CONTRACTOR HEREBY WARRANTS, SUBJECT TO TERMS AND CONDITIONS HEREIN SET FORTH, THAT DURING WARRANTY PERIOD HE WILL AT HIS OWN COST AND EXPENSE, MAKE OR CAUSE TO BE MADE SUCH REPAIRS TO OR REPLACEMENTS OF SAID WORK AS ARE NECESSARY TO CORRECT FAULTY AND DEFECTIVE WORK, AND AS ARE NECESSARY TO MAINTAIN SAID WORK IN WATERTIGHT CONDITION.

THIS WARRANTY IS MADE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

13. SPECIFICALLY EXCLUDED FROM THIS WARRANTY ARE DAMAGES TO WORK AND OTHER PARTS OF THE BUILDING, AND TO BUILDING CONTENTS, CAUSED BY: (A) LIGHTNING, WINDSTORM IN EXCESS OF 90 MILES PER HOUR WINDSPEED, HAILSTORM, AND OTHER UNUSUAL PHENOMENA OF THE ELEMENTS; (B) FIRE; (C) FAILURE OF ROOFING SYSTEM SUBSTRATE INCLUDING CRACKING, SETTLEMENT, EXCESSIVE DEFLECTION, DETERIORATION, AND DECOMPOSITION; (D) FAULTY CONSTRUCTION OF VENTS, EQUIPMENT SUPPORTS, AND OTHER PENETRATIONS OF THE WORK; (E) REPEATED VAPOR CONDENSATION ON BOTTOM OF ROOFING; AND (F) ACTIVITY ON ROOFING BY OTHER PERSONS INCLUDING CONSTRUCTION CONTRACTORS AND MAINTENANCE PERSONNEL, WHETHER AUTHORIZED OR UNAUTHORIZED BY OWNER. WHEN WORK HAS BEEN DAMAGED BY ANY OF THE FOREGOING CAUSES, WARRANTY SHALL BE NULL AND VOID UNTIL SUCH DAMAGE HAS BEEN REPAIRED BY THE CONTRACTOR, AND UNTIL COST AND EXPENSE THEREOF HAS BEEN PAID BY THE OWNER OR BY ANOTHER RESPONSIBLE PARTY SO DESIGNATED.

14. THE CONTRACTOR IS RESPONSIBLE FOR WORK COVERED BY THIS WARRANTY, BUT IS NOT LIABLE FOR CONSEQUENTIAL DAMAGES TO BUILDING OR BUILDING CONTENTS RESULTING FROM LEAKS OR FAULTS OR DEFECTS OF WORK.

15. DURING WARRANTY PERIOD, IF THE OWNER ALLOWS ALTERATIONS OF WORK BY ANYONE OTHER THAN THE CONTRACTOR, INCLUDING CUTTING, PATCHING AND MAINTENANCE IN CONNECTION WITH PENETRATIONS, ATTACHMENT OF OTHER WORK, AND POSITIONING OF ANYTHING ON ROOF, THIS

WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID ALTERATIONS, BUT ONLY TO EXTENT SAID ALTERATIONS AFFECT WORK COVERED BY THIS WARRANTY. IF THE OWNER ENGAGES THE CONTRACTOR TO PERFORM SAID ALTERATIONS, WARRANTY SHALL NOT BECOME NULL AND VOID, UNLESS THE CONTRACTOR, PRIOR TO PROCEEDING WITH SAID WORK, SHALL HAVE NOTIFIED THE OWNER IN WRITING THAT SAID ALTERATIONS WOULD LIKELY DAMAGE OR DETERIORATE THE WORK, THEREBY REASONABLY JUSTIFYING A LIMITATION OR TERMINATION OF THIS WARRANTY.

16. DURING WARRANTY PERIOD, IF ORIGINAL USE OF ROOF IS CHANGED AND IT BECOMES USED FOR, BUT WAS NOT ORIGINALLY SPECIFIED FOR, A PROMENADE, WORK DECK, SPRAY COOLED SURFACE, FLOODED BASIN, OR OTHER USE OR SERVICE MORE SEVERE THAN ORIGINALLY SPECIFIED, THIS WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID CHANGE, BUT ONLY TO EXTENT SAID CHANGES AFFECT WORK COVERED BY THIS WARRANTY.
17. THE OWNER SHALL PROMPTLY NOTIFY THE CONTRACTOR OF OBSERVED, KNOWN, OR SUSPECTED LEAKS, DEFECT OR DETERIORATION, AND SHALL AFFORD REASONABLE OPPORTUNITY FOR THE CONTRACTOR TO INSPECT THE WORK, AND TO EXAMINE EVIDENCE OF SUCH LEAKS, DEFECTS OR DETERIORATION.
18. THIS WARRANTY IS RECOGNIZED TO BE THE ONLY WARRANTY OF THE CONTRACTOR ON SAID WORK, AND SHALL NOT OPERATE TO RESTRICT OR CUT OFF THE OWNER FROM OTHER REMEDIES AND RESOURCES LAWFULLY AVAILABLE TO HIM IN CASES OF ROOFING FAILURE. SPECIFICALLY, THIS WARRANTY SHALL NOT OPERATE TO RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PERFORMANCE OF ORIGINAL WORK.

IN WITNESS THEREOF, THIS INSTRUMENT HAS BEEN DULY EXECUTED THIS _____ DAY OF _____, **20**_____.

SIGNATURES:

CONTRACTOR: _____
[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE*]

ORGANIZATION: ☐ PROPRIETORSHIP ☐ PARTNERSHIP ☐ CORPORATION ☐ JOINT VENTURE
[CHECK **ONE]** * IF JOINT VENTURE, ADD ADDITIONAL BID FORM SIGNATURE SHEETS FOR EACH JOINT VENTURE MEMBER.

BY: _____ _____
[SIGNATURE] [DATE]

NAME: _____ _____
[PRINT OR TYPE NAME] **[TITLE]**

ADDRESS: _____
[MAILING]

_____
[STREET, IF DIFFERENT THAN MAILING]

TELEPHONE: _____ _____
[PRINT OR TYPE TELEPHONE NUMBER] **[PRINT OR TYPE FAX NUMBER]**

STATE OF INCORPORATION: (IF APPLICABLE) _____

END OF APPLICATOR WARRANTY – MUSIC BUILDING

SECTION 01 7850 - APPLICATOR WARRANTY

WHEREAS _____

[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE]

OF (ADDRESS): _____

HEREIN CALLED THE "CONTRACTOR", HAS PERFORMED ROOFING AND ASSOCIATED WORK ON THE FOLLOWING PROJECT.

OWNER:	**TEXAS SOUTHMOST COLLEGE**		
ADDRESS:	80 FORT BROWN, BROWNSVILLE, TEXAS 78520		
BUILDING NAME AND AREAS:	**GARZA GYMNASIUM**		
BUILDING ADDRESS:			
AREA (S) OF WORK:		DATE OF ACCEPTANCE:	
WARRANTY PERIOD:	**TWO (2) YEARS**	DATE OF EXPIRATION:	

AND WHEREAS THE CONTRACTOR HAS CONTRACTED WITH OWNER TO WARRANT SAID WORK AGAINST LEAKS AND FAULTY OR DEFECTIVE MATERIALS AND WORKMANSHIP FOR DESIGNATED WARRANTY PERIOD.

NOW THEREFORE THE CONTRACTOR HEREBY WARRANTS, SUBJECT TO TERMS AND CONDITIONS HEREIN SET FORTH, THAT DURING WARRANTY PERIOD HE WILL AT HIS OWN COST AND EXPENSE, MAKE OR CAUSE TO BE MADE SUCH REPAIRS TO OR REPLACEMENTS OF SAID WORK AS ARE NECESSARY TO CORRECT FAULTY AND DEFECTIVE WORK, AND AS ARE NECESSARY TO MAINTAIN SAID WORK IN WATERTIGHT CONDITION.

THIS WARRANTY IS MADE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

19. SPECIFICALLY EXCLUDED FROM THIS WARRANTY ARE DAMAGES TO WORK AND OTHER PARTS OF THE BUILDING, AND TO BUILDING CONTENTS, CAUSED BY: (A) LIGHTNING, WINDSTORM IN EXCESS OF 90 MILES PER HOUR WINDSPEED, HAILSTORM, AND OTHER UNUSUAL PHENOMENA OF THE ELEMENTS; (B) FIRE; (C) FAILURE OF ROOFING SYSTEM SUBSTRATE INCLUDING CRACKING, SETTLEMENT, EXCESSIVE DEFLECTION, DETERIORATION, AND DECOMPOSITION; (D) FAULTY CONSTRUCTION OF VENTS, EQUIPMENT SUPPORTS, AND OTHER PENETRATIONS OF THE WORK; (E) REPEATED VAPOR CONDENSATION ON BOTTOM OF ROOFING; AND (F) ACTIVITY ON ROOFING BY OTHER PERSONS INCLUDING CONSTRUCTION CONTRACTORS AND MAINTENANCE PERSONNEL, WHETHER AUTHORIZED OR UNAUTHORIZED BY OWNER. WHEN WORK HAS BEEN DAMAGED BY ANY OF THE FOREGOING CAUSES, WARRANTY SHALL BE NULL AND VOID UNTIL SUCH DAMAGE HAS BEEN REPAIRED BY THE CONTRACTOR, AND UNTIL COST AND EXPENSE THEREOF HAS BEEN PAID BY THE OWNER OR BY ANOTHER RESPONSIBLE PARTY SO DESIGNATED.

20. THE CONTRACTOR IS RESPONSIBLE FOR WORK COVERED BY THIS WARRANTY, BUT IS NOT LIABLE FOR CONSEQUENTIAL DAMAGES TO BUILDING OR BUILDING CONTENTS RESULTING FROM LEAKS OR FAULTS OR DEFECTS OF WORK.

21. DURING WARRANTY PERIOD, IF THE OWNER ALLOWS ALTERATIONS OF WORK BY ANYONE OTHER THAN THE CONTRACTOR, INCLUDING CUTTING, PATCHING AND MAINTENANCE IN CONNECTION WITH PENETRATIONS, ATTACHMENT OF OTHER WORK, AND POSITIONING OF ANYTHING ON ROOF, THIS

WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID ALTERATIONS, BUT ONLY TO EXTENT SAID ALTERATIONS AFFECT WORK COVERED BY THIS WARRANTY. IF THE OWNER ENGAGES THE CONTRACTOR TO PERFORM SAID ALTERATIONS, WARRANTY SHALL NOT BECOME NULL AND VOID, UNLESS THE CONTRACTOR, PRIOR TO PROCEEDING WITH SAID WORK, SHALL HAVE NOTIFIED THE OWNER IN WRITING THAT SAID ALTERATIONS WOULD LIKELY DAMAGE OR DETERIORATE THE WORK, THEREBY REASONABLY JUSTIFYING A LIMITATION OR TERMINATION OF THIS WARRANTY.

22. DURING WARRANTY PERIOD, IF ORIGINAL USE OF ROOF IS CHANGED AND IT BECOMES USED FOR, BUT WAS NOT ORIGINALLY SPECIFIED FOR, A PROMENADE, WORK DECK, SPRAY COOLED SURFACE, FLOODED BASIN, OR OTHER USE OR SERVICE MORE SEVERE THAN ORIGINALLY SPECIFIED, THIS WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID CHANGE, BUT ONLY TO EXTENT SAID CHANGES AFFECT WORK COVERED BY THIS WARRANTY.
23. THE OWNER SHALL PROMPTLY NOTIFY THE CONTRACTOR OF OBSERVED, KNOWN, OR SUSPECTED LEAKS, DEFECT OR DETERIORATION, AND SHALL AFFORD REASONABLE OPPORTUNITY FOR THE CONTRACTOR TO INSPECT THE WORK, AND TO EXAMINE EVIDENCE OF SUCH LEAKS, DEFECTS OR DETERIORATION.
24. THIS WARRANTY IS RECOGNIZED TO BE THE ONLY WARRANTY OF THE CONTRACTOR ON SAID WORK, AND SHALL NOT OPERATE TO RESTRICT OR CUT OFF THE OWNER FROM OTHER REMEDIES AND RESOURCES LAWFULLY AVAILABLE TO HIM IN CASES OF ROOFING FAILURE. SPECIFICALLY, THIS WARRANTY SHALL NOT OPERATE TO RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PERFORMANCE OF ORIGINAL WORK.

IN WITNESS THEREOF, THIS INSTRUMENT HAS BEEN DULY EXECUTED THIS _____ DAY OF _____, **20**_____.

SIGNATURES:

CONTRACTOR: _____
[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE*]

ORGANIZATION: ☐ PROPRIETORSHIP ☐ PARTNERSHIP ☐ CORPORATION ☐ JOINT VENTURE
[CHECK **ONE]** * IF JOINT VENTURE, ADD ADDITIONAL BID FORM SIGNATURE SHEETS FOR EACH JOINT VENTURE MEMBER.

BY: _____ _____
[SIGNATURE] [DATE]

NAME: _____ _____
[PRINT OR TYPE NAME] **[TITLE]**

ADDRESS: _____
[MAILING]

_____
[STREET, IF DIFFERENT THAN MAILING]

TELEPHONE: _____ _____
[PRINT OR TYPE TELEPHONE NUMBER] **[PRINT OR TYPE FAX NUMBER]**

STATE OF INCORPORATION: (IF APPLICABLE) _____

END OF APPLICATOR WARRANTY – GARZA GYMNASIUM

SECTION 01 7850 - APPLICATOR WARRANTY

WHEREAS _____

[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE]

OF (ADDRESS): _____

HEREIN CALLED THE "CONTRACTOR", HAS PERFORMED ROOFING AND ASSOCIATED WORK ON THE FOLLOWING PROJECT.

OWNER:	**TEXAS SOUTHMOST COLLEGE**		
ADDRESS:	80 FORT BROWN, BROWNSVILLE, TEXAS 78520		
BUILDING NAME AND AREAS:	**GUERRA EARLY CHILDHOOD CENTER**		
BUILDING ADDRESS:			
AREA (S) OF WORK:		DATE OF ACCEPTANCE:	
WARRANTY PERIOD:	**TWO (2) YEARS**	DATE OF EXPIRATION:	

AND WHEREAS THE CONTRACTOR HAS CONTRACTED WITH OWNER TO WARRANT SAID WORK AGAINST LEAKS AND FAULTY OR DEFECTIVE MATERIALS AND WORKMANSHIP FOR DESIGNATED WARRANTY PERIOD.

NOW THEREFORE THE CONTRACTOR HEREBY WARRANTS, SUBJECT TO TERMS AND CONDITIONS HEREIN SET FORTH, THAT DURING WARRANTY PERIOD HE WILL AT HIS OWN COST AND EXPENSE, MAKE OR CAUSE TO BE MADE SUCH REPAIRS TO OR REPLACEMENTS OF SAID WORK AS ARE NECESSARY TO CORRECT FAULTY AND DEFECTIVE WORK, AND AS ARE NECESSARY TO MAINTAIN SAID WORK IN WATERTIGHT CONDITION.

THIS WARRANTY IS MADE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

25. SPECIFICALLY EXCLUDED FROM THIS WARRANTY ARE DAMAGES TO WORK AND OTHER PARTS OF THE BUILDING, AND TO BUILDING CONTENTS, CAUSED BY: (A) LIGHTNING, WINDSTORM IN EXCESS OF 90 MILES PER HOUR WINDSPEED, HAILSTORM, AND OTHER UNUSUAL PHENOMENA OF THE ELEMENTS; (B) FIRE; (C) FAILURE OF ROOFING SYSTEM SUBSTRATE INCLUDING CRACKING, SETTLEMENT, EXCESSIVE DEFLECTION, DETERIORATION, AND DECOMPOSITION; (D) FAULTY CONSTRUCTION OF VENTS, EQUIPMENT SUPPORTS, AND OTHER PENETRATIONS OF THE WORK; (E) REPEATED VAPOR CONDENSATION ON BOTTOM OF ROOFING; AND (F) ACTIVITY ON ROOFING BY OTHER PERSONS INCLUDING CONSTRUCTION CONTRACTORS AND MAINTENANCE PERSONNEL, WHETHER AUTHORIZED OR UNAUTHORIZED BY OWNER. WHEN WORK HAS BEEN DAMAGED BY ANY OF THE FOREGOING CAUSES, WARRANTY SHALL BE NULL AND VOID UNTIL SUCH DAMAGE HAS BEEN REPAIRED BY THE CONTRACTOR, AND UNTIL COST AND EXPENSE THEREOF HAS BEEN PAID BY THE OWNER OR BY ANOTHER RESPONSIBLE PARTY SO DESIGNATED.

26. THE CONTRACTOR IS RESPONSIBLE FOR WORK COVERED BY THIS WARRANTY, BUT IS NOT LIABLE FOR CONSEQUENTIAL DAMAGES TO BUILDING OR BUILDING CONTENTS RESULTING FROM LEAKS OR FAULTS OR DEFECTS OF WORK.

27. DURING WARRANTY PERIOD, IF THE OWNER ALLOWS ALTERATIONS OF WORK BY ANYONE OTHER THAN THE CONTRACTOR, INCLUDING CUTTING, PATCHING AND MAINTENANCE IN CONNECTION WITH PENETRATIONS, ATTACHMENT OF OTHER WORK, AND POSITIONING OF ANYTHING ON ROOF, THIS

WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID ALTERATIONS, BUT ONLY TO EXTENT SAID ALTERATIONS AFFECT WORK COVERED BY THIS WARRANTY. IF THE OWNER ENGAGES THE CONTRACTOR TO PERFORM SAID ALTERATIONS, WARRANTY SHALL NOT BECOME NULL AND VOID, UNLESS THE CONTRACTOR, PRIOR TO PROCEEDING WITH SAID WORK, SHALL HAVE NOTIFIED THE OWNER IN WRITING THAT SAID ALTERATIONS WOULD LIKELY DAMAGE OR DETERIORATE THE WORK, THEREBY REASONABLY JUSTIFYING A LIMITATION OR TERMINATION OF THIS WARRANTY.

28. DURING WARRANTY PERIOD, IF ORIGINAL USE OF ROOF IS CHANGED AND IT BECOMES USED FOR, BUT WAS NOT ORIGINALLY SPECIFIED FOR, A PROMENADE, WORK DECK, SPRAY COOLED SURFACE, FLOODED BASIN, OR OTHER USE OR SERVICE MORE SEVERE THAN ORIGINALLY SPECIFIED, THIS WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID CHANGE, BUT ONLY TO EXTENT SAID CHANGES AFFECT WORK COVERED BY THIS WARRANTY.
29. THE OWNER SHALL PROMPTLY NOTIFY THE CONTRACTOR OF OBSERVED, KNOWN, OR SUSPECTED LEAKS, DEFECT OR DETERIORATION, AND SHALL AFFORD REASONABLE OPPORTUNITY FOR THE CONTRACTOR TO INSPECT THE WORK, AND TO EXAMINE EVIDENCE OF SUCH LEAKS, DEFECTS OR DETERIORATION.
30. THIS WARRANTY IS RECOGNIZED TO BE THE ONLY WARRANTY OF THE CONTRACTOR ON SAID WORK, AND SHALL NOT OPERATE TO RESTRICT OR CUT OFF THE OWNER FROM OTHER REMEDIES AND RESOURCES LAWFULLY AVAILABLE TO HIM IN CASES OF ROOFING FAILURE. SPECIFICALLY, THIS WARRANTY SHALL NOT OPERATE TO RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PERFORMANCE OF ORIGINAL WORK.

IN WITNESS THEREOF, THIS INSTRUMENT HAS BEEN DULY EXECUTED THIS _____ DAY OF _____, **20**_____.

SIGNATURES:

CONTRACTOR: _____
[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE*]

ORGANIZATION: ☐ PROPRIETORSHIP ☐ PARTNERSHIP ☐ CORPORATION ☐ JOINT VENTURE
[CHECK **ONE]** * IF JOINT VENTURE, ADD ADDITIONAL BID FORM SIGNATURE SHEETS FOR EACH JOINT VENTURE MEMBER.

BY: _____ _____
[SIGNATURE] [DATE]

NAME: _____ _____
[PRINT OR TYPE NAME] **[TITLE]**

ADDRESS: _____
[MAILING]

_____
[STREET, IF DIFFERENT THAN MAILING]

TELEPHONE: _____ _____
[PRINT OR TYPE TELEPHONE NUMBER] **[PRINT OR TYPE FAX NUMBER]**

STATE OF INCORPORATION: (IF APPLICABLE) _____

END OF APPLICATOR WARRANTY – GUERRA EARLY CHILDHOOD CENTER

SECTION 01 7850 - APPLICATOR WARRANTY

WHEREAS _____

[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE]

OF (ADDRESS): _____

HEREIN CALLED THE "CONTRACTOR", HAS PERFORMED ROOFING AND ASSOCIATED WORK ON THE FOLLOWING PROJECT.

OWNER:	**TEXAS SOUTHMOST COLLEGE**		
ADDRESS:	80 FORT BROWN, BROWNSVILLE, TEXAS 78520		
BUILDING NAME AND AREAS:	**CORTEZ HALL**		
BUILDING ADDRESS:			
AREA (S) OF WORK:		DATE OF ACCEPTANCE:	
WARRANTY PERIOD:	**TWO (2) YEARS**	DATE OF EXPIRATION:	

AND WHEREAS THE CONTRACTOR HAS CONTRACTED WITH OWNER TO WARRANT SAID WORK AGAINST LEAKS AND FAULTY OR DEFECTIVE MATERIALS AND WORKMANSHIP FOR DESIGNATED WARRANTY PERIOD.

NOW THEREFORE THE CONTRACTOR HEREBY WARRANTS, SUBJECT TO TERMS AND CONDITIONS HEREIN SET FORTH, THAT DURING WARRANTY PERIOD HE WILL AT HIS OWN COST AND EXPENSE, MAKE OR CAUSE TO BE MADE SUCH REPAIRS TO OR REPLACEMENTS OF SAID WORK AS ARE NECESSARY TO CORRECT FAULTY AND DEFECTIVE WORK, AND AS ARE NECESSARY TO MAINTAIN SAID WORK IN WATERTIGHT CONDITION.

THIS WARRANTY IS MADE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

31. SPECIFICALLY EXCLUDED FROM THIS WARRANTY ARE DAMAGES TO WORK AND OTHER PARTS OF THE BUILDING, AND TO BUILDING CONTENTS, CAUSED BY: (A) LIGHTNING, WINDSTORM IN EXCESS OF 90 MILES PER HOUR WINDSPEED, HAILSTORM, AND OTHER UNUSUAL PHENOMENA OF THE ELEMENTS; (B) FIRE; (C) FAILURE OF ROOFING SYSTEM SUBSTRATE INCLUDING CRACKING, SETTLEMENT, EXCESSIVE DEFLECTION, DETERIORATION, AND DECOMPOSITION; (D) FAULTY CONSTRUCTION OF VENTS, EQUIPMENT SUPPORTS, AND OTHER PENETRATIONS OF THE WORK; (E) REPEATED VAPOR CONDENSATION ON BOTTOM OF ROOFING; AND (F) ACTIVITY ON ROOFING BY OTHER PERSONS INCLUDING CONSTRUCTION CONTRACTORS AND MAINTENANCE PERSONNEL, WHETHER AUTHORIZED OR UNAUTHORIZED BY OWNER. WHEN WORK HAS BEEN DAMAGED BY ANY OF THE FOREGOING CAUSES, WARRANTY SHALL BE NULL AND VOID UNTIL SUCH DAMAGE HAS BEEN REPAIRED BY THE CONTRACTOR, AND UNTIL COST AND EXPENSE THEREOF HAS BEEN PAID BY THE OWNER OR BY ANOTHER RESPONSIBLE PARTY SO DESIGNATED.

32. THE CONTRACTOR IS RESPONSIBLE FOR WORK COVERED BY THIS WARRANTY, BUT IS NOT LIABLE FOR CONSEQUENTIAL DAMAGES TO BUILDING OR BUILDING CONTENTS RESULTING FROM LEAKS OR FAULTS OR DEFECTS OF WORK.

33. DURING WARRANTY PERIOD, IF THE OWNER ALLOWS ALTERATIONS OF WORK BY ANYONE OTHER THAN THE CONTRACTOR, INCLUDING CUTTING, PATCHING AND MAINTENANCE IN CONNECTION WITH PENETRATIONS, ATTACHMENT OF OTHER WORK, AND POSITIONING OF ANYTHING ON ROOF, THIS

WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID ALTERATIONS, BUT ONLY TO EXTENT SAID ALTERATIONS AFFECT WORK COVERED BY THIS WARRANTY. IF THE OWNER ENGAGES THE CONTRACTOR TO PERFORM SAID ALTERATIONS, WARRANTY SHALL NOT BECOME NULL AND VOID, UNLESS THE CONTRACTOR, PRIOR TO PROCEEDING WITH SAID WORK, SHALL HAVE NOTIFIED THE OWNER IN WRITING THAT SAID ALTERATIONS WOULD LIKELY DAMAGE OR DETERIORATE THE WORK, THEREBY REASONABLY JUSTIFYING A LIMITATION OR TERMINATION OF THIS WARRANTY.

34. DURING WARRANTY PERIOD, IF ORIGINAL USE OF ROOF IS CHANGED AND IT BECOMES USED FOR, BUT WAS NOT ORIGINALLY SPECIFIED FOR, A PROMENADE, WORK DECK, SPRAY COOLED SURFACE, FLOODED BASIN, OR OTHER USE OR SERVICE MORE SEVERE THAN ORIGINALLY SPECIFIED, THIS WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID CHANGE, BUT ONLY TO EXTENT SAID CHANGES AFFECT WORK COVERED BY THIS WARRANTY.
35. THE OWNER SHALL PROMPTLY NOTIFY THE CONTRACTOR OF OBSERVED, KNOWN, OR SUSPECTED LEAKS, DEFECT OR DETERIORATION, AND SHALL AFFORD REASONABLE OPPORTUNITY FOR THE CONTRACTOR TO INSPECT THE WORK, AND TO EXAMINE EVIDENCE OF SUCH LEAKS, DEFECTS OR DETERIORATION.
36. THIS WARRANTY IS RECOGNIZED TO BE THE ONLY WARRANTY OF THE CONTRACTOR ON SAID WORK, AND SHALL NOT OPERATE TO RESTRICT OR CUT OFF THE OWNER FROM OTHER REMEDIES AND RESOURCES LAWFULLY AVAILABLE TO HIM IN CASES OF ROOFING FAILURE. SPECIFICALLY, THIS WARRANTY SHALL NOT OPERATE TO RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PERFORMANCE OF ORIGINAL WORK.

IN WITNESS THEREOF, THIS INSTRUMENT HAS BEEN DULY EXECUTED THIS _____ DAY OF _____, **20**_____.

SIGNATURES:

CONTRACTOR: _____
[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE*]

ORGANIZATION: ☐ PROPRIETORSHIP ☐ PARTNERSHIP ☐ CORPORATION ☐ JOINT VENTURE
[CHECK **ONE]** * IF JOINT VENTURE, ADD ADDITIONAL BID FORM SIGNATURE SHEETS FOR EACH JOINT VENTURE MEMBER.

BY: _____ _____
[SIGNATURE] [DATE]

NAME: _____ _____
[PRINT OR TYPE NAME] **[TITLE]**

ADDRESS: _____
[MAILING]

_____
[STREET, IF DIFFERENT THAN MAILING]

TELEPHONE: _____ _____
[PRINT OR TYPE TELEPHONE NUMBER] **[PRINT OR TYPE FAX NUMBER]**

STATE OF INCORPORATION: (IF APPLICABLE) _____

END OF APPLICATOR WARRANTY – CORTEZ HALL

SECTION 01 7850 - APPLICATOR WARRANTY

WHEREAS _____

[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE]

OF (ADDRESS): _____

HEREIN CALLED THE "CONTRACTOR", HAS PERFORMED ROOFING AND ASSOCIATED WORK ON THE FOLLOWING PROJECT.

OWNER:	**TEXAS SOUTHMOST COLLEGE**		
ADDRESS:	80 FORT BROWN, BROWNSVILLE, TEXAS 78520		
BUILDING NAME AND AREAS:	**BOOKSTORE**		
BUILDING ADDRESS:			
AREA (S) OF WORK:		DATE OF ACCEPTANCE:	
WARRANTY PERIOD:	**TWO (2) YEARS**	DATE OF EXPIRATION:	

AND WHEREAS THE CONTRACTOR HAS CONTRACTED WITH OWNER TO WARRANT SAID WORK AGAINST LEAKS AND FAULTY OR DEFECTIVE MATERIALS AND WORKMANSHIP FOR DESIGNATED WARRANTY PERIOD.

NOW THEREFORE THE CONTRACTOR HEREBY WARRANTS, SUBJECT TO TERMS AND CONDITIONS HEREIN SET FORTH, THAT DURING WARRANTY PERIOD HE WILL AT HIS OWN COST AND EXPENSE, MAKE OR CAUSE TO BE MADE SUCH REPAIRS TO OR REPLACEMENTS OF SAID WORK AS ARE NECESSARY TO CORRECT FAULTY AND DEFECTIVE WORK, AND AS ARE NECESSARY TO MAINTAIN SAID WORK IN WATERTIGHT CONDITION.

THIS WARRANTY IS MADE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

37. SPECIFICALLY EXCLUDED FROM THIS WARRANTY ARE DAMAGES TO WORK AND OTHER PARTS OF THE BUILDING, AND TO BUILDING CONTENTS, CAUSED BY: (A) LIGHTNING, WINDSTORM IN EXCESS OF 90 MILES PER HOUR WINDSPEED, HAILSTORM, AND OTHER UNUSUAL PHENOMENA OF THE ELEMENTS; (B) FIRE; (C) FAILURE OF ROOFING SYSTEM SUBSTRATE INCLUDING CRACKING, SETTLEMENT, EXCESSIVE DEFLECTION, DETERIORATION, AND DECOMPOSITION; (D) FAULTY CONSTRUCTION OF VENTS, EQUIPMENT SUPPORTS, AND OTHER PENETRATIONS OF THE WORK; (E) REPEATED VAPOR CONDENSATION ON BOTTOM OF ROOFING; AND (F) ACTIVITY ON ROOFING BY OTHER PERSONS INCLUDING CONSTRUCTION CONTRACTORS AND MAINTENANCE PERSONNEL, WHETHER AUTHORIZED OR UNAUTHORIZED BY OWNER. WHEN WORK HAS BEEN DAMAGED BY ANY OF THE FOREGOING CAUSES, WARRANTY SHALL BE NULL AND VOID UNTIL SUCH DAMAGE HAS BEEN REPAIRED BY THE CONTRACTOR, AND UNTIL COST AND EXPENSE THEREOF HAS BEEN PAID BY THE OWNER OR BY ANOTHER RESPONSIBLE PARTY SO DESIGNATED.

38. THE CONTRACTOR IS RESPONSIBLE FOR WORK COVERED BY THIS WARRANTY, BUT IS NOT LIABLE FOR CONSEQUENTIAL DAMAGES TO BUILDING OR BUILDING CONTENTS RESULTING FROM LEAKS OR FAULTS OR DEFECTS OF WORK.

39. DURING WARRANTY PERIOD, IF THE OWNER ALLOWS ALTERATIONS OF WORK BY ANYONE OTHER THAN THE CONTRACTOR, INCLUDING CUTTING, PATCHING AND MAINTENANCE IN CONNECTION WITH PENETRATIONS, ATTACHMENT OF OTHER WORK, AND POSITIONING OF ANYTHING ON ROOF, THIS

WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID ALTERATIONS, BUT ONLY TO EXTENT SAID ALTERATIONS AFFECT WORK COVERED BY THIS WARRANTY. IF THE OWNER ENGAGES THE CONTRACTOR TO PERFORM SAID ALTERATIONS, WARRANTY SHALL NOT BECOME NULL AND VOID, UNLESS THE CONTRACTOR, PRIOR TO PROCEEDING WITH SAID WORK, SHALL HAVE NOTIFIED THE OWNER IN WRITING THAT SAID ALTERATIONS WOULD LIKELY DAMAGE OR DETERIORATE THE WORK, THEREBY REASONABLY JUSTIFYING A LIMITATION OR TERMINATION OF THIS WARRANTY.

40. DURING WARRANTY PERIOD, IF ORIGINAL USE OF ROOF IS CHANGED AND IT BECOMES USED FOR, BUT WAS NOT ORIGINALLY SPECIFIED FOR, A PROMENADE, WORK DECK, SPRAY COOLED SURFACE, FLOODED BASIN, OR OTHER USE OR SERVICE MORE SEVERE THAN ORIGINALLY SPECIFIED, THIS WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID CHANGE, BUT ONLY TO EXTENT SAID CHANGES AFFECT WORK COVERED BY THIS WARRANTY.
41. THE OWNER SHALL PROMPTLY NOTIFY THE CONTRACTOR OF OBSERVED, KNOWN, OR SUSPECTED LEAKS, DEFECT OR DETERIORATION, AND SHALL AFFORD REASONABLE OPPORTUNITY FOR THE CONTRACTOR TO INSPECT THE WORK, AND TO EXAMINE EVIDENCE OF SUCH LEAKS, DEFECTS OR DETERIORATION.
42. THIS WARRANTY IS RECOGNIZED TO BE THE ONLY WARRANTY OF THE CONTRACTOR ON SAID WORK, AND SHALL NOT OPERATE TO RESTRICT OR CUT OFF THE OWNER FROM OTHER REMEDIES AND RESOURCES LAWFULLY AVAILABLE TO HIM IN CASES OF ROOFING FAILURE. SPECIFICALLY, THIS WARRANTY SHALL NOT OPERATE TO RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PERFORMANCE OF ORIGINAL WORK.

IN WITNESS THEREOF, THIS INSTRUMENT HAS BEEN DULY EXECUTED THIS _____ DAY OF _____, **20**_____.

SIGNATURES:

CONTRACTOR: _____
[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE*]

ORGANIZATION: ☐ PROPRIETORSHIP ☐ PARTNERSHIP ☐ CORPORATION ☐ JOINT VENTURE
[CHECK **ONE]** * IF JOINT VENTURE, ADD ADDITIONAL BID FORM SIGNATURE SHEETS FOR EACH JOINT VENTURE MEMBER.

BY: _____ _____
[SIGNATURE] [DATE]

NAME: _____ _____
[PRINT OR TYPE NAME] **[TITLE]**

ADDRESS: _____
[MAILING]

_____
[STREET, IF DIFFERENT THAN MAILING]

TELEPHONE: _____ _____
[PRINT OR TYPE TELEPHONE NUMBER] **[PRINT OR TYPE FAX NUMBER]**

STATE OF INCORPORATION: (IF APPLICABLE) _____

END OF APPLICATOR WARRANTY –BOOKSTORE

SECTION 01 7850 - APPLICATOR WARRANTY

WHEREAS _____

[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE]

OF (ADDRESS): _____

HEREIN CALLED THE "CONTRACTOR", HAS PERFORMED ROOFING AND ASSOCIATED WORK ON THE FOLLOWING PROJECT.

OWNER:	**TEXAS SOUTHMOST COLLEGE**		
ADDRESS:	80 FORT BROWN, BROWNSVILLE, TEXAS 78520		
BUILDING NAME AND AREAS:	**CAVALRY HALL**		
BUILDING ADDRESS:			
AREA (S) OF WORK:		DATE OF ACCEPTANCE:	
WARRANTY PERIOD:	**TWO (2) YEARS**	DATE OF EXPIRATION:	

AND WHEREAS THE CONTRACTOR HAS CONTRACTED WITH OWNER TO WARRANT SAID WORK AGAINST LEAKS AND FAULTY OR DEFECTIVE MATERIALS AND WORKMANSHIP FOR DESIGNATED WARRANTY PERIOD.

NOW THEREFORE THE CONTRACTOR HEREBY WARRANTS, SUBJECT TO TERMS AND CONDITIONS HEREIN SET FORTH, THAT DURING WARRANTY PERIOD HE WILL AT HIS OWN COST AND EXPENSE, MAKE OR CAUSE TO BE MADE SUCH REPAIRS TO OR REPLACEMENTS OF SAID WORK AS ARE NECESSARY TO CORRECT FAULTY AND DEFECTIVE WORK, AND AS ARE NECESSARY TO MAINTAIN SAID WORK IN WATERTIGHT CONDITION.

THIS WARRANTY IS MADE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

43. SPECIFICALLY EXCLUDED FROM THIS WARRANTY ARE DAMAGES TO WORK AND OTHER PARTS OF THE BUILDING, AND TO BUILDING CONTENTS, CAUSED BY: (A) LIGHTNING, WINDSTORM IN EXCESS OF 90 MILES PER HOUR WINDSPEED, HAILSTORM, AND OTHER UNUSUAL PHENOMENA OF THE ELEMENTS; (B) FIRE; (C) FAILURE OF ROOFING SYSTEM SUBSTRATE INCLUDING CRACKING, SETTLEMENT, EXCESSIVE DEFLECTION, DETERIORATION, AND DECOMPOSITION; (D) FAULTY CONSTRUCTION OF VENTS, EQUIPMENT SUPPORTS, AND OTHER PENETRATIONS OF THE WORK; (E) REPEATED VAPOR CONDENSATION ON BOTTOM OF ROOFING; AND (F) ACTIVITY ON ROOFING BY OTHER PERSONS INCLUDING CONSTRUCTION CONTRACTORS AND MAINTENANCE PERSONNEL, WHETHER AUTHORIZED OR UNAUTHORIZED BY OWNER. WHEN WORK HAS BEEN DAMAGED BY ANY OF THE FOREGOING CAUSES, WARRANTY SHALL BE NULL AND VOID UNTIL SUCH DAMAGE HAS BEEN REPAIRED BY THE CONTRACTOR, AND UNTIL COST AND EXPENSE THEREOF HAS BEEN PAID BY THE OWNER OR BY ANOTHER RESPONSIBLE PARTY SO DESIGNATED.

44. THE CONTRACTOR IS RESPONSIBLE FOR WORK COVERED BY THIS WARRANTY, BUT IS NOT LIABLE FOR CONSEQUENTIAL DAMAGES TO BUILDING OR BUILDING CONTENTS RESULTING FROM LEAKS OR FAULTS OR DEFECTS OF WORK.

45. DURING WARRANTY PERIOD, IF THE OWNER ALLOWS ALTERATIONS OF WORK BY ANYONE OTHER THAN THE CONTRACTOR, INCLUDING CUTTING, PATCHING AND MAINTENANCE IN CONNECTION WITH PENETRATIONS, ATTACHMENT OF OTHER WORK, AND POSITIONING OF ANYTHING ON ROOF, THIS

WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID ALTERATIONS, BUT ONLY TO EXTENT SAID ALTERATIONS AFFECT WORK COVERED BY THIS WARRANTY. IF THE OWNER ENGAGES THE CONTRACTOR TO PERFORM SAID ALTERATIONS, WARRANTY SHALL NOT BECOME NULL AND VOID, UNLESS THE CONTRACTOR, PRIOR TO PROCEEDING WITH SAID WORK, SHALL HAVE NOTIFIED THE OWNER IN WRITING THAT SAID ALTERATIONS WOULD LIKELY DAMAGE OR DETERIORATE THE WORK, THEREBY REASONABLY JUSTIFYING A LIMITATION OR TERMINATION OF THIS WARRANTY.

46. DURING WARRANTY PERIOD, IF ORIGINAL USE OF ROOF IS CHANGED AND IT BECOMES USED FOR, BUT WAS NOT ORIGINALLY SPECIFIED FOR, A PROMENADE, WORK DECK, SPRAY COOLED SURFACE, FLOODED BASIN, OR OTHER USE OR SERVICE MORE SEVERE THAN ORIGINALLY SPECIFIED, THIS WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID CHANGE, BUT ONLY TO EXTENT SAID CHANGES AFFECT WORK COVERED BY THIS WARRANTY.
47. THE OWNER SHALL PROMPTLY NOTIFY THE CONTRACTOR OF OBSERVED, KNOWN, OR SUSPECTED LEAKS, DEFECT OR DETERIORATION, AND SHALL AFFORD REASONABLE OPPORTUNITY FOR THE CONTRACTOR TO INSPECT THE WORK, AND TO EXAMINE EVIDENCE OF SUCH LEAKS, DEFECTS OR DETERIORATION.
48. THIS WARRANTY IS RECOGNIZED TO BE THE ONLY WARRANTY OF THE CONTRACTOR ON SAID WORK, AND SHALL NOT OPERATE TO RESTRICT OR CUT OFF THE OWNER FROM OTHER REMEDIES AND RESOURCES LAWFULLY AVAILABLE TO HIM IN CASES OF ROOFING FAILURE. SPECIFICALLY, THIS WARRANTY SHALL NOT OPERATE TO RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PERFORMANCE OF ORIGINAL WORK.

IN WITNESS THEREOF, THIS INSTRUMENT HAS BEEN DULY EXECUTED THIS _____ DAY OF _____, **20**_____.

SIGNATURES:

CONTRACTOR: _____
[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE*]

ORGANIZATION: ☐ PROPRIETORSHIP ☐ PARTNERSHIP ☐ CORPORATION ☐ JOINT VENTURE
[CHECK **ONE]** * IF JOINT VENTURE, ADD ADDITIONAL BID FORM SIGNATURE SHEETS FOR EACH JOINT VENTURE MEMBER.

BY: _____ _____
[SIGNATURE] [DATE]

NAME: _____ _____
[PRINT OR TYPE NAME] **[TITLE]**

ADDRESS: _____
[MAILING]

_____
[STREET, IF DIFFERENT THAN MAILING]

TELEPHONE: _____ _____
[PRINT OR TYPE TELEPHONE NUMBER] **[PRINT OR TYPE FAX NUMBER]**

STATE OF INCORPORATION: (IF APPLICABLE) _____

END OF APPLICATOR WARRANTY – CAVALRY HALL

SECTION 01 7850 - APPLICATOR WARRANTY

WHEREAS _____

[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE]

OF (ADDRESS): _____

HEREIN CALLED THE "CONTRACTOR", HAS PERFORMED ROOFING AND ASSOCIATED WORK ON THE FOLLOWING PROJECT.

OWNER:	**TEXAS SOUTHMOST COLLEGE**		
ADDRESS:	80 FORT BROWN, BROWNSVILLE, TEXAS 78520		
BUILDING NAME AND AREAS:	**SCIENCE ENGINEERING AND TECHNOLOGY**		
BUILDING ADDRESS:			
AREA (S) OF WORK:		DATE OF ACCEPTANCE:	
WARRANTY PERIOD:	**TWO (2) YEARS**	DATE OF EXPIRATION:	

AND WHEREAS THE CONTRACTOR HAS CONTRACTED WITH OWNER TO WARRANT SAID WORK AGAINST LEAKS AND FAULTY OR DEFECTIVE MATERIALS AND WORKMANSHIP FOR DESIGNATED WARRANTY PERIOD.

NOW THEREFORE THE CONTRACTOR HEREBY WARRANTS, SUBJECT TO TERMS AND CONDITIONS HEREIN SET FORTH, THAT DURING WARRANTY PERIOD HE WILL AT HIS OWN COST AND EXPENSE, MAKE OR CAUSE TO BE MADE SUCH REPAIRS TO OR REPLACEMENTS OF SAID WORK AS ARE NECESSARY TO CORRECT FAULTY AND DEFECTIVE WORK, AND AS ARE NECESSARY TO MAINTAIN SAID WORK IN WATERTIGHT CONDITION.

THIS WARRANTY IS MADE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

49. SPECIFICALLY EXCLUDED FROM THIS WARRANTY ARE DAMAGES TO WORK AND OTHER PARTS OF THE BUILDING, AND TO BUILDING CONTENTS, CAUSED BY: (A) LIGHTNING, WINDSTORM IN EXCESS OF 90 MILES PER HOUR WINDSPEED, HAILSTORM, AND OTHER UNUSUAL PHENOMENA OF THE ELEMENTS; (B) FIRE; (C) FAILURE OF ROOFING SYSTEM SUBSTRATE INCLUDING CRACKING, SETTLEMENT, EXCESSIVE DEFLECTION, DETERIORATION, AND DECOMPOSITION; (D) FAULTY CONSTRUCTION OF VENTS, EQUIPMENT SUPPORTS, AND OTHER PENETRATIONS OF THE WORK; (E) REPEATED VAPOR CONDENSATION ON BOTTOM OF ROOFING; AND (F) ACTIVITY ON ROOFING BY OTHER PERSONS INCLUDING CONSTRUCTION CONTRACTORS AND MAINTENANCE PERSONNEL, WHETHER AUTHORIZED OR UNAUTHORIZED BY OWNER. WHEN WORK HAS BEEN DAMAGED BY ANY OF THE FOREGOING CAUSES, WARRANTY SHALL BE NULL AND VOID UNTIL SUCH DAMAGE HAS BEEN REPAIRED BY THE CONTRACTOR, AND UNTIL COST AND EXPENSE THEREOF HAS BEEN PAID BY THE OWNER OR BY ANOTHER RESPONSIBLE PARTY SO DESIGNATED.

50. THE CONTRACTOR IS RESPONSIBLE FOR WORK COVERED BY THIS WARRANTY, BUT IS NOT LIABLE FOR CONSEQUENTIAL DAMAGES TO BUILDING OR BUILDING CONTENTS RESULTING FROM LEAKS OR FAULTS OR DEFECTS OF WORK.

51. DURING WARRANTY PERIOD, IF THE OWNER ALLOWS ALTERATIONS OF WORK BY ANYONE OTHER THAN THE CONTRACTOR, INCLUDING CUTTING, PATCHING AND MAINTENANCE IN CONNECTION WITH PENETRATIONS, ATTACHMENT OF OTHER WORK, AND POSITIONING OF ANYTHING ON ROOF, THIS

WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID ALTERATIONS, BUT ONLY TO EXTENT SAID ALTERATIONS AFFECT WORK COVERED BY THIS WARRANTY. IF THE OWNER ENGAGES THE CONTRACTOR TO PERFORM SAID ALTERATIONS, WARRANTY SHALL NOT BECOME NULL AND VOID, UNLESS THE CONTRACTOR, PRIOR TO PROCEEDING WITH SAID WORK, SHALL HAVE NOTIFIED THE OWNER IN WRITING THAT SAID ALTERATIONS WOULD LIKELY DAMAGE OR DETERIORATE THE WORK, THEREBY REASONABLY JUSTIFYING A LIMITATION OR TERMINATION OF THIS WARRANTY.

52. DURING WARRANTY PERIOD, IF ORIGINAL USE OF ROOF IS CHANGED AND IT BECOMES USED FOR, BUT WAS NOT ORIGINALLY SPECIFIED FOR, A PROMENADE, WORK DECK, SPRAY COOLED SURFACE, FLOODED BASIN, OR OTHER USE OR SERVICE MORE SEVERE THAN ORIGINALLY SPECIFIED, THIS WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID CHANGE, BUT ONLY TO EXTENT SAID CHANGES AFFECT WORK COVERED BY THIS WARRANTY.
53. THE OWNER SHALL PROMPTLY NOTIFY THE CONTRACTOR OF OBSERVED, KNOWN, OR SUSPECTED LEAKS, DEFECT OR DETERIORATION, AND SHALL AFFORD REASONABLE OPPORTUNITY FOR THE CONTRACTOR TO INSPECT THE WORK, AND TO EXAMINE EVIDENCE OF SUCH LEAKS, DEFECTS OR DETERIORATION.
54. THIS WARRANTY IS RECOGNIZED TO BE THE ONLY WARRANTY OF THE CONTRACTOR ON SAID WORK, AND SHALL NOT OPERATE TO RESTRICT OR CUT OFF THE OWNER FROM OTHER REMEDIES AND RESOURCES LAWFULLY AVAILABLE TO HIM IN CASES OF ROOFING FAILURE. SPECIFICALLY, THIS WARRANTY SHALL NOT OPERATE TO RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PERFORMANCE OF ORIGINAL WORK.

IN WITNESS THEREOF, THIS INSTRUMENT HAS BEEN DULY EXECUTED THIS _____ DAY OF _____, **20**_____.

SIGNATURES:

CONTRACTOR: _____
[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE*]

ORGANIZATION: ☐ PROPRIETORSHIP ☐ PARTNERSHIP ☐ CORPORATION ☐ JOINT VENTURE
[CHECK **ONE]** * IF JOINT VENTURE, ADD ADDITIONAL BID FORM SIGNATURE SHEETS FOR EACH JOINT VENTURE MEMBER.

BY: _____ _____
[SIGNATURE] [DATE]

NAME: _____ _____
[PRINT OR TYPE NAME] **[TITLE]**

ADDRESS: _____
[MAILING]

_____
[STREET, IF DIFFERENT THAN MAILING]

TELEPHONE: _____ _____
[PRINT OR TYPE TELEPHONE NUMBER] **[PRINT OR TYPE FAX NUMBER]**

STATE OF INCORPORATION: (IF APPLICABLE) _____

END OF APPLICATOR WARRANTY – SCIENCE ENGINEERING AND TECHNOLOGY

SECTION 01 7851 - CERTIFICATE OF ASBESTOS-FREE CONSTRUCTION

PROJECT:

Owner: **Texas Southmost College**

Address: 80 Fort Brown, Brownsville, Texas 78520

Building Name and Areas: **FORT BROWN MEMORIAL CENTER**

Building Address: _____

Area (s) of Work: _____ Date of Acceptance: _____

The undersigned, pursuant to the General and Supplementary Conditions of the Contract for Construction, hereby certifies that to the best of his/her knowledge, information and belief, the materials incorporated into the project, and as used during the construction process, are free of any type of asbestos material.

SEAL:

CONTRACTOR: _____

ADDRESS: _____

_____

_____

BY: _____
(SIGNATURE)

TITLE _____

Subscribed and Sworn to me this _____ day of _____, 20___.

Notary Public: _____

My Commission Expires: _____

STATE OF TEXAS

COUNTY OF _____

SECTION 01 7851 - CERTIFICATE OF ASBESTOS-FREE CONSTRUCTION

PROJECT:

Owner: **Texas Southmost College**

Address: 80 Fort Brown, Brownsville, Texas 78520

Building Name and Areas: **OLIVEIRA STUDENT SERVICES CENTER**

Building Address: _____

Area (s) of Work: _____ Date of Acceptance: _____

The undersigned, pursuant to the General and Supplementary Conditions of the Contract for Construction, hereby certifies that to the best of his/her knowledge, information and belief, the materials incorporated into the project, and as used during the construction process, are free of any type of asbestos material.

SEAL:

CONTRACTOR: _____

ADDRESS: _____

_____

_____

BY: _____
(SIGNATURE)

TITLE _____

Subscribed and Sworn to me this _____ day of _____, 20___.

Notary Public: _____

My Commission Expires: _____

STATE OF TEXAS

COUNTY OF _____

SECTION 01 7851 - CERTIFICATE OF ASBESTOS-FREE CONSTRUCTION

PROJECT:

Owner: **Texas Southmost College**

Address: 80 Fort Brown, Brownsville, Texas 78520

Building Name and Areas: **MUSIC BUILDING**

Building Address: _____

Area (s) of Work: _____ Date of Acceptance: _____

The undersigned, pursuant to the General and Supplementary Conditions of the Contract for Construction, hereby certifies that to the best of his/her knowledge, information and belief, the materials incorporated into the project, and as used during the construction process, are free of any type of asbestos material.

SEAL:

CONTRACTOR: _____

ADDRESS: _____

_____

_____

BY: _____
(SIGNATURE)

TITLE _____

Subscribed and Sworn to me this _____ day of _____, 20___.

Notary Public: _____

My Commission Expires: _____

STATE OF TEXAS

COUNTY OF _____

SECTION 01 7851 - CERTIFICATE OF ASBESTOS-FREE CONSTRUCTION

PROJECT:

Owner: **Texas Southmost College**

Address: 80 Fort Brown, Brownsville, Texas 78520

Building Name and Areas: **GARZA GYMNASIUM**

Building Address: _____

Area (s) of Work: _____ Date of Acceptance: _____

The undersigned, pursuant to the General and Supplementary Conditions of the Contract for Construction, hereby certifies that to the best of his/her knowledge, information and belief, the materials incorporated into the project, and as used during the construction process, are free of any type of asbestos material.

SEAL:

CONTRACTOR: _____

ADDRESS: _____

_____

_____

BY: _____
(SIGNATURE)

TITLE _____

Subscribed and Sworn to me this _____ day of _____, 20___.

Notary Public: _____

My Commission Expires: _____

STATE OF TEXAS

COUNTY OF _____

SECTION 01 7851 - CERTIFICATE OF ASBESTOS-FREE CONSTRUCTION

PROJECT:

Owner: **Texas Southmost College**

Address: 80 Fort Brown, Brownsville, Texas 78520

Building Name and Areas: **GUERRA EARLY CHILDHOOD CENTER**

Building Address: _____

Area (s) of Work: _____ Date of Acceptance: _____

The undersigned, pursuant to the General and Supplementary Conditions of the Contract for Construction, hereby certifies that to the best of his/her knowledge, information and belief, the materials incorporated into the project, and as used during the construction process, are free of any type of asbestos material.

SEAL:

CONTRACTOR: _____

ADDRESS: _____

_____

_____

BY: _____
(SIGNATURE)

TITLE _____

Subscribed and Sworn to me this _____ day of _____, 20___.

Notary Public: _____

My Commission Expires: _____

STATE OF TEXAS

COUNTY OF _____

SECTION 01 7851 - CERTIFICATE OF ASBESTOS-FREE CONSTRUCTION

PROJECT:

Owner: **Texas Southmost College**

Address: 80 Fort Brown, Brownsville, Texas 78520

Building Name and Areas: **CORTEZ HALL**

Building Address: _____

Area (s) of Work: _____ Date of Acceptance: _____

The undersigned, pursuant to the General and Supplementary Conditions of the Contract for Construction, hereby certifies that to the best of his/her knowledge, information and belief, the materials incorporated into the project, and as used during the construction process, are free of any type of asbestos material.

SEAL:

CONTRACTOR: _____

ADDRESS: _____

_____

_____

BY: _____
(SIGNATURE)

TITLE _____

Subscribed and Sworn to me this _____ day of _____, 20___.

Notary Public: _____

My Commission Expires: _____

STATE OF TEXAS

COUNTY OF _____

SECTION 01 7851 - CERTIFICATE OF ASBESTOS-FREE CONSTRUCTION

PROJECT:

Owner: **Texas Southmost College**

Address: 80 Fort Brown, Brownsville, Texas 78520

Building Name and Areas: **BOOKSTORE**

Building Address: _____

Area (s) of Work: _____ Date of Acceptance: _____

The undersigned, pursuant to the General and Supplementary Conditions of the Contract for Construction, hereby certifies that to the best of his/her knowledge, information and belief, the materials incorporated into the project, and as used during the construction process, are free of any type of asbestos material.

SEAL:

CONTRACTOR: _____

ADDRESS: _____

_____

_____

BY: _____
(SIGNATURE)

TITLE _____

Subscribed and Sworn to me this _____ day of _____, 20___.

Notary Public: _____

My Commission Expires: _____

STATE OF TEXAS

COUNTY OF _____

SECTION 01 7851 - CERTIFICATE OF ASBESTOS-FREE CONSTRUCTION

PROJECT:

Owner: **Texas Southmost College**

Address: 80 Fort Brown, Brownsville, Texas 78520

Building Name and Areas: **CAVALRY HALL**

Building Address: _____

Area (s) of Work: _____ Date of Acceptance: _____

The undersigned, pursuant to the General and Supplementary Conditions of the Contract for Construction, hereby certifies that to the best of his/her knowledge, information and belief, the materials incorporated into the project, and as used during the construction process, are free of any type of asbestos material.

SEAL:

CONTRACTOR: _____

ADDRESS: _____

_____

_____

BY: _____
(SIGNATURE)

TITLE _____

Subscribed and Sworn to me this _____ day of _____, 20___.

Notary Public: _____

My Commission Expires: _____

STATE OF TEXAS

COUNTY OF _____

SECTION 01 7851 - CERTIFICATE OF ASBESTOS-FREE CONSTRUCTION

PROJECT:

Owner: **Texas Southmost College**

Address: 80 Fort Brown, Brownsville, Texas 78520

Building Name and Areas: **SCIENCE ENGINEERING AND TECHNOLOGY BLDG**

Building Address: _____

Area (s) of Work: _____ Date of Acceptance: _____

The undersigned, pursuant to the General and Supplementary Conditions of the Contract for Construction, hereby certifies that to the best of his/her knowledge, information and belief, the materials incorporated into the project, and as used during the construction process, are free of any type of asbestos material.

SEAL:

CONTRACTOR: _____

ADDRESS: _____

_____

_____

BY: _____
(SIGNATURE)

TITLE _____

Subscribed and Sworn to me this _____ day of _____, 20___.

Notary Public: _____

My Commission Expires: _____

STATE OF TEXAS

COUNTY OF _____

SECTION 04 0100 – MASONRY REPAIRS & THRU-WALL FLASHING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Removal and replacement of masonry courses to achieve installation of new thru-wall flashings, where shown on the Drawings.

B. Installation of new thru-wall flashing and waterproofing membrane where shown on the Drawings.

1.02 RELATED DOCUMENTS

Uniform General Conditions, Forms, Specification Sections found in Division 01 through Division 26, and all Drawings apply to Work specified in this Section.

1.03 RELATED SECTIONS

A. Division 06 Section - Roofing Carpentry
B. Division 07 Section – Roofing System
C. Division 07 Section – Flashing and Sheet Metal

1.04 SUBMITTALS

A. Comply with provisions of the appropriate Division 01 Section. Submit manufacturer's literature and letters attesting that the cleaning and waterproofing products used meet or exceed these Specifications.

B. Special Requirements for Roofing Submittals: In addition to the below-mentioned submittal requirements and those in Division 01 Sections, all roofing submittals shall comply with the following two requirements. No Exceptions.
   1. Mark each proposed item in product data for this Section by circling or highlighting; no arrows or underlining.
   2. With a bold pen, write the corresponding Article and Paragraph numbers, taken from this Specification Section, on the top right or bottom right corner of the same page.
   3. NOTE: Submitted product data not in compliance with these requirements will be immediately returned - without review - for re-submittal, marked as specified.

C. Proposed method of access, including detailed site plan and sections showing locations of staging, scaffolding and protected openings for access and egress by the Owner.

D. Provide pointing mortar mix with manufacturer’s literature for all components attesting they meet the requirements of this Section.

E. Provide one complete representative 48-inch long sample in place in the field of the new thru-wall flashings. The sample shall have the entire thru-wall flashing membrane and metal components, and include re-installed brick for 24 inches of the sample.

F. Submit Material Safety Data Sheets (MSDS) on each proposed product to the Architect prior to Work beginning. One copy each will be retained for the Architect and the Owner's designated personnel. Keep at least one of the returned copies of the sheets on site and

available to the Contractor and his personnel at all times,

1.05 QUALITY ASSURANCE

A. Manufacturers, suppliers and Contractor shall be firms of long term operation, technically proficient and experienced in this trade. Contractor shall have been in business a minimum of five (5) years and be able to show proof of successful completion of at least three (3) projects of similar scope, cost and complexity to that being bid.

B. It is anticipated that this Work will be accomplished by a subcontractor to the Prime Contractor, although it is not the intent of this Specification to direct the structure of the Contractor's personnel approach to this Work. For purposes of this Section it is assumed that this trade will be provided by a subcontractor.

C. Applicable Standards and Specifications:
1. Portland Cement: ASTM C-150, Type I. Color: Gray standard or white, as required.
2. Hydrated Lime: ASTM C-207.
3. Sand: Where required, pure natural sand or ground stone, conforming to ASTM C-144. Dye to color if required.
4. Federal Specification: QQ-B-101c.
5. ANSI Specifications: A42.2 and A42.3.
6. ANSI/ASTM Specification: C926.
7. International Building Code; edition adopted by local authorities having jurisdiction.

1.06 PRODUCT HANDLING, STORAGE AND DELIVERY

A. Deliver packaged materials to site in manufacturer's original, unopened, labeled containers. Labels shall remain on the cans, with those labels properly identifying the material contained within. Materials shall not be placed in containers other than those designated for that material, with manufacturer's label. Correct labels shall remain on containers while and where the materials are being applied.

B. Masonry cement, dye and lime products are to be stored off the ground in a dry location and be covered with waterproof coverings. Sand is to be stored in a dry well-drained location and covered during rain conditions.

C. All mortar shall be mixed on the ground and transported to the Work area. No mortar shall be mixed on scaffolding or on existing or new roof surfaces.

1.07 ENVIRONMENTAL CONDITIONS

A. Outside temperatures for the masonry related Work must be a minimum of fifty (50) degrees Fahrenheit and rising. Do not store materials at temperatures lower than 25 degrees F or higher than 90 degrees F.

B. Do not remove brick from existing wall material during or under threat of rain. Do not install Work of this Section during or under threat of rain.

1.08 JOB CONDITIONS

A. Maintain all exterior exits and doorways from buildings in operating condition continuously throughout the Work. Construct temporary structures as required from plywood and

framing lumber and maintain those structures in a safe manner until Work is complete and the structures may be removed.

B. All mixing of masonry mortar materials shall remain in a temporary fenced area where designated. At no time shall these materials be stored outside of the designated fenced areas. Upon completion of the Work all evidence of this operation shall be cleaned-up and removed to the satisfaction of the Owner.

1.09 WARRANTY

Provide a two-year written Installer's warranty against defects in materials and workmanship, commencing on the Date of Substantial Completion for the overall project.

PART 2 - PRODUCTS

2.01 MASONRY MATERIALS

A. Mortar for general use shall match the existing in color and texture, and except as otherwise specified herein, and be mixed in the proportion of one (1) part Portland Cement, Hydrated Lime of not less than one-quarter (1/4) and not more than one-half (1/2) parts, and sand aggregate of not less than two-and-one-quarter (2-1/4) and not more than three (3) times the sum of the volume of cement and lime used, to produce a Type N mortar, 1500 psi minimum compressive strength at 28 days. (if it is determined that the existing Mortar, is Type S, a type S mixture may be substituted for what is indicated above.)

B. Pointing mortar shall be made of as dry a consistency as shall produce plasticity to be worked into the joints.

C. Pre-mixed masonry mortar mixes will not be allowed.

D. Do not add admixtures, including air-entraining agents, accelerators, set retarders, water repellent agents, anti-freeze compounds or other admixtures, unless otherwise indicated. Coloring pigments may be added in limited quantities to achieve a color matching the existing mortar.

E. Brick shall match existing in size, texture, color and shape. Mortar joints shall match existing in size, texture, color and finish.

2.02 THRU-WALL FLASHING PRODUCTS

A. Thru-Wall Flashing: Grace Construction Products' "Perm-A-Barrier," or an approved equal, of 1.0 mm thickness, self-adhering rubberized asphalt and cross-laminated polyethylene film designed to meet test requirements of ASTM D-412, D-570, D-1004, D-1876, D-1938, D-1970, D-3767, E-96, and E-154. Supply membranes in factory-cut strips of 18-inch, 24-inch or 36-inch widths.

B. Accessory Materials:
   1. Primers: Grace Construction Products' "Perm-A-Barrier WB Primer," and "Bituthane Primer B2," when required for substrate conditions.
   2. Mastic: "Bituthane Mastic."

C. Termination Bars: 12-gauge or 1/8-inch x 1-inch hot dipped galvanized steel bar stock.

D. Pin Anchors: ¼-inch x 1-1/2 inch zinc-jacketed pin anchors: "Zamac Hammer-Screw," or an approved equal. **Drive Pins are not acceptable**. Where the substrate masonry will not accept pin anchors, the Contractor may request to substitute Buildex "Tapcon" screws, or an approved equal, of appropriate diameter and length.

PART 3 - EXECUTION

3.01 INSPECTION

Examine the Contract Documents and all conditions which affect the quality of the Work. Report deviations or other unsatisfactory conditions to the Architect. No Work shall proceed until conditions are satisfactory to meet requirements of the Contract Documents.

3.02 PREPARATION

A. Review the Contract Documents to determine and locate all Work required by this Section and the Work of any other trade which affects the Work of this Section.

B. Coordinate the installation of flashings, reglets, flashing receivers, anchors, etc., requiring embedment in masonry removal and repair Work.

3.03 MASONRY REMOVAL AND THRU-WALL FLASHING INSTALLATION

A. At existing masonry walls:
   1. Cut out and remove no more than six (6) existing horizontal masonry units (48 inches maximum length) and no more than 3 courses (8 inches maximum height) at any one time in order to install new thru-wall flashing membrane.
   2. If working at more than one area in a single wall, leave minimum 48 inches of intact masonry between any two areas being disturbed.
   3. Clean face of backup CMU completely of all mortar prior to installing sheet metal receiver and membrane flashing materials.

B. Install new sheet metal receiver, as shown on Drawings as specified.

C. Install new thru-wall membrane materials. Make sure membrane is fully bonded and slightly sloped to the exterior. Lap ends at least 6 inches and make sure membrane is fully adhered in a watertight manner at end laps and corners. Anchor top edge of flashing with termination bar and masonry drive pins spaced at 12 inches on centers.

3.04 INSTALLATION OF REPLACEMENT MASONRY UNITS

A. Do not lay masonry in freezing weather. No anti-freeze ingredient shall be used. Comply with recommendations of Brick Institute of America Technical Notes 1A, most current edition. Do not lay units that are chipped, moist or frozen.

B. Tests:
   1. Perform absorption tests as described above prior to beginning Work.
   2. If determined by the Architect the Contractor may be required to perform absorption

tests as its expense per ASTM C-67.

3. Variation of Mortar Joint Thickness: Do not exceed existing average bed joint thickness by more than plus or minus 1/8-inch. Do not exceed head joint thickness by more than plus or minus 1/8-inch. Joints shall match existing to the greatest extent possible.

C. Fill all horizontal and vertical joints with average 3/8-inch thick, full mortar coverage of face and width. Fill horizontal bed joints full depth of unit. If unit is moved after setting, remove, clean and reset the unit. Tool all joints to match existing solid adjacent joints.

3.05 FINAL CLEANING

A. Remove temporary fencing and barricades and restore grounds to prior Work condition. Replace any permanently damaged vegetation as required. Remove excess materials from roof surfaces.

B. Clean excess mortar from all joints and face of brick.

END OF SECTION 04 0100

SECTION 07 0150.19– ROOF REPLACEMENT PREPARATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
1. Roof tear-off.
2. Partial roof tear-off.
3. Temporary roofing membrane.
4. Roof re-cover preparation.
5. Protection of existing roofing system that is not replaced.
6. Modify rooftop appurtenances where required to achieve minimum recommended heights and clearances for new roof installation.

B. Related Sections:

1. Division 01 Section "Summary" for use of the premises and phasing requirements.
2. Division 01 Section "Construction Progress Documentation" for photographs taken before roof replacement preparation.
3. Division 01 Section "Photographic Documentation" for photographs taken before roof replacement preparation.
4. Division 01 Section "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for roof replacement preparation.
5. Division 22 Section “Common Work Results for Plumbing” for plumbing and piping modifications, removal, and reinstallation.
6. Division 23 Section “Common Work Results for HVAC” for HVAC equipment modifications, removal, and reinstallation.
7. Division 26 Section “Common Work Results for Electrical” for electrical equipment disconnection and reconnection.

1.3 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.

1.4 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

B. Existing Membrane Roofing System: Built-up asphalt, Built-up coal-tar, SBS-modified bituminous roofing membrane, roof insulation, surfacing, and components and accessories between deck and roofing membrane.

C. Substrate Board: Rigid board or panel products placed over the roof deck that serve as thermal barriers, provide a smooth substrate, or serve as a component of a fire-resistance-rated roofing system.

D. Roof Re-Cover Preparation: Existing roofing membrane that is to remain and be prepared for reuse.

E. Roof Tear-Off: Removal of existing membrane roofing system from deck.

F. Lightweight Insulating Concrete Removal: Removal of existing lightweight insulating concrete fill under existing membrane roofing system from structural deck.

G. Partial Roof Tear-Off: Removal of a portion of existing membrane roofing system from deck or removal of selected components and accessories from existing membrane roofing system.

H. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.

I. Existing to Remain: Existing items of construction that are not indicated to be removed.

1.5 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Refer to Division 01 Section "Unit Prices" for description of Work in this Section affected by unit prices.

B. Demolition of Roofing and Insulation:
   1. Basis of Measurement: By the square (100 square feet).
   2. Basis of Payment: Includes complete removal and proper disposal of existing materials.

C. Demolition and Replacement of Damaged or Deteriorated Steel Roof Deck:
   1. Basis of Measurement: By area size(s) listed in Schedule of Unit Prices in Bid Form.
   2. Basis of Payment: Includes complete removal and proper disposal of existing materials.

1.6 SUBMITTALS

A. Product List: Submit list of proposed Products and manufacturers, including all items specified in Part 2 – Products or otherwise required by the Work.

B. Product Data: For each type of product indicated or required to perform the Work.
   1. Provide data for each required product indicating characteristics, performance criteria, mixing and preparation requirements, limitations, and Material Safety Data Sheets (MSDS).

C. Demolition and Removal Procedures and Schedule: Outline all work tasks and schedule them, showing clearly when each area is to be performed. Coordinate with Owner and other contractors to avoid impact to other work Owner's occupancy.

D. Temporary Roofing: Submit Product Data and description of temporary roofing system. If temporary roof will remain in place, submit surface preparation requirements needed to receive permanent roof, and submit a letter from roofing membrane manufacturer stating acceptance of temporary membrane, and that its inclusion will not adversely affect the roofing system's resistance to fire and wind or its FM Global rating.

E. Test Reports:

1. Fastener Pull Test Results: Provide complete testing results in an organized and understandable format, including:
    a. Roof plan indicating location and designation for each pullout test;
    b. Fastener type(s), installation method(s) used, and value result for each test performed;
    c. Type of tester (equipment) used and calibration certification by Independent Laboratory within previous 12 months.

F. Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces that might be misconstrued as having been damaged by roof replacement operations. Submit before Work begins.

G. Landfill Records: Indicate receipt and acceptance of hazardous wastes, such as asbestos-containing material, by a landfill facility licensed to accept hazardous wastes.

H. Roof Replacement Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to roofing system tear-off and replacement including, but not limited to, the following:

1. Meet with Owner; Architect; Owner's insurer if applicable; testing and inspecting agency representative; roofing system manufacturer's representative; deck Installer; roofing Installer including project manager, superintendent, and foreman; and installers whose work interfaces with or affects roof replacement including installers of roof accessories and roof-mounted equipment.
2. Methods and procedures related to roof replacement preparation, including membrane roofing system manufacturer's written instructions.
3. Temporary protection requirements for existing roofing system that is to remain, during and after installation.
4. Roof drainage during each stage of roof replacement and roof drain plugging and plug removal requirements.
5. Construction schedule and availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
6. Existing deck removal procedures and Owner notifications.
7. Condition and acceptance of existing roof deck and base flashing substrate for reuse.
8. Structural loading limitations of deck during roof replacement.
9. Base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect roof replacement.
10. HVAC shutdown and sealing of air intakes.
11. Shutdown of fire-suppression, -protection, and -alarm and -detection systems.
12. Asbestos removal and discovery of asbestos-containing materials.
13. Governing regulations and requirements for insurance and certificates if applicable.
14. Existing conditions that may require notification of Architect before proceeding.

1.7 PROJECT CONDITIONS

A. Owner will occupy portions of building immediately below roof replacement area. Conduct roof replacement so Owner's operations will not be disrupted. Provide Owner with not less than **72** hours' notice of activities that may affect Owner's operations.
    1. Coordinate work activities daily with Owner so Owner can place protective dust or water leakage covers over sensitive equipment or furnishings, shut down

HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below the work area.

2. Before working over structurally impaired areas of deck, notify Owner to evacuate occupants from below the affected area. Verify that occupants below the work area have been evacuated before proceeding with work over the impaired deck area.

B. Protect buildings scheduled for roof replacement, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from roof replacement operations.

C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

1. Conditions existing at time of inspection for bidding will be maintained by Owner as far as practical.

D. Limit construction loads on roof to **200 lb** rooftop equipment wheel loads and **20 PSF** for uniformly distributed loads.

E. Construction Drawings and Project Manual for existing roofing system are provided for Contractor's reference. Contractor is responsible for conclusions derived from existing documents.

F. Weather Limitations: Proceed with roof replacement preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.

G. Hazardous Materials: It is not expected that hazardous materials such as asbestos-containing materials will be encountered in the Work.

1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

1.8 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during roof replacement, by methods and with materials so as not to void existing roofing system warranty. Notify warrantor before proceeding.

1. Notify warrantor of existing roofing system on completion of roof replacement, and obtain documentation verifying that existing roofing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

PART 2 - PRODUCTS

2.1 INFILL MATERIALS

A. Use infill materials matching existing membrane roofing system materials, unless otherwise indicated.

B. Deck Repair Materials:

1. Steel Deck: Match existing deck in design, profile, gage and finish. Deck to nest into existing deck with trimmed edges.

C. All Decks: Align top plane with existing deck.

D. Curbs and Support Members: Wood or metal curbs and support items as indicated and required for existing conditions.

E. Miscellaneous Metals: Conform to existing Products and installations.

F. Plumbing and Mechanical Piping: Match existing where practical and conform to products and execution specified in Division 22 Section “Common Work Results for Plumbing”.

G. Mechanical Equipment: Match existing where practical and conform to products and execution specified in Division 23 Section “Common Work Results for HVAC”.

H. Electrical Fixtures and Equipment: Match existing where practical and conform to products and execution specified in Division 26 Section “Common Work Results for Electrical”.

2.2 TEMPORARY ROOFING MATERIALS

A. Design and selection of materials for temporary roofing are responsibilities of Contractor.
   1. Materials selection and design of temporary roofing to be acceptable to selected roofing materials manufacturer.

2.3 AUXILIARY ROOF REPLACEMENT MATERIALS

A. General: Auxiliary roof replacement preparation materials recommended by roofing system manufacturer for intended use and compatible with components of existing and new membrane roofing system.

B. Base Sheet Fasteners: Capped head, factory-coated steel fasteners, listed in FMG's "Approval Guide."

C. Metal Flashing Sheet: Metal flashing sheet is specified in Division 07 Section "Sheet Metal Flashing and Trim."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that areas to be demolished are clear of encumbrances.

B. Examine existing mechanical and electrical items to determine conditions and operability.

C. Verify existing roof drains and drain piping are clear of debris, open and functional, that piping is properly connected and sealed to drain bowls and all drain components are in serviceable condition.

D. Notify Owner’s Representative in writing of any inoperable items or unsafe conditions.

E. Beginning work indicates acceptance of existing conditions, including operability of mechanical and electrical items.

3.2 PREPARATION

A. Protect existing membrane roofing system that is indicated **not to be reroofed**.

   1. Loosely lay 1-inch- minimum thick, molded expanded polystyrene (MEPS) insulation over the roofing membrane in areas indicated. Loosely lay 15/32-inch

plywood or OSB panels over MEPS. Extend MEPS past edges of plywood or OSB panels a minimum of 1 inch.

2. Limit traffic and material storage to areas of existing roofing membrane that have been protected.
3. Maintain temporary protection and leave in place until replacement roofing has been completed.

B. Prevent movement or settlement of adjacent structures and paving. Provide bracing and shoring.

C. Protect existing landscaping materials, appurtenances, structures, paving, roofing and siding, roof mounted equipment, roof deck and structures which are not to be demolished.

D. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work. Cover air-intake louvers before proceeding with roof replacement work that could affect indoor air quality or activate smoke detectors in the ductwork.

E. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.

F. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.

1. If roof drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of new membrane roofing system, provide alternative drainage method to remove water and eliminate ponding. Do not permit water to enter into or under existing membrane roofing system components that are to remain.

G. Verify that rooftop utilities and service piping have been shut off before beginning the Work.

3.3 FASTENER PULL-OUT TESTING

A. Perform fastener pull-out tests according to SPRI FX-1, and submit test report to membrane manufacturer to determine fastener pattern required to resist uplift pressure at corners, perimeter, and field of roof as indicated Article on Performance Requirements.

1. Obtain Architect's approval to proceed with membrane manufacturer’s recommended fastening pattern. Architect may furnish revised fastening pattern commensurate with pull-out test results.

3.4 ROOF TEAR-OFF

A. General: Notify Owner each day of extent of roof tear-off proposed for that day and obtain authorization to proceed.

B. Remove aggregate ballast from roofing membrane.

C. Remove loose aggregate from aggregate-surfaced built-up bituminous roofing using a power broom.

D. Remove pavers and accessories from roofing membrane. [Store and protect pavers and accessories for reuse. Discard cracked pavers.]

E. Remove protection mat and extruded-polystyrene insulation from protected roofing membrane.
   1. Discard extruded-polystyrene insulation that is wet and exceeds 8 lb/cu. ft.
   2. Store extruded-polystyrene insulation for reuse and protect from physical damage.

F. Roof Tear-Off: Where indicated, remove existing roofing membrane and other membrane roofing system components down to the deck.
   1. Remove cover boards, roof insulation, and substrate boards.
   2. Remove lightweight insulating concrete fill in areas where scheduled for replacement.
   3. Bitumen and felts that are firmly bonded to concrete decks are permitted to remain if felts are dry. Remove unadhered bitumen and felts and wet felts.
   4. Remove excess asphalt from steel deck. A maximum of 15 lb/100 sq. ft. of asphalt is permitted to remain on steel decks.
   5. Remove fasteners from deck or cut fasteners off slightly above deck surface.

G. Partial Roof Tear-Off: At areas scheduled for overlay, where moisture has been detected by the contractor. Remove existing roofing membrane and immediately check for presence of moisture by visually observing cover boards, roof insulation and other substrate boards that will remain.
   1. Coordinate with Owner's inspector to schedule times for tests and inspections immediately after membrane removal.
   2. With an electrical capacitance moisture-detection meter, spot check substrate boards that will remain.
   3. Remove wet or damp boards and roof insulation and replace in kind.
   4. Bitumen and felts that are firmly bonded to concrete decks are permitted to remain if felts are dry. Remove unadhered bitumen and felts and wet felts.
   5. Remove excess asphalt from steel deck. A maximum of 15 lb/100 sq. ft. of asphalt is permitted to remain on steel decks.
   6. Remove fasteners from deck or cut fasteners off slightly above deck surface.

H. Do NOT use power cutting tools on materials identified as ACRM.

3.5 DECK PREPARATION

A. Inspect deck after tear-off of membrane roofing system.

   1. Verify that concrete substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263 or by pouring 1 pint of hot roofing asphalt on deck at start of each day's work and at start of each roof area or plane. Do not proceed with roofing work if moisture condenses under the plastic sheet or if asphalt test sample foams or can be easily and cleanly stripped after cooling.

B. If broken or loose fasteners that secure deck panels to one another or to structure are observed, or if deck appears or feels inadequately attached, immediately notify Architect. Do not proceed with installation until directed by Architect.

C. If exposed metal deck panels are observed to be corroded, immediately notify architect. Do not proceed with installation until directed by Architect.

D. If deck surface is not suitable for receiving new roofing, or if structural integrity of deck is suspect, immediately notify Architect. Do not proceed with installation until directed by Architect.

3.6 DECK AND SUPPORT REPLACEMENT AND REPAIR

A. Replace damaged and deteriorated deck under Unit Prices as required. Replacement deck to match existing. If directed by Architect, prep and coat corroded steel decking under Unit Prices with "1 Step Rust Converter" as specified in Section 09 09113.

B. Install new deck and accessories as required and directed by Architect.

C. Remove damaged and deteriorated deck by cutting in straight lines. Coordinate cuts with structural supports to ensure proper installation of replacement materials.

D. Where necessary, grind away existing welds and protrusions. Provide smooth and even surface for new deck on existing structural framing.

E. Install new deck repair materials with all edges properly supported on structural members or adjacent decking. Secure with approved fasteners, spaced as indicated or maximum 8-inches on center.

3.7 DECK INFILL FOR ABANDONED OPENINGS

A. Prepare openings as indicated in previous Article on Deck and Support Replacement and Repair.

B. Infill roof deck openings where abandoned equipment is removed and not replaced.
   1. Install angles or "Z" clips on all sides of opening to receive new roof deck.
   2. Provide fire-rated thermal barrier (gypsum board, Dens-Deck®, or approved alternate) on Steel decking under polyisocyanurate insulation.

C. Steel Deck:
   1. Type A: Where repair area exceeds two square feet and/or 12-inches on any side.
      a. Remove deteriorated deck to 6-inches into non-deteriorated deck on all sides.
      b. Prime existing deck at attachment points with rust bonding red oxide metal primer.
      c. Install new 22-gage galvanized Steel deck of matching profile over infill area.
         1) Lap each end of new deck a minimum of 6-inches over existing deck.
         2) Lap each side of new deck a minimum of one deck flute over existing deck.
         3) Attach to existing deck with fasteners as recommended by deck manufacturer or as follows:
            a) Ends: #5 TEK screws at maximum 6-inches on center or as directed.
            b) Sides: Self-tapping sheet metal screws at maximum 6-inches on center or as directed.
   2. Type B: Where repair area is less than 12-inches on any side.
      a. Remove all rust by wire brushing and apply rust bonding red oxide metal primer.
      b. Install new 18-gage galvanized sheet metal plate over infill area.
         1) Lap all sides of new plate a minimum of 12-inches over existing deck.
            a) Attach to existing deck with fasteners as recommended by deck manufacturer or with self-tapping sheet metal screws at maximum 6-inches on center or as directed.

3.8 INFILL MATERIALS INSTALLATION

A. Immediately after removal of selected portions of existing membrane roofing system, and inspection and repair of deck, if needed, fill in the tear-off areas to match existing membrane roofing system construction.
   1. Install new roofing membrane patch over roof infill area. If new roofing membrane is installed the same day tear-off is made, roofing membrane patch is not required.

3.9 TEMPORARY ROOFING MEMBRANE

A. Install approved temporary roofing membrane over area to be reroofed.

B. Remove temporary roofing membrane before installing new roofing membrane.

C. Prepare the temporary roof to receive lightweight insulating concrete fill and new roofing membrane according to approved temporary roofing membrane proposal by patching and repairing temporary roofing membrane. Restore temporary roofing membrane to watertight condition. Obtain approval for temporary roof substrate from roofing membrane manufacturer and Architect before installing new roof.

3.10 ROOF RE-COVER PREPARATION

A. Repair blisters and other substrate irregularities that inhibit the successful application of lightweight concrete topping.

   1. Sweep and/or vacuum all loose aggregate from aggregate-surfaced, built-up bituminous roofing. Repair all damage to the remaining membrane.
   2. Broom clean remaining existing substrate.
   3. Coordinate with Manufacturer to schedule times for tests and inspections before proceeding with installation of Lightweight insulating concrete.
   4. Verify that existing substrate is dry before proceeding with installation of Light Weight Insulating Concrete. Spot check substrates with an electrical capacitance moisture-detection meter.
   5. Remove materials that are wet or damp. Removal will be paid for by adjusting the Contract Sum according to unit prices included in the Contract Documents.

3.11 EXISTING BASE FLASHINGS

A. Remove existing base flashings around parapets, curbs, walls, and penetrations.
   1. Clean substrates of contaminants such as asphalt, sheet materials, dirt, and debris.

B. Do not damage existing curbs, counter-flashings, metal roofing panels, or other components or equipment that are to remain. Replace items damaged during removal with new Products of same design and quality.

C. Inspect parapet sheathing for deterioration and damage. If parapet sheathing has deteriorated, immediately notify Architect.

3.12 EXISTING VENTILATORS REPLACEMENT

A. Remove all existing non-mechanically operated vents and ventilators and replace with new Products of identical design, function, and configuration, unless otherwise indicated.

B. Install curbs for all ventilators with a deck opening of 12-inches or greater.

3.13 EXISTING MECHANICAL AND ELECTRICAL ITEMS MODIFICATIONS

A. When required to achieve recommended clearances, minimum curb heights, or other modifications, disconnect, modify, and reconnect mechanical and electrical services using qualified and licensed personnel.

B. Do not disrupt any services unless specifically approved by Owner's Representative and on-site personnel.

C. Restore services and verify proper operational conditions to satisfaction of Owner's Representative.

3.14 ABANDONED DRAIN PLUG

A. Install plumber's plug in roof drains scheduled to be abandoned in place.

B. Fill above plumber's plug with non-shrink grout or Pitch Pan Filler Sealant - Type II.

C. Cover plugged drain with galvanized sheet metal plate; minimum 24-inches square. Attach to deck with three fasteners each side or 8-inches oc if circular plate is used.

3.15 DISPOSAL

A. Collect demolished materials and place in containers. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
   1. Storage or sale of demolished items or materials on-site is not permitted.

B. Transport and legally dispose of demolished materials off Owner's property.

END OF SECTION 07 0150.19

Section 07 4113 – Metal Roof Panels

Part 1 - General

1.1 Description

A. Section Includes preformed metal roof system including clips, perimeter and penetration flashing, closures, and fasteners

1.2 Related Sections

A. Division 7 Section – Roof Replacement Preparation

1.3 Submittals

A. Shop Drawings by manufacturer only, including the following:

1. Full Roof Plan with panel layout
2. Elevations, Sections, and Details
3. Location, gauge, and finish of all related components
4. Relationships with adjoining work
5. Include fastener types and spacing
6. Drawings will be stamped by a professional engineer in the state of the project location

a. Provide written certification that the submitted roofing system and related details comply with local building code and as specified herein.

b. Submit negative wind uplift pressure calculations using the project and building code data

B. Product Data

1. Manufacturer's data sheet including all accessories

C. Samples

1. 12" long section of specified panel width and finish
2. Panel Clip

D. Design Test Reports – must meet or exceed design and performance criteria

1. ASTM E1592
2. Static Water Testing

E. Sample Warranties

1. Specified Finish Warranty

2. Specified Weathertightness Warranty

F. Letter from manufacturer stating roofing contractor has been trained to install the specified metal roofing system

1.4 Installer Qualifications

A. 5 years experience specializing in the installation of structural standing seam metal roof systems

B. Must be trained by the manufacturer to install the specified system

1.5 Delivery, Storage, and Handling

A. Protect components using best practices to prevent abrasion damage, mechanical abuse, staining discoloration, or corrosion during manufacturing, shipment and storage.

B. Secure panels where they are protected from wind and moisture, while allowing proper drainage and air circulation

C. Any unsatisfactory components will be rejected and/or reproduced to meet quality criteria

1.6 Job Conditions

A. Coordinate work with related or adjoining trades to prevent damage to stored or installed components

B. Verify acceptable storage loads on roof slopes

C. Precise location of all roof penetrations shall be verified prior to final roof layout

1.7 Quality Criteria

A. A792-96 – Specification for steel sheet, 55% Aluminum-Zinc Alloy coated by the hot-dip process

B. Static water pressure head water infiltration: The panel system shall be tested in accordance with FM4471 Appendix G, and pass with no leakage. The test specimen must successfully withstand being submerged under 6” of water for a minimum period of 7 days.

C. E1592-95 – Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference

1.8 Design and Performance Criteria

A. Thermal Movement

1. Metal Roofing system, including flashing, shall accommodate unlimited thermal movement without buckling or excess stress on the structure.

2. All panel and trim attachments will be designed to specifically satisfy the requirements of the roof design (shown in shop drawings).

B. Uniform Wind Load Capacity:

1. Installed roof system and applicable trim and accessories shall withstand positive and negative design wind loading pressures complying with:

    a. ASCE 7 – 10

    b. Safety factor of 2X

    c. Importance Class III with an Importance Factor of 1.15 – Contractor windstorm Engineer to Provide.

    d. Wind Speed – Contractor windstorm Engineer to Provide.

    e. Exposure Category: – Contractor windstorm Engineer to Provide.

    f. Enclosure Classification: – Contractor windstorm Engineer to Provide.

    g. Mean Roof Height: Varies – Field Verify

    h. Minimum Building Width: Varies – Field Verify

    i. Corner and Perimeter Zone Widths: – Contractor windstorm Engineer to Provide.

    j. Roof Slope: Varies (1 in 12) to (4 in 12) Field Verify.

    k. Design Pressures (Manufacturer calculation resulting from ASCE 7 -10 with application of safety factor and importance factor)

2. Capacity shall be generated using data generated from ASTM E1592 Testing

C. Water Infiltration – Panel system shall be tested in accordance with FM4471 Appendix G and pass with no leakage. A 6” standing head of water is placed over the sample and maintained for a period of 7 days.

1.9 Warranties

A. Finish/Substrate Warranty – Manufacturer’s 20-year warranty covering checking, crazing, peeling, chalking, fading, and adhesion.

B. Weathertightness Warranty – Manufacturer’s 20-year non-prorated Weathertightness warranty. Coverage includes all flashing, penetrations, and edge details. In addition, the manufacturer warrants to repair or replace damages resulting from system failure at pressures less than those specified herein.

Part 2 – Products

2.1 Roof Panel and Roof Field accessory Materials

A. Galvalume Plus Steel, type AZ-55, grade 50 as per ASTM A792-96

B. Gauge: 24 GA (0.024”)

2.2 Perimeter Trim, Drainage and sheet metal Accessory Materials

A. Factory Painted Galvalume Plus Steel, type AZ-55, grade 50 as per ASTM A792-96 (Color to be selected by Architect)

B. Gauge: 24 GA (0.024")

2.3 Metal Roofing System

A. Continuous panels with no end laps. "138T & 238T" as provided by Architectural Building Components (www.archmetalroof.com) Houston, Texas (800) 423-1105

1. *Widths: 138T - 16"; 238T - 24" – Reference* ***Sheet R1*** *- "Roof Repair and Replacement Schedule"*

2. *Finished seam height will be a minimum of 1-3/8" or 2-3/8" – Reference* ***Sheet R1*** *- "Roof Repair and Replacement Schedule"*

3. *Texture: Smooth OR Striations OR Stiffener Ribs*

4. Panels greater than 60' will be manufactured at the project location utilizing factory roll-forming equipment and operated by factory personnel. No laps will be accepted.

5. *Panel design shall be symmetrical*

6. Cap shall have 2 rows of continuous factory applied hot melt sealant.

7. Panel must offer individual replaceability, without altering adjacent panels, after final installation is completed.

8. *Alternate Manufacturers:*

a. Alternate Manufacturers must show full compliance with project specifications and submit all required data in accordance with Sections 01600 and 01610 for consideration.

B. Substitutions shall fully comply with specified requirements in appearance, assembly, and performance

1. Substitutions must be submitted within 10 days of bid date with complete product data

2. No post-bid substitution requests will be considered

2.3 Finishes

A. Fluorocarbon Coating: Consists of primer, applied at a nominal dry film thickness of .25 mil and a color coat, applied at a nominal dry film thickness of .75 mil, giving a 1.0 mil nominal dry film on topcoat. Paint finish should be Kynar 500 as selected from manufacturers standard color selection. The back side of the material should be .25 mil. Primer and a 0.25 polyester washcoat

2.4 Roof System Accessories

A. Clips shall be 16 GA galvanized steel, one-piece, and cannot make direct contact with the panel cap

B. All fasteners for clip, trim, and structural member attachment will be supplied by metal roof system manufacturer

C. Trim, flashing, gutters and downspouts will be of the same gauge and finish unless approved otherwise by the metal roof system manufacturer.

1. All sheet metal valleys, Gutters and Trim will be supplied in continuous lengths up to 32'. Gutters shall be detailed and fabricated with Expansion Joints every 50' as per SMACNA guidelines.

2. Ridge closures, consisting of metal channel surrounding factory precut closed cell foam, will not be secured through the field of the panel.

3. Trim will be installed specifically as displayed in the manufacturer provided shop drawings. Any suggested changes must be approved in writing by the metal roof system manufacturer

D. Sealants and Sealant Tapes will be specified and supplied by the metal roof system manufacturer and submitted to Architect for Review as part of the submittal process.

E. Underlayment: Self adhering Ice and Water Shield with surfacing for Metal Roof Applications, as manufactured by Grace, or approved Equal.

F. Gypsum Board Deck Overlay Materials: 3/8" Securock as manufactured by US Gypsum, or approved equal.

G. Expanded Polystyrene Insulation Board: Expanded Polystyrene (EPS) insulation board having a nominal density of 2 pcf (16 kg/m³) defined as Type I by ASTM C 578 and containing approximately 3% open area. Each bundle of board shall be delivered to the job site with clear identification as to manufacturer and shall carry the Factory Mutual approval label and the Underwriters Laboratories Classified label on each bundle:

1.	Board density:	2 pounds per cubic foot
2.	Board size between roof huggers:	1.5 x 60 x 120 inch
3.	Board size between panels:	3.0 x 24 x 96 inch
4.	Total Board Thickness:	4.5 - inch minimum
5.	Board Edges:	Square

Part 3 – Execution

3.1 Deck Inspection

A. Determine, with the presence of the installer, that structural conditions are satisfactory.

B. Conflicts resulting from inspection should be resolved prior to roof panel installation.

3.2 Pre-Roofing Conference

A. Prior to beginning metal roof system assembly, a conference shall be held to review work to be completed:

1. Required attendees: Contractor, metal roofing subcontractor, metal roof system manufacturer's warranty inspector, and any other subcontractors who have equipment penetrating the roof or projects that require roof access.

3.3 Panel Installation

A. Protective film should be removed prior to extended exposure to sunlight, heat, and other weather elements

B. Panels should be handled at seams to prevent buckling

C. Limit traffic on installed panel to prevent unnecessary damage to the finish

D. Install continuous length panels plumb, level, and straight with seams and ribs parallel

E. Install panels without excessive waves, warps, or buckles

F. Minimum required underlayment shall be fully installed prior to roof panel loading or installation on roof surface

G. All clips being secured directly on insulation shall require a bearing plate as provided by the manufacturer

H. Refer to manufacturer shop drawings for:

1. Clip spacing

2. Location(s) for fixing the roof panels

I. All panels shall be panned at ridge, hip, and headwall conditions

J. All panels shall have field applied butyl tape sealant between seams at the eave condition

3.4 Roofing and Flashing Installation

A. All trim shall be installed using the fastener type and spacing as displayed on the manufacturer shop drawings

B. Trim attachments shall not restrict the thermal movement requirements of the panel

C. Fabricate and install sheet metal flashing in accordance with SMACNA manual

D. In the process of sheet metal installation, allow no sealant to migrate onto exposed surfaces

E. Any damaged product should be removed and replaced immediately upon recognition

F. Touch up paint should be used minimally for minor scratches. Major scratches or paint failures shall be recognized at damaged and require replacement

G. Clean exposed surfaces upon completion of installation to prevent finish damage

END OF SECTION 07 4113

SECTION 07 4200 – SHEET METAL WALL PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Concealed-Fastener Metal Wall Panels

B. Related Sections:
   1. Division 06 Section "Carpentry" for Plywood/OSD metal wall panel substrate.
   2. Division 07 Section "Roof Specialties" for manufactured and other roof specialties not part of metal wall panel assemblies.
   3. Division 07 Section "Joint Sealants" for field-applied sealants not otherwise specified in this Section.

1.3 DEFINITIONS

A. Metal Wall Panel Assembly: Metal roof panels, attachment system components, miscellaneous metal framing, thermal insulation, and accessories necessary for a complete weathertight roofing system.

1.4 PERFORMANCE REQUIREMENTS

A. General Performance: Metal wall panels shall comply with performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction.

1.5 SUBMITTALS

A. Product List: Submit list of proposed Products and manufacturers, including all items specified in Part 2 – Products or otherwise required by the Work.

B. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of roof panel and accessory.

C. Shop Drawings: Show fabrication and installation layouts of metal wall panels; details of edge conditions, side-seam and endlap joints, panel profiles, corners, anchorages, trim, flashings, closures, and accessories; and special details. Distinguish between factory- and field-assembled work.
   1. Accessories: Include details of the following items, at a scale of not less than 1-1/2 inches per 12 inches:
      a. Flashing and trim.

D. Samples for Initial Selection: For each type of metal roof panel indicated with factory-applied color finishes.

1. Include similar Samples of trim and accessories involving color selection.

E. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
   1. Metal Wall Panels: 12 inches long by actual panel width. Include fasteners, closures, and other metal wall panel accessories.
   2. Trim and Closures: 12 inches long. Include fasteners and other exposed accessories.
   3. Accessories: 12-inch- long Samples for each type of accessory.

F. Coordination Drawings: Roof plans, drawn to scale, on which the following are shown and coordinated with each other, based on input from installers of the items involved:
   1. Wall panels and attachments.

G. Manufacturer Certificates: Signed by manufacturer certifying that roof panels comply with energy performance requirements specified in "Performance Requirements" Article.
   1. Submit evidence of meeting performance requirements.

H. Qualification Data: For qualified Installer.

I. Manufacturer's Certification: Provide current letter(s) on metal wall panel manufacturer's letterhead, signed by an authorized employee or corporate officer attesting to following:
   1. Products: Certify that metal roof panel system complies with requirements specified in "Performance Requirements" Article.
      a. Submit evidence of meeting performance requirements, including that:
         1) Metal roof panel system components are physically and chemically compatible for installation as designed, and;
         2) All proposed materials, including those by other manufacturer, are acceptable to membrane manufacturer for use in system, and;
         3) Proposed system meets all criteria for issuance of required manufacturer's warranty.
         4) Specifically identify and define any deviations.
   2. Installer Certificates: Signed by metal roof panel system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.

J. Material Certificates: For thermal insulation and vapor retarders, from manufacturer.

K. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each product.

L. Field quality-control reports.

M. Maintenance Data: For metal roof panels to include in maintenance manuals.

N. Warranties: Samples of special warranties.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer that is UL listed for roofing system identical to that used for this Project, with minimum five years documented experience, including:

1. Minimum three projects of comparable size, using specified system, installed in the State of Texas within that five-year period.

B. Installer Qualifications: A qualified firm that has been continuously approved, authorized, or licensed by metal roof panel system manufacturer to install manufacturer's product for minimum of three years prior to Bid Date, and that is eligible to receive manufacturer's warranty; with minimum five years documented experience, including:
   1. Minimum three projects of comparable size and specified systems during that time.
   2. An employer of workers trained and approved by manufacturer.

C. Workers: All roofers and laborers to be direct employees of Primary Contractor.
   1. Project Manager and Superintendent: Minimum five years roofing experience and employed by Contractor for a minimum one year prior to Bid Date.
   2. Non-working Supervisor: Able to communicate effectively with School staff and Applicator's workers and employed by Contractor for a minimum one year prior to Bid Date.
   3. Tradesmen: Minimum 50-percent of installation crew to have been employed by Contractor for a minimum six months prior to Bid Date.

D. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

E. Source Limitations: Obtain each type of metal roof panels from single source from single manufacturer.

F. Fire-Resistance Ratings: Where indicated, provide metal roof panels identical to those of assemblies tested for fire resistance per ASTM E 119 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
   1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.
   2. Combustion Characteristics: ASTM E 136.

G. Preinstallation Conference: Conduct conference at Project site.
   1. Meet with Owner, Architect, testing and inspecting agency representative, metal roof panel Installer, metal roof panel manufacturer's representative, and installers whose work interfaces with or affects metal roof panels including installers of roof accessories and roof-mounted equipment.
   2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   3. Review methods and procedures related to metal wall panel installation, including manufacturer's written instructions.
   4. Review structural loading limitations of purlins and rafters during and after roofing.
   5. Review flashings, special condition of other construction that will affect metal wall panels.
   6. Review governing regulations and requirements for insurance, certificates, and testing and inspecting if applicable.
   7. Review temporary protection requirements for metal roof panel assembly during and after installation.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, sheets, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal roof panels for protection during transportation and handling.

B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack metal panels on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal roof panels to ensure dryness. Do not store metal roof panels in contact with other materials that might cause staining, denting, or other surface damage.

D. Protect strippable protective covering on metal roof panels from exposure to sunlight and high humidity, except to extent necessary for period of metal roof panel installation.

1.8 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit metal roof panel work to be performed according to manufacturer's written instructions and warranty requirements.

B. Field Measurements: Verify actual dimensions of construction contiguous with metal roof panels by field measurements before fabrication.

1.9 COORDINATION

A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.

B. Coordinate metal roof panels with rain drainage work, flashing and trim, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.10 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace metal roof panel assemblies that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Structural failures including rupturing, cracking, or puncturing.
      b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
   2. Warranty Period: Twenty (20) years from date of Substantial Completion.

B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal roof panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
   1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
      a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.

b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PANEL MATERIALS

A. Metallic-Coated Steel Sheet: Restricted flatness steel sheet metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.

1. Recycled Content: Provide steel sheet with average recycled content such that postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent.
2. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792, Class AZ50 coating designation, Grade 40; structural quality.
3. Surface: Smooth finish.
4. Exposed Coil-Coated Finish:
   a. 2-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
   b. 3-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
5. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

B. Panel Sealants:

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
2. Joint Sealant: ASTM C 920; elastomeric polyurethane, polysulfide, or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal roof panels and remain weathertight; and as recommended in writing by metal roof panel manufacturer.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311.

2.2 FIELD-INSTALLED UNDERLAYMENT

A. Underlayment at Wall Panels: Grace Ice & Water Shield or Equal: 40 mils thick, self adhering with maximum permeance rating of 0.05 perm.. Meets or exceeds: ASTM D3767; D412; D1970; D903; E96; D461.

2.3 MISCELLANEOUS PLYWOOD/OSB SUBSTRATE

A. Miscellaneous Plywood/OSB Substrate, General: DOC PS 1, Exposure 1, C-D Plugged, in thickness indicated or, if not indicated, minimum 15/16-inch thickness.

B. Fasteners for Miscellaneous Metal Framing: Gasket fasteners of type, material, size, corrosion resistance, holding power, and other properties required to fasten miscellaneous Plywood/OSB to substrates.

2.4 MISCELLANEOUS MATERIALS

A. Panel Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide exposed fasteners with heads matching color of metal roof panels by means of plastic caps or factory-applied coating. Provide EPDM, PVC, or neoprene sealing washers.

B. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.5 METAL WALL PANELS

A. General: Provide factory-formed metal soffit panels designed to be installed by lapping and interconnecting side edges of adjacent panels and mechanically attaching through panel to supports using concealed fasteners and factory-applied sealant in side laps. Include accessories required for weathertight installation.

B. Metal Wall Panels: Match profile and material of metal roof panels.
   1. Finish: Owner Color Chart Selection.
   2. Sealant: Factory applied within interlocking joint.

C. **"M" Low Profile Metal Wall Panels**: Solid panels formed with vertical panel edges and 2 intermediate stiffening ribs symmetrically spaced between panel edges; with flush joint between panels.
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   2. Basis-of-Design Product: Subject to compliance with requirements, provide comparable product by one of the following:
      a. AEP-Span.
      b. Architectural Building Components.
      c. Berridge Manufacturing Company.
      d. Fabral.
      e. MBCI; a division of NCI Building Systems, L. P.
      f. McElroy Metal, Inc.
      g. Metal-Fab Manufacturing, LLC.
   3. Material: Galvalume Plus Steel, type AZ-55, grade 50 as per ASTM A792-96, 0.024-inch nominal thickness.
      a. Exterior Finish: Fluorocarbon Coating: Consists of primer, applied at a nominal dry film thickness of .25 mil and a color coat, applied at a nominal dry film thickness of .75 mil, giving a 1.0 mil nominal dry film on topcoat. Paint finish should be Kynar 500 as selected from manufacturers standard color selection. The back side of the material should be .25 mil. Primer and a 0.25 polyester washcoat.
      b. Color: As selected by Architect from manufacturer's full range.
   4. Panel Coverage: 36 inches

5. Panel Height: 1.0 inch.
6. Sealant: Factory applied within interlocking joint.

2.6 ACCESSORIES

A. Wall Panel Accessories: Provide components approved by wall panel manufacturer and as required for a complete metal roof panel assembly including trim, copings, fasciae, corner units, ridge closures, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.
   1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal roof panels.
   2. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- thick, flexible closure strips; cut or premolded to match metal roof panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
   3. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.

B. Flashing and Trim: Formed from same material as roof panels, prepainted with coil coating, minimum 0.022 inch Insert thickness thick. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal roof panels.

2.7 FABRICATION

A. Fabricate and finish metal panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes and as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.

B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

C. Fabricate metal roof panel side laps with factory-installed captive gaskets or separator strips that provide a tight seal and prevent metal-to-metal contact, in a manner that will seal weathertight and minimize noise from movements within panel assembly.

D. Sheet Metal Accessories: Fabricate flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of item indicated.
   1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
   2. End Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
   3. End Seams for Other Than Aluminum: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.
   4. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.

5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
6. Fabricate cleats and attachment devices of size and metal thickness recommended by SMACNA's "Architectural Sheet Metal Manual" or by metal roof panel manufacturer for application, but not less than thickness of metal being secured.

2.8 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal roof panel supports, and other conditions affecting performance of the Work.

B. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.

C. Examine solid roof sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal roof panel manufacturer.

D. Examine roughing-in for components and systems penetrating metal roof panels to verify actual locations of penetrations relative to seam locations of metal roof panels before metal roof panel installation.

E. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

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

3.2 PREPARATION

A. Clean substrates of substances harmful to insulation, including removing projections capable of interfering with insulation attachment.

3.3 UNDERLAYMENT INSTALLATION

A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply at

locations indicated on Drawings, wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps with roller. Cover underlayment within 14 days.

B. Install flashings to cover underlayment to comply with requirements specified in Division 07 Section "Sheet Metal Flashing and Trim."

3.4 METAL WALL PANEL INSTALLATION

A. In addition to complying with requirements in "Metal Roof Panel Installation, General" Article, install metal Wall panels to comply with requirements in this article.

B. Metal Wall Panels: Provide metal Wall panels full Height of walls. Install panels perpendicular to support framing.
   1. Flash and seal panels with weather closures where metal wall panels meet walls and at perimeter of all openings.

C. Metal Wall Panels: Align bottom of panels and fasten with blind rivets, bolts, or self-tapping screws. Flash and seal panels with weather closures where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.

3.5 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.
   1. Install components required for a complete metal roof panel assembly including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.

B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
   1. Install exposed flashing and trim that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
   2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

3.6 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align metal roof panel units within installed tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.7 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect metal roof panel installation, including accessories. Report results in writing.

B. Remove and replace applications of metal roof panels where inspections indicate that they do not comply with specified requirements.

C. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.8 CLEANING

A. Remove temporary protective coverings and strippable films, if any, as metal roof panels are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of metal roof panel installation, clean finished surfaces as recommended by metal roof panel manufacturer. Maintain in a clean condition during construction.

B. Replace metal roof panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07 4200

SECTION 07 5216 - STYRENE-BUTADIENE-STYRENE (SBS) MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
1. Qualifications, Standards and Materials for new roof assembly.
2. Cleaning deck surface.
3. Styrene-butadiene-styrene (SBS) modified bituminous membrane roofing.
4. Reinforced PMMA Flashing System.
5. Roof insulation
6. Traffic pads.

B. Related Sections:
1. Division 06 Section “Roofing Carpentry” for wood nailers, cants, curbs, and blocking.
2. Division 07 Section "Roof Accessories."
3. Division 07 Section “Roof Replacement Preparation” for deck repair and replacement.
4. Division 07 Section “Sheet Metal Flashing and Trim” for metal roof penetration flashings, flashings, and counterflashings.
5. Division 22 Section “Common Work Results - Plumbing” for procedures for modifying plumbing and replacement of roof mounted piping.
6. Division 23 Section “Common Work Results - HVAC” for procedures for modifying mechanical equipment.
7. Division 26 Section “Common Work Results - Electrical” for procedures for modifying electrical equipment and devices and repair or replacement of roof mounted electrical items.

1.3 DEFINITIONS

A. Roofing Terminology: See ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.4 REFERENCES

A. American Society for Testing and Materials (ASTM):
1. C 728 – Perlite Thermal Insulation Board.
2. C 1289 - Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
3. C 1177 - Glass Mat Gypsum Substrate for Use as Sheathing.
4. D 41 - Asphalt Primer Used in Roofing.
5. D 1668 - Glass Fabrics (Woven and Treated) for Roofing and Waterproofing.
6. D 2178 - Asphalt Glass Felt Used in Roofing.
7. D 4586 - Asphalt Roof Cement - Asbestos Free.
8. D 4601 - Asphalt-Coated Glass Fiber Base Sheet Used in Roofing.
9. D 6163 - Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements.

10. D 6164 - Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.
11. D 6298 - Fiberglass Reinforced Styrene-Butadiene-Styrene (SBS) Modified Bituminous Sheets with a Factory Applied Metal Surface

B. American Society of Civil Engineers (ASCE): ASCE 7-10: Minimum Design Loads for Buildings and Other Structures

C. National Roofing Contractors Association (NRCA): Roofing and Waterproofing Manual.

D. Underwriters' Laboratories (UL): Fire Hazard Clarifications.

1.5 PERFORMANCE REQUIREMENTS

A. General Performance: Provide installed membrane roofing and base flashings that withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.

C. Roofing System Design: Provide membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE 7-10 **with a safety factor of 2.0**.
   a. Building Locations: **80 Fort Brown Road, Brownsville, Texas**
   b. Roof Surface Height: Varies - Field Verify
   c. Exposure Category: **Reference Plan Page T2**
   d. Occupancy Category: **Reference Plan Page T2**
   e. Estimated Design Pressures (Note: The Wind Up-lift Pressures identified below were estimated using the NRCA *Roof Wind Designer* Web Based application and are being provided as a courtesy solely for bidding purposes. It is the responsibility of the Roofing Materials Manufacturer to verify the accuracy of these estimates and to provide systems that resist the loads required by the applicable Building Code. These estimates do not constitute "engineering" studies and the use of the information provided below does not relieve the Manufacturer or the Contractor from providing and installing code compliant systems.)

D. Approvals Listing: Provide membrane roofing, base flashings, and component materials that comply with requirements as part of a tested membrane roofing system, for Type I or noncombustible construction, as applicable. Identify materials with Approvals markings.
   1. Fire Classification: Class A

1.6 ACTION SUBMITTALS

A. Product List: Submit list of proposed Products and manufacturers, including all items specified in Part 2 – Products or otherwise required by the Work.

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

C. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.
   1. Base flashings and membrane terminations.
   2. Tapered insulation, including slopes.
   3. Crickets, saddles, and tapered edge strips, including slopes.
   4. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.

D. Samples for Verification: For the following products:
   1. Sheet roofing materials, including roofing membrane sheet, flashing backer sheet, membrane cap sheet, and flashing sheet, of color specified.
   2. Roof insulation.
   3. Walkway pads or rolls.
   4. Six insulation fasteners of each type, length, and finish.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer and manufacturer to certify and document items in Article on Quality Assurance.

B. Manufacturer's Certification: Provide current letter(s) on membrane manufacturer's letterhead, signed by an authorized employee or corporate officer attesting to following:
   1. Products: Certify that roofing system complies with requirements specified in "Performance Requirements" Article. Submit evidence of meeting performance requirements, including that:
      a. Fastener patterns prescribed by manufacturer in Submittal will resist specified uplift pressures, including Safety Factor (times two), calculated according to ASCE/SEI 7.
      b. Roofing system components are physically and chemically compatible for installation as designed, and;
      c. All proposed materials, including those by other manufacturer, are acceptable to membrane manufacturer for use in system, and;
      d. Proposed system meets all criteria for issuance of required manufacturer's warranty.
      e. Specifically identify and define any deviations.
   2. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.
   3. The use of products from various manufacturers must be approved by the Primary Manufacturer of the roof system. Contractor must provide a Systems Letter where Primary Manufacturer declares that all products are compatible and the roof system is eligible to receive a 20-year NDL Warranty. For example, in the case of the reinforced PMMA flashings, if a Manufacturer does not have a PMMA material among their product offerings, they must provide a system letter stating that the use of PMMA from another Manufacturer is compatible with their roof system and approving its use with their products with no effect on the 20 year NDL system warranty that is being provided by roof system manufacturer. Or, else, a substitution can be submitted, for review (following the substitution approval process outlined in the project manual.

C. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of membrane roofing system.

D. Research/Evaluation Reports: For components of membrane roofing system, from the ICC-ES.

E. Manufacturer's Installation Instructions: Include installation sequence, special instructions and Material Safety Data Sheets (MSDS).

F. Daily Inspection Form: Check list document or form with signature line for Project Manager or Superintendent, signifying installation is in accordance with specified requirements, and tie-ins and temporary flashings are properly sealed at end of each working day and as otherwise required to ensure water-tightness.

G. Manufacturer's Field Reports: Summarize findings of each inspection. Indicate any discrepancies from recommended installation methods, corrective action recommended to installer, and any non-compliant or unsatisfactory conditions.

1.8 CLOSEOUT SUBMITTALS

A. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

B. Maintenance Data: For roofing system to include in maintenance manuals.

C. Project Record Documents: Accurately record exact location of all roof membrane penetrations.

D. Warranties: Sample of special warranties.

1.9 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer that is UL listed for membrane roofing system identical to that used for this Project, with minimum five years documented experience, including:
   1. Minimum three projects of comparable size, using specified system, installed in the State of Texas within that five-year period.

B. Installer Qualifications: A qualified firm that has been continuously approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product for minimum of three years prior to Bid Date, and that is eligible to receive manufacturer's warranty; with minimum five years documented experience, including:
   1. Minimum three projects of comparable size and specified systems during that time.
   2. Personnel trained and certified by local authority having jurisdiction for all torch applications.

C. Workers: All roofers and laborers to be direct employees of Primary Contractor.
   1. Project Manager and Superintendent: Minimum five years roofing experience and employed by Contractor for a minimum one year prior to Bid Date.
   2. Non-working Supervisor: Able to communicate effectively with School staff and Applicator's workers and employed by Contractor for a minimum one year prior to Bid Date.
   3. Tradesmen: Minimum 50-percent of installation crew to have been employed by Contractor for a minimum six months prior to Bid Date.

D. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.

E. Source Limitations: Obtain components for roofing system from or approved by roofing system manufacturer.

F. Perform Work in accordance with NRCA Manual of Roof Maintenance and Roof Repair, NRCA Roofing and Waterproofing Manual, and manufacturer's instructions.

G. Maintain one copy of each document accessible to site.

H. Install all roofing materials using personnel directly employed by Applicator (Roofing Contractor) with NDL certification from roofing material manufacturer - no Sub-Contracting permitted.

I. Assign a qualified, full time, non-working supervisor to be on Project site at all times during installation of Work.

J. 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.

K. Maintain and operate all equipment in accordance with equipment manufacturer's instructions.

L. Preinstallation Roofing Conference: Conduct conference at Project site.
   1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
   2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
   3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   4. 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 will affect 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.

1.10 REGULATORY REQUIREMENTS

A. Conform to applicable local codes for roof assembly fire hazard requirements and application procedures.

B. Provide certification of inspection confirming approval of design and installation by authority having jurisdiction.

C. Fire-Test-Response Characteristics: Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
   1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
   1. Inspect for damage. Remove from site and replace any damaged materials.
   2. Store products in weather protected environment, clear of ground and moisture.
   3. Stand and store roll materials on end.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
   1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.
   1. Do not store more materials on roof than can be installed within two days, unless specifically approved otherwise.
   2. Maximum Allowable Loading on Roof: 20 pounds per square foot.

1.12 PROJECT 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 deck surface.
   3. Observe wind chill and other cold weather conditions for proper bituminous application.

1.13 COORDINATION

A. Coordinate work under provisions of Division 01 Section “Administration Requirements.”

B. Coordinate with demolition work and with work of other trades to ensure sufficient materials and manpower are available to completely replace and make watertight all roofing removed each day.

C. Limit tear off of existing roof system and application of new base sheet (if required), including insulation, to amount that can be completely covered with new roof system by end of day.

D. Coordinate installation of associated metal flashings, and roof-related items as work of this Section proceeds. Strip-in all flanged metal components to roof membrane with hot bitumen on same day they are installed.

E. Schedule work to avoid storage on and traffic over finished work.

F. Schedule installation of membrane cap sheet to minimize buck-water laps and within membrane manufacturer’s recommended exposure time limit.

1.14 WARRANTY

A. Special Warranty: Manufacturer's standard or customized form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.
   1. Special warranty includes membrane roofing, base flashings, PMMA flashings, membrane roofing accessories, roof insulation, fasteners, cover boards, walkway products, roofing accessories, and other components of membrane roofing system.
   2. Warranty Period: 20 years from date of Substantial Completion.

B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form in Division 01 “Applicator Warranty”, signed by Installer, covering Work of this Section, including all components of membrane roofing system such as membrane roofing, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, roof pavers, and walkway products, for the following warranty period:
   1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SBS-MODIFIED ASPHALT-SHEET MATERIALS

A. SBS-Modified Bituminous Membrane Roofing:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Soprema
      b. Firestone
      c. Johns Manville
      d. Siplast, Inc.

B. Roofing Membrane Sheet: ASTM D 6163, Grade S, Type I or II, SBS-modified asphalt sheet (reinforced with glass fibers) or ASTM D 6164, Grade S, Type I or II, SBS-modified asphalt sheet (reinforced with polyester fabric); smooth surfaced; suitable for application method specified.

C. Granule-Surface Roofing Membrane Cap Sheet: ASTM D 6163, Grade G, Type I or II, SBS-modified asphalt sheet (reinforced with glass fibers) or ASTM D 6164, Grade G, Type I or II, SBS-modified asphalt sheet (reinforced with polyester fabric); granular surfaced; suitable for application method specified, and as follows:
   1. Granule Color: To Meet the Specified Emittance and Reflectance Requirements in section 1.5, E (above).

2.2 BASE SHEET MATERIALS

A. Sheathing Paper: Red-rosin type, minimum 3 lb/100 sq. ft..

B. Base Sheet: ASTM D 6163, Grade S, Type I or II, SBS-modified asphalt sheet (reinforced with glass fibers) or ASTM D 6164, Grade S, Type I or II, SBS-modified asphalt sheet (reinforced with polyester fabric); smooth surfaced; suitable for application method specified.

2.3 BASE FLASHING SHEET MATERIALS

A. Backer Sheet: ASTM D 6163, Grade S, Type I or II, SBS-modified asphalt sheet (reinforced with glass fibers) or ASTM D 6164, Grade S, Type I or II, SBS-modified asphalt sheet (reinforced with polyester fabric); smooth surfaced; suitable for application method specified.

B. Granular Surfaced Flashing Sheet:, ASTM D 5147, granular surfaced SBS-modified asphalt sheet (reinforced with polyester and glass fiber scrim); suitable for application method specified, and as follows:
   1. Torch applied.
   2. Install at base and wall flashings and at drain and scupper sumps.

C. Glass-Fiber Fabric: Woven glass-fiber cloth, treated with asphalt, complying with ASTM D 1668, Type I.

2.4 UNREINFORCED PMMA COATING MATERIALS (At Roof Drain and scupper sumps and under mechanical equipment.)

A. PMMA Surface Coating

2.5 REINFORCED PMMA FLASHING MATERIALS

A. PMMA Vertical Grade Primer: Fast-curing PMMA-based primer for use in vertical applications over concrete, concrete repair materials, masonry, wood and plywood substrates. PMMA Primer:

B. PMMA horizontal Grade Primer: Fast-curing PMMA-based primer for use over horizontal concrete substrates.

C. Primer for Asphaltic Substrates: PMMA-based primer for use over asphaltic materials to serve as a bleed-blocker.

D. Reinforced PMMA Membrane/Flashing System Components
   1. Catalyst: A peroxide-based reactive agent used to induce curing of acrylic resins.
   2. Resin for Flashing Applications: A flexible, polymethylmethacrylate (PMMA) based resin combined with a thixotropic agent for use in combination with fleece fabric to form a monolithic, reinforced flashing membrane.
   3. Resin for Field Membrane Construction: A flexible, polymethylmethacrylate (PMMA) based resin for use in combination with fleece fabric to form a monolithic, reinforced roofing membrane.
   4. Fleece for Membrane and Flashing Reinforcement: A non-woven, 110 g/m², needle-punched polyester fabric reinforcement as supplied by the membrane system manufacturer.
   5. Color Finish Resin: A pigmented, polymethylmethacrylate (PMMA) based resin for use as a wearing coat over the field of the finished roof membrane and to provide a desired color finish.
   6. Clear Finish Resin: A clear, flexible, polymethylmethacrylate (PMMA) based resin for use as a wearing coat over colored quartz.
   7. Thixotropic Agent: A liquid additive used to increase the viscosity of the PMMA-based resin products, allowing the resins to be applied over vertical or sloped substrates.
   8. Ceramic Granules: No. 11 grade specification ceramic granules suitable for broadcast into the PMMA based wearing layer.
      a. Granule Color: To Meet the Specified Emittance and Reflectance Requirements in section 1.5, E (above).

2.6 AUXILIARY ROOFING MEMBRANE MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.
   1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.

B. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application.

C. Mastic Sealant: Polyisobutylene, plain or modified bitumen; non-hardening, non-migrating, non-skinning, and nondrying.

D. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FMG Approvals 4470; designed for fastening roofing membrane components to substrate; tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.

1. Mechanical Fasteners for Base Sheet:
   a. Lightweight Concrete Deck: Oly Lok, manufactured by Olympic, used in conjunction with a batten bar.
   b. Metal and Wood Decks: High Load fasteners and plates, sized to meet requirements to resist wind up-lift pressures specified in Part 1 "Performance Requirements" of this Section.
2. Mechanical Fasteners for Flexible Flashing:
   a. Masonry: Specially heat treated, stress relieved, 1-1/4-inch length; Masonry Nail, manufactured by Simplex Nails, Inc.
   b. Wood Blocking: Stainless steel (for fastening into ACQ treated lumber) or high carbon, zinc coated steel (for fastening into non- ACQ treated lumber); annular threaded 1-inch shank nails; with minimum 1-inch x 30 gage metal disk; Roofing Nail, manufactured by Simplex Nails, Inc.
   c. Concrete: Power actuated fasteners, suitable for application.
3. Mechanical Fasteners for Metal Fabrications (Support Framing): Appropriate for purpose intended, size as required to suit application and achieve positive anchorage to substrate material.
4. Roofing Nails: Stainless steel (for fastening into ACQ treated lumber), hot-dipped galvanized or non-ferrous type (for fastening into non- ACQ treated lumber); with annular rings, size as required to suit application; minimum 11-gage with 3/8-inch diameter head.

E. Metal Flashing Sheet: Metal flashing sheet is specified in Division 07 Section "Sheet Metal Flashing and Trim."

F. Roofing Granules: Ceramic-coated roofing granules, No. 11 screen size with 100 percent passing No. 8 sieve and 98 percent of mass retained on No. 40 sieve, color to match roofing membrane.

G. Metallic Coating (for Metal Clad Flexible Flashing): Elastomeric, coating with metallic pigments, fibers, mineral fillers, and solvents as supplied or recommended by membrane manufacturer; color to match flexible flashing.

H. Termination Bar: Hot-dipped galvanized steel; 1/8-inch x 1-inch bar stock, pre-drilled holes.

I. Vents (if required): Olympic OlyVent one-way breather vents or approved equal.

J. Expansion Joint Filler:
   1. Flexible Vapor Retarder: Minimum 60 mil thick vinyl sheet, or approved equal.
   2. Compressible Insulation: Fiberglass batt insulation, or approved equal.

K. Miscellaneous Accessories: Provide those recommended by roofing system manufacturer.

2.7 ROOF INSULATION

A. General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated.

B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class I, Grade 3, felt or glass-fiber mat facer on both major surfaces.
   1. Maximum Board Size (Mechanical Attachment): 48 x 96-inch
   2. Board Thickness: Bottom Layer of 2.5" inch. Top Layer 2" inch.

C. Tapered Insulation: Provide factory-tapered rigid polyisocyanurate insulation boards with the same characteristics as above; fabricated to slope of 1/8-inch per 12 inches unless otherwise indicated.
   1. Cricket and Saddle Taper: 1/8, 1/4 or 1/2-inch per foot as necessitated by the primary slope condition.

D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated or required for sloping to drain. Fabricate to slopes indicated.

2.8 INSULATION ACCESSORIES

A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with membrane roofing.

B. Insulation Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG Approvals 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.
   1. Length: As required for thickness of material to penetrate substrate 1/2-inch minimum.
   2. Top Plate: Metal washer/disc type, sized to meet requirements to resist wind up-lift pressures specified in Part 1 “Performance Requirements” of this Section.

C. Bead-Applied Insulation Adhesive: Insulation manufacturers recommended bead-applied, low-rise, one-component or multicomponent urethane adhesive formulated to attach roof insulation to substrate or to another insulation layer.

D. Full-Spread Applied Insulation Adhesive: Insulation manufacturer's recommended spray-applied, low-rise, two-component urethane adhesive formulated to attach roof insulation to substrate or to another insulation layer.

E. Insulation Cant Strips: ASTM C 728, perlite insulation board.

F. Tapered Edge Strips: ASTM C 728, perlite insulation board.

G. Cover Board: ASTM C 1278, cellulosic-fiber-reinforced, water-resistant gypsum substrate, thickness as detailed.
   1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      a. USG Corporation; Securock.

H. Cover Board: ASTM C 1177, glass-mat, water-resistant gypsum substrate, thickness as detailed, factory primed.
   1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      a. Georgia-Pacific Corporation; Dens Deck Prime.

I. Substrate Joint Tape: 6- or 8-inch-wide, coated, glass-fiber joint tape.

2.9 WALKWAYS

A. Walkway Pads: Reinforced asphaltic composition pads with slip-resisting mineral-granule surface, manufactured as a traffic pad for foot traffic and acceptable to roofing system manufacturer,
   1. Pad Size: 12 x 24-inches.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that surfaces and site conditions are ready to receive work and that deck is supported and secured.

B. Verify the deck is clean and smooth, free of depressions, waves, or projections, properly sloped to drains or eaves.

C. Verify that deck surfaces are dry and free of snow or ice. Verify flutes of metal deck are clean and dry. Confirm deck dryness by moisture meter; maximum allowable: 12-percent.

D. Verify that roof openings, curbs, pipes, sleeves, ducts, and vents through the roof are solidly set and wood nailing strips are in place.

E. Beginning of installation means installer accepts existing surfaces.

3.2 PREPARATION

A. Protect all building surfaces against damage from roofing work.

B. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions and maintain free from all deleterious material during roofing operations. Remove sharp projections.

C. 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.

D. Repair or replace damaged or deteriorated deck in accordance with Division 07 Section “Roof Replacement Preparation”.

3.3 INSULATION INSTALLATION

A. Comply with roofing system manufacturer's written instructions for installing roof insulation.

B. Install one lapped base-sheet course and mechanically fasten to substrate according to roofing system manufacturer's written instructions; lap edges 4-inches.
   1. Fasten base sheet to resist uplift pressure at corners, perimeter, and field of roof as determined from Fastener Pull Tests.
   2. If building heights and conditions dictate, fit fasteners with 3-inch or larger disks to provide required wind up-lift resistance.
   3. Minimum Fastener Spacing unless calculated using Fastener Pull Tests:
      a. Field & Perimeter - Laps 12-inches o.c.
      b. Corners - 12-inches o.c.

C. Insulation Cant Strips: Install and secure preformed 45-degree insulation cant strips at junctures of roofing membrane system with vertical surfaces or angle changes more than 45 degrees.

D. Install tapered insulation under area of roofing to conform to slopes indicated.

E. Lay tapered boards for a distance of 24-inches back from roof drains for positive drainage.

F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4-inch with insulation.
   1. Cut and fit insulation within 1/4-inch of nailers, projections, and penetrations.

G. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7-inches or more, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6-inches in each direction.

H. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

I. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.

J. Apply no more insulation than can be sealed with membrane in same day.

K. Adhered Insulation (If applicable): Install each layer of insulation and adhere to substrate as follows:
   1. Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.

L. Mechanically Fastened and Adhered Insulation (If applicable): Install first layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type if required by manufacturer or set each layer of insulation in a bead-applied insulation adhesive.
   1. Fasten first layer of insulation to resist uplift pressure at corners, perimeter, and field of roof specified in Part 1 “Performance Requirements” of this Section.
   2. Set each subsequent layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.

M. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints a minimum of 6-inchesin each direction from joints of insulation below. Loosely butt cover boards together. Tape joints if required by roofing system manufacturer.
   1. Set cover boards in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining cover boards in place.

3.4 ROOFING MEMBRANE INSTALLATION, GENERAL

A. Install roofing membrane system according to roofing system manufacturer's written instructions and applicable recommendations in ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing" and as follows:
   1. Deck Type: **I** (insulated).
   2. Adhering Method: **T** (torched).
   3. Number of SBS-Modified Asphalt Sheets: **Two**.
   4. Surfacing Type: **M** (mineral-granule-surfaced cap sheet).

B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.

C. Do not torch roof membrane directly to polyisocyanurate insulation (if present).

D. Cooperate with testing and inspecting agencies engaged or required to perform services for installing roofing system.

E. Coordinate installation of roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
   1. At end of each day's work, provide tie-offs to cover exposed roofing membrane sheets and insulation with a course of coated felt set in roofing cement or hot roofing asphalt, with joints and edges sealed.
   2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.

3. Remove and discard temporary seals before beginning work on adjoining roofing.

F. Substrate-Joint Penetrations: Prevent roofing adhesives from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

3.5 SBS-MODIFIED BITUMINOUS MEMBRANE INSTALLATION

A. Install modified bituminous roofing membrane sheet and cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond cants, installing as follows:
1. Mechanically fastened base sheet.
2. Torch applied cap sheet.
3. Unroll roofing membrane sheets and allow them to relax for minimum time period required by manufacturer.

B. Laps: Accurately align roofing membrane sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.
1. Repair tears and voids in laps and lapped seams not completely sealed.
2. Apply roofing granules to cover exuded bead at laps while bead is hot.

C. Install roofing membrane sheets so side and end laps shed water.

D. Apply felts smooth, free from air pockets, wrinkles, fishmouths, lap joints, or tears. Do not lay any felts that buck water.

E. Extend membrane sheet up cant strips and a minimum of 2 inches onto vertical surfaces. Torch additional ply of sheet products as recommended to act as base flashing over roofing membrane. Secure to nailing strips at 4 inches o.c.

F. Install two glass fiber ply sheets and bitumen glaze coat for cut-off at end of day's operation. Remove cut-off before resuming roofing.

G. Torch and seal two additional layers of glass fiber ply sheet around roof penetrations.

H. Prohibit foot and cart traffic from newly applied felts. Do not "walk-in" plies.

3.6 FLASHING AND STRIPPING INSTALLATION

A. Install base flashing over cant strips and other sloped and vertical surfaces, at roof edges, and at penetrations through roof; secure to substrates according to roofing system manufacturer's written instructions, and as follows:
1. Prime substrates with asphalt primer if required by roofing system manufacturer.
2. Backer Sheet Application: Adhere backer sheet to substrate in cold-applied adhesive at rate required by roofing system manufacturer.
3. Flashing Sheet Application: Torch apply flashing sheet to substrate.
4. Maximum flashing base and top ply width: Width of roll (39-inches).

B. Extend base flashing up walls or parapets a minimum of 8-inchesabove roofing membrane and 4-inches onto field of roofing membrane.

C. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing at 4 inches on center.
1. Maximum Fastener Spacing:
   a. Wood: 4-inches on center.
   b. Masonry or Concrete: Provide termination bars and fasten 8-inches on center.

2. Seal top termination of base flashing with a strip of glass-fiber fabric set in asphalt roofing cement.

D. Inspect flashing seams and repair unsealed locations, voids, and fishmouths with three course seal or as recommended by membrane manufacturer.

E. Install roofing membrane cap-sheet stripping where metal flanges and edgings are set on membrane roofing according to roofing system manufacturer's written instructions.

F. Coordinate installation of roof scuppers, sumps, and related flashings.

G. Apply metallic coating over all bitumen overruns on flashing surface.

H. Seal flashings and flanges of items penetrating membrane with calk.

3.7 PMMA FLASHING INSALLATION

A. Prep all surfaces and install as per manufacturer’s recommendations.

3.8 WALKWAY INSTALLATION

A. Walkway Pads: Install walkway pads using units of size indicated or, if not indicated, of manufacturer's standard size according to walkway pad manufacturer's written instructions.
   1. Set walkway pads in cold-applied adhesive.
   2. Locations: Where indicated and at each rooftop unit (RTU) with operable components, at base and top of each roof ladder, and at each roof hatch.
   3. Install a minimum of two pads adjacent to each RTU access panel; roof ladder, and on three sides of each roof hatch; or match width of access panel, ladder, or hatch plus 12-inches each side. Set joints 6 inches apart.

3.9 TORCH APPLICATION SAFETY REQUIREMENTS

A. Maintain a fire watch during all torching applications and for a minimum of 2-hours after torch work is completed for day.

B. Maintain a minimum two (2) fire extinguishers of class and capacity required by local authority having jurisdiction, but not less than 20 pound capacity. Keep fire extinguishers within 25-feet of all torch activity. Provide multiple extinguishers if torching in more than one area.

C. Provide training on proper use of fire extinguishers to all personnel used on project.

D. Turn torches off when not actively in use. Do not place active or hot torches on any combustible materials or surfaces.

E. Remove torches and fuel sources from site at end of each day and when superintendent is not on premises.

F. Secure fuel sources on roof surface to prevent tipping or falling.

3.10 FIELD QUALITY CONTROL

A. Do not perform demolition during roofing operations.

B. Testing Agency: Owner will engage qualified testing and/or inspecting agency to perform tests and inspections and to prepare test reports.

C. Test Cuts: Test specimens may be removed to evaluate problems observed during quality-assurance inspections of roofing membrane as follows:

1. Approximate quantities of components within roofing membrane will be determined according to ASTM D 3617.
2. Test specimens will be examined for interply voids according to ASTM D 3617 and to comply with criteria established in Appendix 3 in ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing."
3. Repair areas where test cuts were made according to roofing system manufacturer's written instructions.

D. Field inspection and testing will be performed under provisions of Division 01 Section “Quality Requirements”.

E. Upon substantial completion, Owner may have Work inspected using infrared scanning and other appropriate means to establish conditions of completed Project.

F. Correct identified defects or irregularities. Cut out and repair membrane defects before end of each day.

G. Do not perform demolition during roofing operations.

H. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.
1. Notify Architect and Owner 72 hours in advance of date and time of inspection.

I. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.

J. Roofing system will be considered defective if it does not pass tests and inspections.
1. Perform additional testing and inspecting, at Contractor's expense, to determine if replaced or additional work complies with specified requirements.

3.11 MANUFACTURER'S FIELD SERVICES

A. Provide manufacturer's field services under provisions of Division 01 Section “Quality Requirements.”

B. Request site attendance of roofing materials manufacturers during installation of the work on bi monthly schedule.

C. Post Construction Inspection: Contractor and manufacturer’s representative to inspect roofing installation 23 months after Substantial Completion and prior to expiration of Contractor’s Warranty.

3.12 CLEANING

A. Remove bituminous markings from finished surfaces.

B. In areas where finished surfaces are soiled by asphalt or any other source of soiling caused by work of this Section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.

C. Repair or replace defaced or disfigured finished caused by work of this Section.

D. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.13 PROTECTION OF FINISHED WORK

A. Protect finished Work under provisions of Division 01 Section “Temporary Facilities and Controls.”

B. Protect roofing system from damage and wear during remainder of construction period. When remaining construction will 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.

C. Where traffic must continue over finished roof installation, protect surfaces.
   1. Minimum Protection: Cushion layer of insulation, minimum 1-inch thick, and one layer of plywood minimum 3/4-inch thick. Ballast plywood for site and personnel protection.

D. 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.

3.14 FINAL TOUCH UP

A. Upon completion of all roof systems, flashing, accessory work and sheet metal applications, apply two coats of approved aluminum roof coating to accessories not replaced and items as directed by Owner's Representative.
   1. Paint existing pipes, drain strainers, metal vents, and other accessories with Type I aluminum roof coating.
   2. Paint exposed bituminous membrane surfaces with Type II aluminum roof coating.
   3. Apply at recommended rate, or at a minimum rate of 3/4 to 1 gallon/square.

END OF SECTION 07 5216

SECTION 07 56 00 - FLUID APPLIED FLASHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes:
   1. Qualifications, Standards and Materials.
   2. Substrate Preparation.
   3. Fluid Applied Flashing Application.

B. Related Sections:
   1. Division 06 Section “Roofing Carpentry” for wood nailers, cants, curbs, and blocking and for wood-based, structural-use roof deck panels.
   2. Division 07 Section "Roof Accessories."
   3. Division 07 Section “Roof Replacement Preparation” for deck repair and replacement.
   4. Division 07 Section “Sheet Metal Flashing and Trim” for metal flashings and counter-flashings.

1.3 DEFINITIONS

A. Roofing Terminology: See ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.4 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. D 41 - Asphalt Primer Used in Roofing.
   2. D 312 - Asphalt Used in Roofing.
   3. D 1668 - Glass Fabrics (Woven and Treated) for Roofing and Waterproofing.
   4. D 6163 - Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements.
   5. D 6164 - Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.

B. National Roofing Contractors Association (NRCA):
   1. Manual of Roof Maintenance and Roof Repair.
   2. Roofing and Waterproofing Manual.

C. Underwriters’ Laboratories (UL): Fire Hazard Clarifications.

1.5 PERFORMANCE REQUIREMENTS

A. General Performance: Provide fluid applied roofing and flashing systems that withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Fluid applied roofing and flashings shall remain watertight.

B. Material Compatibility: Provide fluid applied materials that are compatible with one another and contiguous roofing and flashing membranes under conditions of service and application

required, as demonstrated by fluid applied materials manufacturer based on testing and field experience.

1.6 ACTION SUBMITTALS

A. Product List: Submit list of proposed Products and manufacturers, including all items specified in Part 2 – Products or otherwise required by the Work.

1.7 INFORMATIONAL SUBMITTALS

A. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install fluid applied flashing system.
   1. List of minimum three projects of comparable size and specified systems during that time.

B. Manufacturer's Installation Instructions: Include installation sequence, special instructions and Material Safety Data Sheets (MSDS).

1.8 CLOSEOUT SUBMITTALS

A. Maintenance Data: For Fluid Applied Flashing to include in maintenance manuals.

1.9 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1.10 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm that has been continuously approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product for minimum of two years prior to Bid Date, and that is eligible to receive manufacturer's warranty; with minimum three years documented experience, including:
   1. Minimum three projects of comparable size and specified systems during that time.

B. Workers: All roofers and laborers to be direct employees of Primary Contractor.
   1. Project Manager and Superintendent: Minimum five years roofing experience and employed by Contractor for a minimum one year prior to Bid Date.
   2. Non-working Supervisor: Able to communicate effectively with staff and Applicator's workers and employed by Contractor for a minimum one year prior to Bid Date.
   3. Tradesmen: Minimum 50-percent of installation crew to have been employed by Contractor for a minimum six months prior to Bid Date.

C. Source Limitations: Obtain components for roofing system from or approved by roofing system manufacturer.

D. Perform Work in accordance with NRCA Manual of Roof Maintenance and Roof Repair, NRCA Roofing and Waterproofing Manual, and manufacturer's instructions.
   1. Maintain one copy of each document accessible to site.

E. Install all fluid-applied flashing materials using personnel directly employed by Applicator (Roofing Contractor) with NDL certification from material manufacturer - no Sub-Contracting permitted.

F. 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.

G. Deliver materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
   1. Inspect for damage. Remove from site and replace any damaged materials.
   2. Store products in weather protected environment, clear of ground and moisture.
   3. Stand and store roll materials on end.

H. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
   1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

I. Handle and store materials and place equipment in a manner to avoid permanent deflection of deck.
   1. Do not store more materials on roof than can be installed within two days, unless specifically approved otherwise.
   2. Maximum Allowable Loading on Roof: 20 pounds per square foot.

J. Handling: Handle all materials in such a manner as to preclude damage and contamination with moisture or foreign matter.
   1. Keep away from open fire, flame, or any ignition source.
   2. Avoid skin and eye contact with this material. Avoid breathing fumes.
   3. Do not eat, drink, or smoke in the application area.
   4. Vapors may form explosive mixtures with air.

1.11 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit fluid applied system to be installed according to manufacturer's written instructions and warranty requirements.
   1. Do not apply fluid applied flashing during inclement weather.
   2. Do not apply fluid applied flashing to damp or frozen surfaces.
   3. Observe wind chill and other cold weather conditions for proper fluid applied flashing application.

1.12 COORDINATION

A. Coordinate work under provisions of Division 01 Section “Administration Requirements.”

B. Coordinate with demolition work and with work of other trades to ensure sufficient materials and manpower are available to completely install and make watertight all fluid applied flashing installed each day.

C. Coordinate installation of associated metal flashings, and roof-related items as work of this Section proceeds.

D. Schedule work to avoid storage on and traffic over finished work.

1.13 WARRANTY

A. Special Warranty: Work described in this specification section shall be included in roofing membrane system Manufacturer's warranty, without monetary limitation (no-dollar limit), in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide Products from the selected roofing materials manufacturer:

B. Basis-of-Design Product: Subject to compliance with requirements, provide one of the following:
1. Siplast, Inc: “Parapro 123 Flashing System”
2. Johns Manville: “Perma Flash System”.
3. Or Equal; with Architect’s prior approval and acceptable to roofing membrane Manufacturer for inclusion in roofing system NDL Warranty.

2.2 SYSTEM DESCRIPTION

Fluid Applied Flashing System: A liquid applied, flexible, monolithic membrane formed by combination of liquid resin and fleece fabric.

2.3 PERFORMANCE REQUIREMENTS

A. Material Compatibility: Provide fluid applied roofing and flashing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.

B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

2.4 FLUID APPLIED FLASHING MATERIALS

A. Roofing Fluid Resin: Material manufacturer’s flexible, proprietary waterproofing resin intended for low slope installation.
1. Minimum Thickness: 90 mils.

B. Flashing Fluid Resin: Material manufacturer’s flexible, proprietary waterproofing resin with modifying agents as required for vertical slope installation.
1. Minimum Thickness: 90 mils.

C. Membrane and Flashing Fleece Reinforcement: Fluid-applied roofing and flashing system manufacturer’s standard non-woven, needle-punched polyester fabric reinforcement.

2.5 ACCESSORIES

A. Cleaning and Preparation Materials: Material manufacturer’s recommended materials for cleaning, preparing, filling, and priming existing substrates.

B. Finishing Materials: Material manufacturer’s recommended materials for surface anti-skid texture, coloration, and protection.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that surfaces and site conditions are ready to receive work and that substrate is sound and properly supported and secured.

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

3.2 PREPARATION

A. Protect all building surfaces against damage from fluid applied flashing work.

B. Clean substrate of dust, debris, moisture, and other substances detrimental to fluid applied flashing installation according to system manufacturer's written instructions and maintain free from all deleterious material during fluid applied flashing operations. Remove sharp projections.

C. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction.

3.3 INSTALLATION, GENERAL

A. Coordinate installation of fluid applied flashing system so components of the fluid applied flashing and adjacent roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at end of workday or when rain is forecast.

3.4 FLUID APPLIED FLASHING INSTALLATION

A. Flashing Application: Wipe membrane surfaces to be lapped with field membrane with approved cleaner/solvent. Allow membrane surface to dry 20 minutes minimum.
   1. Mask perimeter of area to receive flashing system with tape. Apply resin primer to substrates requiring additional preparation and allow primer to set.
   2. Apply base coat of flashing resin using a roller at minimum rate specified by manufacturer.
   3. Work fleece reinforcement into wet, catalyzed resin using a brush or roller to fully embed fleece in the resin and remove trapped air.
      a. Lap fleece layers 2-inches minimum and apply an additional coat of catalyzed resin between layers of overlapping fleece.
   4. Apply top coat of catalyzed resin at minimum rate specified by manufacturer immediately following embedment of fleece, ensure full fleece saturation.
   5. Ensure flashing resin extends 1/4-inch minimum beyond fleece.
   6. Remove tape before catalyzed resin sets.

B. Color Finish Application: Apply only after roofing and flashing systems have cured 2-hours minimum.
   1. Wipe surfaces to receive color finish layer with approved cleaner/solvent. Allow surface to dry 20 minutes minimum.
   2. Apply top coat of catalyzed color finish resin at minimum rate specified by manufacturer.
   3. Allow 2 hours cure time prior to exposing the membrane to foot traffic.

3.5 FIELD QUALITY CONTROL

A. Do not perform demolition during fluid applied flashing installation.

B. Field inspection and testing will be performed under provisions of Division 01 Section “Quality Requirements”.

C. Correct identified defects or irregularities. Cut out and repair fluid applied flashing defects before end of each day.

3.6 CLEANING

A. In areas where finished surfaces are soiled by asphalt or any other source of soiling caused by work of this Section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.

B. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.7 PROTECTION OF FINISHED WORK

A. Protect finished Work under provisions of Division 01 Section “Temporary Facilities and Controls.”

B. Protect fluid applied flashing system from damage and wear during remainder of construction period.

C. Correct deficiencies in or remove fluid applied flashing system that does not comply with requirements, repair substrates, and repair or reinstall fluid applied flashing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

END OF SECTION 07 5600

SECTION 07 5910 – ROOFING REPAIRS (MEMBRANE, SHEET METAL AND SKYLIGHTS)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes repair procedures for the following:
   1. Asphaltic Multiply Roof System.
   2. Coal Tar Pitch Multiply Roof System.
   3. Bituminous Membrane Roofing.
   4. Skylight Unit Replacements.
   5. Sheet Metal Repairs.

B. Related Sections include the following:
   1. Division 1 Section “Unit Prices”
   2. Division 1 Section “Photographic Documentation”
   3. Division 1 Section “Temporary Facilities and Controls” for temporary construction and environmental-protection measures for reroofing preparation.
   4. Division 1 Section “Execution” for Cutting and Patching Procedures for reroofing preparation.
   5. Division 6 Section “Carpentry (for Roofing)” for wood nailers, cants, curbs, and blocking.
   6. Division 7 Section “Fluid Applied Flashing”
   7. Division 7 Section "Sheet Metal Flashing and Trim" for gutters and downspouts.
   8. Division 7 Section "Roof Accessories."
   9. Division 22 Section “Common Work Results for Plumbing”
   10. Division 23 Section “Common Work Results for HVAC”
   11. Division 26 Section “Common Work Results for Electrical”

1.3 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

B. Existing Membrane Roofing System: Built-up asphalt, built-up coal tar pitch, bituminous roofing membrane, surfacing, and components and accessories between deck and roofing membrane.

C. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.

D. Existing to Remain: Existing items of construction that are not indicated to be removed.

1.4 SUBMITTALS

A. Product List: Submit list of proposed Products and manufacturers, including all items specified in Part 2 – Products or otherwise required by the Work.

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

C. Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces that might be misconstrued as having been damaged by reroofing operations. Submit before Work begins.

D. Landfill Records: Indicate receipt and acceptance of hazardous wastes, such as asbestos-containing material, by a landfill facility licensed to accept hazardous wastes.

E. Manufacturer's Installation Instructions: Include installation sequence, special instructions and precautions, and Material Safety Data Sheets (MSDS).

F. Skylight Certification: Provide current letter(s) on Company's letterhead, signed by an authorized employee or corporate officer attesting to all following items:
1. Qualifications: Certify and document items in Article on Quality Assurance, and;
2. Products: Certify that selected products meet or exceed specified requirements:
    a. Quality Assurance/Control Data: Provide Design Data, Test Reports, Certificates, Manufacturer's Installation Instructions, and Manufacturer's Field Reports.
    b. Test Reports: Certified test reports or labeling agency file numbers indicating compliance with specified performance characteristics and physical properties.

G. Skylight Manufacturer's Certification: Each product meets or exceeds specified requirements..

H. Fabricated Metal Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
1. Sheet Metal Flashing: 12 inches long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, closures, and other attachments.
2. Metal Wall Panel: 36" wide by actual length of wall, including waterproofing underlayment, sub-girts, and closures.
3. Trim, Metal Closures, Joint Intersections, and Miscellaneous Fabrications: 12 inches long and in required profile. Include fasteners and other exposed accessories.

I. Accessories and Miscellaneous Materials: Full-size Sample

1.5 QUALITY ASSURANCE

A. Roofing Repair Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to roofing repairs including, but not limited to, the following:
1. Meet with Owner; Architect; Owner's insurer if applicable; testing and inspecting agency representative; roofing system manufacturer's representative; deck Installer; roofing Installer including project manager, superintendent, and foreman; and installers whose work interfaces with or affects reroofing including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing repair preparation, including membrane roofing system manufacturer's written instructions.
3. Review temporary protection requirements for existing roofing system that is to remain, during and after installation.

4. Review roof drainage during each stage of repairs and review roof drain plugging and plug removal procedures.
5. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
6. Review procedures to determine condition and acceptance of existing roofing and base flashing substrate to be repaired.
7. Review structural loading limitations of deck during reroofing.
8. Review base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect repairs.
9. Review HVAC shutdown and sealing of air intakes.
10. Review shutdown of fire-suppression, -protection, and -alarm and -detection systems.
11. Review procedures for asbestos removal or unexpected discovery of asbestos-containing materials.
12. Review governing regulations and requirements for insurance and certificates if applicable.
13. Review existing conditions that may require notification of Architect before proceeding.

B. Perform Work in accordance with NRCA Manual of Roof Maintenance and Roof Repair, NRCA Roofing and Waterproofing Manual, and manufacturer's instructions.

C. Maintain one copy of each document accessible to site.

D. Make all roofing repairs using personnel directly employed by Applicator (Roofing Contractor) with NDL certification from roofing material manufacturer - no Sub-Contracting permitted.

E. Assign a qualified, full time, supervisor to be on Project site at all times during Work.

F. 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.

G. Maintain and operate all kettles, fume recovery systems, luggers, accessories, and other equipment in accordance with equipment manufacturer’s instructions.
1. Kettles: Utilize equipment with built-in, operable and visible thermostat to measure temperature of heated bitumen. Immediately replace or repair broken or malfunctioning thermostats.

H. Do not use same kettle for different bitumen materials or types. If two or more bitumens are required, provide a separate kettle for each type and clearly label each with bitumen type it contains.

I. Verify actual measurements by field measurements before fabrication or ordering materials/accessories;

1.6 PROJECT CONDITIONS

A. Owner will occupy portions of building immediately below reroofing area. Conduct roof repairs so Owner's operations will not be disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.

1. Coordinate work activities daily with Owner so Owner can place protective dust or water leakage covers over sensitive equipment or furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below the work area if desired.
2. Before working over structurally impaired areas of deck, notify Owner to evacuate occupants from below the affected area. Verify that occupants below the work area have been evacuated prior to proceeding with work over the impaired deck area.

B. Protect building to be repaired, adjacent roofing, accessories, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from repair operations.

C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

D. Owner assumes no responsibility for condition of areas to be repaired.
1. Conditions existing at time of inspection for bidding will be maintained by Owner as far as practical.

E. Limit construction loads on roof to 200 pound rooftop equipment wheel loads and 20 PSF for uniformly distributed loads.

F. Weather Limitations: Proceed with repair preparation only when existing and forecasted weather conditions permit Work to proceed without water entering into existing roofing system or building.

1.7 WARRANTY

A. Special Project Warranty: Work described in this section shall be included in Applicator's warranty, on warranty form in Division 01 "Applicator Warranty", signed by Installer, covering Work of this Section.
1. Warranty Period: Two years from date of Substantial Completion.

B. Accessories Skylights: Provide Manufacturer's system warranty for waterproofing and finishes against cracking, crazing, fading, or discoloration of lenses.
1. Warranty Period:
a. Skylights: 5 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 REPAIR AND INFILL MATERIALS

A. Use repair and infill materials matching existing membrane roofing system materials, unless otherwise indicated.

2.2 BUILT-UP ASPHALT SHEET AND BITUMINOUS MATERIALS

A. Manufacturers: Match existing system and materials where it can be determined or if there is a Warranty in place. Subject to compliance with requirements, provide products by one of the following:
1. Tremco
2. Firestone Building Products
3. GAF Materials Corporation
4. Johns Manville International, Inc.
5. Siplast, Inc.

B. Sheet Materials:
   1. Sheathing Paper: Red-Rosin type, 3 lb/100 sq. ft.
   2. Vapor Retarder (if required): ASTM D 2178, Type IV; asphalt impregnated glass fiber felt; FM 1-28 Class 1, and approved by ply sheet manufacturer.
   3. Base Sheet: ASTM D 4897, Type II, venting, nonperforated, heavyweight, asphalt-impregnated and -coated, glass-fiber base sheet with coarse granular surfacing or embossed venting channels on bottom surface.
   4. Base Sheet: ASTM D 6163, Type I, Grade S, SBS-modified bituminous sheet, syntan acrylic coated surface; suitable for application method specified.
   5. Base Sheet: ASTM D 6222; polyester reinforced, APP-modified asphalt sheet; smooth surfaced; suitable for application method specified.
   6. Cap Sheet (if required): ASTM D 6222, Type I, Grade G, polyester reinforced, granule surfaced, APP-modified asphalt sheet; suitable for application method specified.
   7. Flashing Sheet (if required): ASTM D 6222, Type I, Grade G, polyester reinforced, granule surfaced, APP-modified asphalt sheet; suitable for application method specified and as follows:
      a. Granule Color: White.
   8. Glass-Fiber Fabric (if required): Woven glass-fiber cloth, treated with asphalt, complying with ASTM D 1668, Type I.

C. Bituminous Materials:
   1. Liquid-type materials shall comply with VOC limits of authorities having jurisdiction.
   2. Asphalt Primer: ASTM D 41.
   3. Roofing Asphalt Bitumen (if required): ASTM D 312, Type IV as recommended by built-up roofing system manufacturer for application.
   4. Plastic Cement: ASTM D 4586, Type I, cutback asphalt type, asbestos free.

2.3 PMMA (POLYMETHYLMETHACRYLATE) COATING MATERIALS

A. Primer for Vertical/Horizontal Grades: Fast-curing PMMA-based primer for use over concrete, masonry, wood, and asphaltic substrates. Minimum application rate is 135 square feet per 10-KG Pail (.074kg/sf).

B. Unreinforced PMMA Application: A high performance, multi-component, fast curing, and flexible polymethylmethacrylate based resin providing a moisture resistant barrier in 30-minutes and stress resistant in 2-hours. Minimum application rate is 120 square feet per 20-KG Pail (.167 kg/sf).

C. Reinforced PMMA Application: A high performance, multi-component, fast curing, and flexible polymethylmethacrylate based resin for use in combination with fleece fabric to form a monolithic, reinforced roofing membrane. Minimum application rate is 90 square feet per 20-KG Pail (.223 kg/sf).

D. Unreinforced/Reinforced PMMA System Components
   1. Liquid Catalyst: A high viscosity liquid reactive agent used to induce curing of acrylic resins.
   2. Prep-Cleaner: Clear, blended solvents to clean metals, plastics, and areas between staged PMMA resins.
   3. Fleece for Membrane and Flashing Reinforcement: A non-woven, 110 g/m², needle-punched polyester fabric reinforcement as supplied by the PMMA manufacturer.

2.4 ROOF INSULATION

A. General: Preformed roof insulation boards manufactured or approved by manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated.

B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class I, Grade 3, felt or glass-fiber mat facer on both major surfaces.
   1. Maximum Board Size: 48 x 48-inch
   2. Minimum Board Thickness: 1-1/2 inch.

C. Cover Board: ASTM C 1177, glass-mat, water-resistant gypsum substrate, thickness as detailed, factory primed.
   1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      a. Georgia-Pacific Corporation; Dens Deck Prime.

D. Tapered Insulation: Provide factory-tapered rigid polyisocyanurate insulation boards with the same characteristics as above; fabricated to slope of 1/2-inch per 12 inches unless otherwise indicated.

2.5 INSULATION ACCESSORIES

A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with membrane roofing.

B. Insulation Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG Approvals 4470, designed for fastening roof insulation to substrate; tested by manufacturer for required pullout strength.
   1. Length: As required for thickness of material to penetrate substrate 3/4-inch minimum.
   2. Top Plate: Plastic or metal washer/disc type, sized to meet requirements to resist wind up-lift pressures.

C. Bead-Applied Insulation Adhesive: Insulation manufacturers recommended bead-applied, low-rise, one-component or multicomponent urethane adhesive formulated to attach roof insulation to substrate or to another insulation layer.

D. Full-Spread Applied Insulation Adhesive: Insulation manufacturer's recommended spray-applied, low-rise, two-component urethane adhesive formulated to attach roof insulation to substrate or to another insulation layer.

E. Insulation Cant Strips: ASTM C 728, perlite insulation board.

F. Tapered Edge Strips: ASTM C 728, perlite insulation board.

2.6 AUXILIARY ROOFING REPAIR MATERIALS

A. General: Auxiliary repair preparation materials recommended by roofing system manufacturer for intended use and compatible with components of existing membrane roofing system.

B. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application.

C. Cold-Applied Adhesive: Roofing system manufacturer's standard asphalt-based, one- or two-part, asbestos-free, cold-applied adhesive specially formulated for compatibility and use with built-up roofing base flashings.

D. Cold-Applied Adhesive: Roofing system manufacturer's standard asphalt-based, one- or two-part, asbestos-free, cold-applied adhesive specially formulated for compatibility and use with SBS roofing membrane and base flashings; ASTM D 3019, premium SBS adhesive; Siplast, PA-311; GAF Matrix Adhesive.

E. Mastic Sealant: Polyisobutylene, plain or modified bitumen, non-hardening, non-migrating, non-skinning, and nondrying.

F. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FM 4470; designed for fastening roofing membrane components to substrate; tested by manufacturer for required pullout strength.
   1. Lightweight Concrete Deck: 1.75 CR Base Sheet Fastener, manufactured by Olympic.
   2. Mechanical Fasteners for Metal Fabrications: Appropriate for purpose intended, size as required to suit application and achieve positive anchorage to substrate material.
   3. Roofing Nails: Stainless steel (for fastening into ACQ treated lumber), hot-dipped galvanized or non-ferrous type (For fastening into non-ACQ treated lumber); with annular rings, size as required to suit application; minimum 11-gauge with 3/8-inch diameter head.

G. Sheet Metal Flashing: Use materials specified in Division 7 Section “Sheet Metal Flashing and Trim”.

H. Aggregate Surfacing: ASTM D 1863, No. 6 or No. 67, clean, dry, opaque, water-worn gravel or crushed stone, free of sharp edges; 1/4-inch minimum to 3/4-inch maximum size.

I. Termination Bar: Hot-dipped galvanized steel; 1/8-inch x 1-inch bar stock, pre-drilled holes.

J. Expansion Joint Filler:
   1. Flexible Vapor Retarder – Minimum 60 Mil thick vinyl sheet, or approved equal.
   2. Compressible insulation – Fiberglass batt insulation, or approved equal.

K. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer or as indicated.

2.7 SKYLIGHTS (If Applicable)

A. Skylights:
   1. Impact Resistant Polycarbonate Dome Skylights
      a. Meets impact resistance for Seaward, Inland I and Inland II zones of DC areas of Texas Gulf Coast
      b. Meets OSHA Fall protection guidelines with no additional coverage/screen required.
   2. Impact Resistant Polycarbonate Pyramid Skylight; sized to fit existing curb and roof opening
   3. Manufacturer:
      a. Maxim Skylights – Dallas, Texas (888) 222-4898 / maximskylights.com
      b. Or, approved Equal
   4. Models: Thermal Break Design Series
      a. Thermal Break Curb Mount - TBCM
      b. Thermal Break Curb Mount Pyramid - TBCMP
   5. Size(s): (Field Verify)

a. Reference Skylight Unit Replacement Schedule – 7B/RP3
b. Sized to fit existing curb and roof opening:

6. Glazing: Polycarbonate Domes
    a. Outer Dome: Clear
    b. Inner dome: White
7. Frame:
    a. Clear anodized aluminum

PART 3 - EXECUTION

3.1 PREPARATION

A. Verify type/composition of existing roofing and base flashing membranes and bitumens and select appropriate repair materials that are compatible with existing materials scheduled to be repaired, unless otherwise indicated.

B. Protect existing membrane roofing system that is indicated not to be repaired.
1. Limit traffic and material storage to areas of existing roofing membrane that have been protected.
2. Maintain temporary protection and leave in place until roofing repair has been completed.

C. Repair or replace damaged or deteriorated deck substrates. Use appropriate patching materials that are compatible with existing substrates.

D. Coordinate with Owner to shut down air intake equipment in vicinity of Work. Cover air intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in ductwork.

E. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.

F. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.
1. If roof drains will be temporarily blocked or unserviceable due to roofing system removal or partial installation of new membrane roofing system, provide alternative drainage method to remove water and eliminate ponding. Do not permit water to enter into, or under existing membrane roofing system components that are to remain.

G. Verify that rooftop utilities and service piping have been shut off before commencing Work.

3.2 ROOF REPAIR PROCEDURES

A. MEMBRANE REPAIRS (at designated areas)

1. Re-Flash Existing Curbs, Walls or Other Penetration:
   a. Clean and prepare surfaces to be re-flashed and remove all loose or un-bonded materials.
   b. Torch apply a polyester reinforced, smooth surfaced APP-modified asphalt sheet.
   c. Use PMMA auxiliary materials as specified.
   d. Apply unreinforced/reinforced PMMA coating as specified.

2. Repair Existing Edge Condition or Base Flashings:
   a. Clean and prepare surfaces to be re-flashed and remove all loose or un-bonded materials.
   b. Torch apply a polyester reinforced, smooth surfaced APP-modified asphalt sheet.
   c. Use PMMA auxiliary materials as specified.
   d. Apply unreinforced/reinforced PMMA coating as specified.

3. Patch Existing Multiply Roof System
   a. Clean and prepare surface to be patched and remove all loose or un-bonded materials.
   b. Make a smooth cut of the existing roof system membranes and insulation. Dispose of debris and remove all loose or un-bonded materials. Prepare substrate for mechanical attachment/adhesion of insulation assembly.
   c. If required, prime substrate with asphalt primer and torch apply a polyester reinforced, smooth surfaced APP-modified asphalt sheet.
   d. Use FM approved fasteners and plates/insulation adhesive designed to secure roof insulation to the substrate.
   e. Insulation base sheet is a torch applied polyester reinforced, smooth surfaced APP-modified asphalt sheet.
   f. Top layer is an unreinforced PMMA coating as specified. Use PMMA auxiliary materials to prepare substrate before top layer coating is applied.

3.3 INSULATION INSTALLATION

A. Comply with NRCA and Manufacturer's written instructions for installing roof insulation. Installation must be acceptable to inspecting agencies to resist uplift pressure calculated according to ASCE 7-10 with a safety factor of 2.0.

B. Install one lapped base-sheet course and mechanically fasten to substrate according to roofing system manufacturer's written instructions; lap edges 4-inches.

C. Insulation Cant Strips: Install and secure preformed 45-degree insulation cant strips at junctures of roofing membrane system with vertical surfaces or angle changes more than 45 degrees.

D. Install tapered insulation under area of roofing to conform to slopes indicated.

E. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4-inch with insulation.
   1. Cut and fit insulation within 1/4-inch of nailers, projections, and penetrations.

F. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7-inches or more, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6-inches in each direction.

G. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

H. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.

I. Apply no more insulation than can be sealed with membrane in same day.

J. Adhered Insulation: Install each layer of insulation and adhere to substrate as follows:
   1. Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.

K. Mechanically Fastened and Adhered Insulation: Install first layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type if required by manufacturer or set each layer of insulation in a bead-applied insulation adhesive.
   1. Fasten first layer of insulation to resist uplift pressure at corners, perimeter, and field of roof according to ASCE 7-10 with a safety factor of 2.0.
   2. Set each subsequent layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.

L. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints a minimum of 6-inchesin each direction from joints of insulation below. Loosely butt cover boards together. Tape joints if required by roofing system manufacturer.

M. Set cover boards in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining cover boards in place.

3.4 SHEET METAL REPAIR

1. Pitch Pan Fill:
   a. Insert dry sheathing paper or roofing felt to seal openings around penetrating items through deck or substrate.
   b. In pan 2-inches or deeper, install non-shrink grout to 1-inch from top of pan; allow to cure.
   c. Install non-cracking, low-volatile, one-part, trowel-grade, elastomeric roof mastic to top of pan at edges and tapered to crown in center around penetrating items to shed water.

3.5 TORCH APPLICATION SAFETY REQUIREMENTS

A. Maintain a fire watch during all torching applications and for a minimum of 2-hours after torch work is completed for day.

B. Maintain a minimum two (2) fire extinguishers of class and capacity required by local authority having jurisdiction, but not less than 20 pound capacity. Keep fire extinguishers within 25-feet of all torch activity. Provide multiple extinguishers if torching in more than one area.

C. Provide training on proper use of fire extinguishers to all personnel used on project.

D. Turn torches off when not actively in use. Do not place active or hot torches on any combustible materials or surfaces.

E. Remove torches and fuel sources from site at end of each day and when superintendent is not on premises.

F. Secure fuel sources on roof surface to prevent tipping or falling.

END OF SECTION 07 5910

SECTION 07 6200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Formed Products:
      a. Formed roof drainage sheet metal fabrications.
      b. Formed low-slope roof sheet metal fabrications.
      c. Formed equipment support flashing.
      d. Formed expansion-joint cover flashings.
      e. Miscellaneous sheet metal accessories.
      f. Precast concrete splash blocks.

B. Related Sections:
   1. Division 06 Section "Roofing Carpentry" for wood nailers, curbs, and blocking.
   2. Division 07 Section “Roof Replacement Preparation” for removal procedures for existing materials.
   3. Division 07 Section Styrene-Butadiene-Styrene (SBS) Modified Bituminous Roofing" for installing sheet metal flashing and trim integral with membrane roofing.
   4. Division 07 Section "Roof Accessories" for set-on-type curbs, equipment supports, roof hatches, vents, and other manufactured roof accessory units.
   5. Division 22 Section “Common Work Results for Plumbing” for requirements for modifying, repairing, or replacing roof mounted plumbing, and piping.
   6. Division 22 Section “Common Work Results for HVAC” for requirements for modifying, repairing, or replacing roof mounted mechanical equipment.
   7. Division 26 Section “Common Work Results for Electrical” for requirements for modifying, repairing, or replacing roof mounted electrical conduit, fixtures, and 150equipment.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. A 153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware
   2. A 240 - Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
   3. A 653 - Steel Sheet, Zinc Coated, (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip process.
   4. A 666 - Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
   5. A 755 - Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
   6. A 792 - Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
   7. B 32B - Solder Metal.
   8. B 749 - Lead and Lead Alloy Strip, Sheet, and Plate Products.

9. C 920 -Elastomeric Joint Sealants.
10. C 1311B - Solvent Release Sealants.
11. D 226 - Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
12. D 1187 - Asphalt-Base Emulsions for Use as Protective Coatings for Metal.
13. D 4397 - Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications.
14. D 4586 - Asphalt Roof Cement, Asbestos-Free.
15. D 4601 - Asphalt-Coated Glass Fiber Base Sheet Used in Roofing.

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

C. Sheet Metal and Air Conditioning Contractor's National Association (SMACNA): Architectural Sheet Metal Manual.

D. National Association of Architectural Metal Manufacturers (NAAMM): Metal Finishes Manual for Architectural and Metal Products

1.4 PERFORMANCE REQUIREMENTS

A. General: Sheet metal flashing and trim assemblies as indicated to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.

B. Edge Design: Fabricate and install parapet Copings that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist roof edge design pressure (P) as identified in ANSI/SPRI-ES-1, as calculated according to ASCE 7-10.
   a. Building Location: 80 Fort Brown Road, Brownsville, Texas
   b. Roof Surface Height: Varies – Field Verify
   c. Exposure Category: **Reference Plan Page T2**
   d. Occupancy Category: **Reference Plan Page T2**
   e. Estimated Design Pressures (Note: The Wind Up-lift Pressures identified below were estimated using the MetalEra.com *Wind Calculator* application and are being provided as a courtesy solely for bidding purposes. It is the responsibility of the Contractor to verify the accuracy of these estimates and to provide systems that resist the loads required by the applicable Building Code. These estimates do not constitute "engineering" studies and the use of the information provided below does not relieve the Manufacturer or the Contractor from providing and installing code compliant systems.)

C. Thermal Movements: Provide sheet metal flashing and trim that allows for thermal movements from ambient and surface temperature changes.
   1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

D. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.

1.5 ACTION SUBMITTALS

A. Product List: Submit list of proposed Products and manufacturers, including all items specified in Part 2 – Products or otherwise required by the Work.

B. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.

C. Shop Drawings: Show fabrication and installation layouts of sheet metal flashing and trim, including plans, elevations, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled work. Include the following:
   1. Identification of material, thickness, weight, and finish for each item and location in Project.
   2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
   3. Details for joining, supporting, and securing sheet metal flashing and trim, including layout of fasteners, cleats, clips, and other attachments. Include pattern of seams.
   4. Details of termination points and assemblies, including fixed points.
   5. Details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction.
   6. Details of edge conditions, including eaves, ridges, valleys, rakes, crickets, and counterflashings as applicable.
   7. Details of special conditions.
   8. Details of connections to adjoining work.
   9. Detail formed flashing and trim at a scale of not less than 3 inches per 12 inches.

D. Samples for Initial Selection: For each type of sheet metal flashing, trim, and accessory indicated with factory-applied color finishes involving color selection.

E. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
   1. Sheet Metal Flashing: 12 inches long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, closures, and other attachments.
   2. Trim, Metal Closures, Expansion Joints, Joint Intersections, and Miscellaneous Fabrications: 12 inches long and in required profile. Include fasteners and other exposed accessories.
   3. Accessories and Miscellaneous Materials: Full-size Sample.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified fabricator.

B. Maintenance Data: For sheet metal flashing, trim, and accessories to include in maintenance manuals.

C. Warranty: Sample of special warranty.

1.7 QUALITY ASSURANCE

A. General: Work of this Section to physically protect membrane roofing, base flashings, and expansion joints from damage that would permit water leakage to building interior.

B. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance, with three years minimum experience.

C. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.

D. Preinstallation Conference: Conduct conference at Project site.
   1. Meet with Owner, Architect, Owner's insurer if applicable, Installer, and installers whose work interfaces with or affects sheet metal flashing and trim including installers of roofing materials, roof accessories, unit skylights, and roof-mounted equipment.
   2. Review methods and procedures related to sheet metal flashing and trim.
   3. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
   4. Review special roof details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect sheet metal flashing.
   5. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling.

B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage.

C. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.

D. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to the extent necessary for the period of sheet metal flashing and trim installation.

1.9 COORDINATION

A. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leakproof, secure, and noncorrosive installation.

B. Coordinate with demolition work and with work of other trades to ensure sufficient materials and manpower are available to completely replace and make watertight all roofing removed each day.

C. Limit removal of existing sheet metal components, to ensure new membrane installation can be made watertight by end of day.

D. Coordinate installation of flanged metal components, including gravel guards, pitch pans, and accessories to ensure strip-in with hot bitumen (where applicable) on same day they are installed.

E. Schedule work to avoid storage on, and traffic over finished work.

1.10 WARRANTY

A. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
   a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
   b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
   c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SHEET METALS

A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying a strippable, temporary protective film before shipping.

B. Metallic-Coated Steel Sheet Restricted flatness steel sheet, metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755.
1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653, G90 coating designation; structural quality.
2. Aluminum-Zinc Alloy-Coated (Galvalume) Steel Sheet: ASTM A 792, Class AZ50 coating designation, Grade 40; structural quality.
3. Surface: Smooth, flat.

C. Prepainted Metallic-Coated Steel Sheet: Restricted flatness steel sheet, metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755.
1. Aluminum-Zinc Alloy-Coated (Galvalume) Steel Sheet: ASTM A 792, Class AZ50 coating designation, Grade 40; structural quality.
2. Surface: Smooth, flat.
3. Exposed Coil-Coated Finish:
   a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
   b. Minimum Exposure Tests:
      1) Humidity Resistance: 2000 hours.
      2) Salt-Spray Resistance: 2000 hours.
4. Color:
   a. As selected by Architect from manufacturer's full range.
5. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

D. Lead Sheet: ASTM B 749, Type L51121, copper-bearing lead sheet.

2.2 UNDERLAYMENT MATERIALS

A. Polyethylene Sheet: 6-mil- thick polyethylene sheet complying with ASTM D 4397.

B. Felts: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.

C. Slip Sheet: Building paper, 3-lb/100 sq. ft. minimum, rosin sized.

2.3 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.
   1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
      a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating.
      b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
   2. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
   3. Fasteners for Zinc-Coated (Galvanized) or Aluminum-Zinc Alloy-Coated Steel Sheet: Hot-dip galvanized steel according to ASTM A 153 or ASTM F 2329 or Series 300 stainless steel.
   4. Rust-resistant and compatible with materials to be joined.
   5. Length: As required for thickness of material to penetrate substrate 1/2-inch minimum.

C. Mechanical Fasteners for Sheet Metal to Substrate Anchorage:
   1. Masonry: One-step, screw-type drive anchor (nailin); heat-treated, stress relieved, stainless steel pin; zinc jacketed; sized for intended application; minimum 1-1/4-inch length x 1/4-inch diameter; Hammer-Screw® manufactured by Powers Fasteners, Inc.
   2. Wood Blocking: Hexagonal head screws, stainless steel, with neoprene rubber washers; jacket color to match pre-painted sheet metal.
   3. Concrete: Same as masonry or other power actuated fasteners, suitable for application.

D. Roofing Nails: Stainless steel (for fastening into ACQ treated lumber), hot-dipped galvanized or non-ferrous type for fastening into non-treated lumber); with annular rings, size as required to suit application; minimum 11-gage with 3/8-inch diameter head.

E. Mechanical Fasteners for Sheet Metal to Metal Fabrications (Support Framing) Anchorage: Appropriate for purpose intended, size as required to suit application and achieve positive anchorage to substrate material.

F. Solder:
   1. For Stainless Steel: ASTM B 32, Grade Sn60, with an acid flux of type recommended by stainless-steel sheet manufacturer.
   2. For Lead: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead.
   3. For Zinc-Coated (Galvanized) Steel: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead or Grade Sn60, 60 percent tin and 40 percent lead.

G. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.

H. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant; low modulus, as specified in Division 07 Section “Sealants (for Roofing)”; of type, grade,

class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

I. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

J. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

K. Penetration Seal System: ChemCurb™ System – Penetration Seals, manufactured by Chem Linc, Inc. 416 E. Ransom St., Kalamazoo, MI 49007, (880-826-1681).
   1. Curb Components: Precast, polymer modified cement or structural urethane.
   2. Curb Adhesive: Special silicone sealant – DURALINK™.
   3. Pourable Sealant: Two-component urethane.

L. Splash Blocks: Precast concrete of size and profile indicated; minimum 3000 psi at 28 days, with minimum 5 percent air entrainment; suitable for downspouts discharging at grade level or onto roof surface.

2.4 FABRICATION, GENERAL

A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.

B. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
   1. Obtain field measurements for accurate fit before shop fabrication.

C. Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
   1. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.

D. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

E. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant.

F. Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1-inch deep, filled with elastomeric sealant concealed within joints.
   1. Fabricate all components with allowance for expansion at joints. Provide enlarged or oval holes at all piercing fasteners.

G. Conceal fasteners and expansion provisions where possible on exposed-to-view sheet metal flashing and trim, unless otherwise indicated.

H. Form all sheet metal components (except corners) in longest practical length up to 10-feet maximum; true to shape, square, accurate in size, and free from distortion or defects detrimental to appearance or performance.

I. Fabricate corners on all sheet metal components (gravel guards, copings, cap flashings, etc.) to form one piece with minimum 18-inch and maximum 36-inch long legs.

J. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
   1. Fabricate cleats and attachment devices of sizes as recommended by SMACNA's "Architectural Sheet Metal Manual" for application, but not less than thickness of metal being secured.

K. Soldered Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.

L. Unsoldered Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.

M. Hem exposed edges of metal 1/2-inch; miter and seam corners.

N. Fabricate vertical faces with bottom edge formed outward 3/4-inch at 30 degrees and hemmed to form drip.
   1. Where vertical height exceeds 8-inches, fabricate with stiffing grooves in accordance with SMACNA, unless specifically approved otherwise.

O. Form all sheet metal material to provide watertight joints:
   1. Unprotected Horizontal Surfaces (expansion joint covers, etc.): Standing seam or drive cleat joints.
   2. Vertical Surfaces (copings, cap flashings, gravel guards, etc.): Flat lock or cover and backer plate seams.

P. Miter all sheet metal corners and solder, weld, or fasten and seal all joints watertight:
   1. Prepainted metallic-coated steel sheet: Apply minimum 1/4-inch bead of sealant between connecting metal flanges and drill and fasten with rivets at 2-inches o.c.
   2. Stainless Steel: Solder joints watertight.
   3. Unfinished Galvanized Steel: Solder joints watertight.
   4. After soldering, remove flux. Wipe and wash solder joints clean.
   5. Install sealant so it will not be visible on outside of joints.

Q. Fabricate elements complete with required connection pieces.

R. Fabricate all components with horizontal (flat) surfaces with built-in slope for drainage toward roof unless indicated otherwise.

S. Do not use graphite pencils to mark metal surfaces.

2.5 ROOF DRAINAGE SHEET METAL FABRICATIONS

A. Hanging Gutters: Fabricate to cross section indicated, complete with end pieces, outlet tubes, and other accessories as required. Fabricate in minimum 96-inch- long sections. Furnish flat-stock gutter spacers and gutter brackets fabricated from same metal as gutters, of size recommended by SMACNA but not less than twice the gutter thickness. Fabricate expansion joints, expansion-joint covers, and gutter accessories from same metal as gutters.
   1. Gutter Style: SMACNA designation A.

a. Size: Designed to meet roof drainage area, rainfall intensity criteria, and downspout size and spacing.
b. Supports: Minimum 1/8-inch x 1-inch Brackets and 0.1046 inch (12 gage) spacers at maximum 36-inches oc, staggered.
c. Join sections with riveted and sealed or soldered joints.

2. Expansion Joints: Lap type.
   a. Spacing: Minimum twenty (20) feet, maximum fifty (50) feet between expansion joints.
3. Accessories: Wire ball downspout strainer.
4. Gutters with Girth up to 6-Inches: Fabricate from the following materials:
   a. Prepainted Metallic-Coated Steel: 0.022 inch (24-gage) thick.
5. Gutters with Girth 6-15 Inches: Fabricate from the following materials:
   a. Prepainted Metallic-Coated Steel: 0.028 inch (22-gage) thick.

B. Downspouts: Fabricate rectangular downspouts complete with mitered elbows. Furnish with metal hangers, from same material as downspouts, and anchors.
1. Fabricated Hanger Style: SMACNA figure designation 1-35A.
2. Size: Designed to accept roof drainage area, rainfall intensity criteria, and downspout spacing.
3. Length: Minimum twenty (20) feet or required height, maximum fifty feet between expansion joints.
4. Joints: Sections with riveted and sealed or soldered joints.
5. Supports: 12 Gage straps at maximum 8-feet oc. All strap edges rolled or smooth.
6. Fabricate from the following materials:
   a. Prepainted Metallic-Coated Steel: 0.0217 inch (24-gage) thick.

C. Fabricate gutter and downspout accessories seal watertight.

D. Collector Box: Fabricate to cross section indicated, to drain into 4x4 Tube Steel downspouts. Fabricate in accordance with SMACNA in gauge as per drawings, but no less than recommended by SMACNA.
   a. Prepainted Metallic-Coated Steel: 0.028 inch (22-gage) thick.

E. Roof-Edge Flashing (Gravel Stop): Fabricate in minimum 96-inch- long, but not exceeding 10-foot- long, sections. Furnish with 6-inch- wide, joint cover plates.
1. Joint Style: Butt, with 12-inch- wide concealed backup plate and 6-inch- wide exposed cover plates.
2. Fabricate with scuppers spaced at existing locations or where indicated on the roof plan, of dimensions required with 4-inch- wide flanges and base extending 4-inches beyond cant or tapered strip into field of roof. Fasten gravel guard angles to base of scupper.
3. Fabricate roof edge flashing from the following material:
   a. Prepainted Metallic-Coated Steel: 0.022 inch (24-gage) thick.
4. Fabricate roof edge cleats from the following material:
   a. Metallic Coated (Galvanized or Galvalume) Steel: 0.028 inch (22-gage) thick.

F. Roof and Roof to Wall Transition; Roof to Roof Edge Flashing (Gravel Stop) Transition; and Expansion-Joint Cover: Fabricate from the following materials:
1. Prepainted Metallic-Coated Galvalume Steel: 0.022 inch (24-gage) thick.

G. Counterflashing: Fabricate from the following materials:

1. Prepainted Metallic-Coated Galvalume Steel: 0.022 inch (24-gage) thick.

H. Flashing Receivers: Fabricate from the following materials:
1. Stainless Steel: 0.019 inch (26-gage) thick.

I. Roof-Penetration Flashing: Fabricate from the following materials:
1. Stainless Steel: 0.019 inch (26-gage) thick.

J. Soil Pipe Flashing: Fabricate from the following material:
1. Lead: 4.0 lb/sq. ft., hard tempered.

2.6 MISCELLANEOUS SHEET METAL FABRICATIONS

A. Equipment Support Flashing: Fabricate from the following materials:
1. Prepainted Metallic Coated Galvalume Steel: 0.028 inch (22-gage) thick.

2.7 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

D. Exposed to View (Unfinished) Galvanized Steel Components: Paint to match prepainted metallic-coated steel prior to installation:
1. Clean: Comply with SSPC-1 - Solvent Wipe.
2. Primer: Apply specified or finish paint manufacturer's recommended primer in accordance with manufacturer's instructions.
3. Finish Coat: Apply powder coating or approved urethane enamel in accordance with manufacturer's instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of the Work.
1. Verify compliance with requirements for installation tolerances of substrates.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
3. Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, cant strips and reglets in place, and nailing strips located.
4. Verify membrane termination and base flashings are in place, sealed, and secure.

B. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

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

3.2 UNDERLAYMENT INSTALLATION

A. General: Install underlayment as recommended by SMACNA and as indicated on Drawings.

B. Polyethylene Sheet: Install polyethylene sheet with adhesive for anchorage to minimize use of mechanical fasteners under sheet metal flashing and trim. Apply in shingle fashion to shed water, with lapped and taped joints of not less than 2 inches.

C. Felt Underlayment: Install felt underlayment with adhesive for temporary anchorage to minimize use of mechanical fasteners under sheet metal flashing and trim. Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches.

3.3 INSTALLATION, GENERAL

A. Field measure site conditions prior to fabricating work.

B. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
   1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
   2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
   3. Provide continuous cleats fastened not more than 12-inches on center. Anchor cleats with a minimum two fasteners.
   4. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
   5. Install sealant tape where indicated.
   6. Torch cutting of sheet metal flashing and trim is not permitted.
   7. Do not use graphite pencils to mark metal surfaces.

C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA.
   1. Coat back side of stainless-steel and lead sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
      a. Minimum Dry Film Thickness: 15-mils.
   2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene sheet.
   3. Bed flanges in thick coat of asphalt roofing cement where required for waterproof performance.

D. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10-feet. Provide joints within 18- to 36-inches of all corners or intersections. Where lapped expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1-inch deep, filled with elastomeric sealant concealed within joints.

E. Fastener Sizes: Use fasteners of sizes that will penetrate wood sheathing not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws; and metal decking not less than recommended by fastener manufacturer to achieve maximum pull-out resistance:
   1. Galvanized or Prepainted, Metallic-Coated Steel: Use stainless-steel fasteners.
   2. Stainless Steel: Use stainless-steel fasteners.

F. Seal joints as shown and as required with elastomeric sealant for watertight construction.
   1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1-inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.
   2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants (for Roofing)."

G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pretin edges of sheets to be soldered to a width of 1-1/2 inches except reduce pre-tinning where pre-tinned surface would show in completed Work.
   1. Do not solder pre-painted metallic-coated steel sheet.
   2. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
   3. Stainless-Steel Soldering: Tin edges of uncoated sheets using solder recommended for stainless steel and acid flux. Promptly remove acid flux residue from metal after tinning and soldering. Comply with solder manufacturer's recommended methods for cleaning and neutralization.

H. Rivets: Rivet joints where indicated and where necessary for strength.

I. Protect all membrane penetrations as indicated and as recommended in SMACNA and NRCA manuals.

3.4 ROOF DRAINAGE SYSTEM INSTALLATION

A. General: Install sheet metal roof drainage items to produce complete roof drainage system according to SMACNA recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.

B. Hanging Gutters: Join sections with riveted and soldered joints or with lapped joints sealed with elastomeric sealant. Provide for thermal expansion. Attach gutters at eave or fascia to firmly anchored gutter brackets and straps spaced not more than 36 inches apart. Provide end closures and seal watertight with sealant. Slope to downspouts.
   1. Fasten gutter spacers to front and back of gutter.

2. Loosely lock straps to front gutter bead and anchor to roof deck.
3. Anchor back of gutter that extends onto roof deck with cleats spaced not more than 24-inches apart.
4. Install gutter with expansion joints at locations indicated, but not exceeding, 50 feet apart. Install expansion-joint caps.

C. Downspouts: Join sections with 1-1/2-inch telescoping joints.
1. Provide hangers with fasteners designed to hold downspouts securely to walls. Locate hangers at top and bottom and at approximately 60 inches o.c. in between.
2. Connect downspouts to underground drainage system where available.
3. Provide opening at base of downspout (As detailed in the Drawings) to direct water away from building.
4. Set splash blocks under downspouts not connected to underground drainage system.

D. Splash Blocks: Install where downspouts discharge on low-slope roofs or onto grade.
1. Roof Discharge: Set on traffic pads compatible with roofing membrane.
2. Grade Discharge: Set on a bed of compacted fill.

E. Expansion-Joint Covers: Install expansion-joint covers at locations and of configuration indicated in drawings. If not indicated in Drawings, located expansion joints no greater than 50' apart in any Gutter Section. Locate 2 downspouts for each 50' section of gutter (min.). Lap joints a minimum of 4-inches in direction of water flow.

3.5 ROOF FLASHING INSTALLATION

A. General: Install sheet metal flashing and trim to comply with performance requirements and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
1. Install starter and edge strips, and cleats before starting installation.
2. Strip in all sheet metal flanges the same day they are installed.

B. Roof Edge Flashing: Anchor to resist uplift and outward forces specified in Part 1 and as indicated.
1. Backer Plates: Secure with fasteners suitable for substrate, 6-inches o.c. each face.
2. Interlock bottom edge of roof edge flashing with continuous cleats anchored to substrate at 12-inch centers.
3. Apply 1/4-inch bead of sealant between each layer of metal at each edge.
4. Cover Plates: Hook front or exposed face of cover plate over drip edge.
5. Do not use mastic between sheet metal components.

C. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending a minimum of 4-inches over base flashing. Install stainless-steel draw band and tighten.

D. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4-inches over base flashing. Lap counterflashing joints a minimum of 4-inches and bed with elastomeric sealant.
1. Sawcut new reglets where required.

a. Provide bayonet style lap joints, minimum 4-inch overlap.
b. Fill voids between wedges with backer rod.
c. Seal receiver to vertical face of wall.

2. Secure in a waterproof manner by means of snap-in installation and sealant or plastic wedges and sealant.
3. Install surface mounted reglets true to lines and levels.
   a. Seal top of reglets with sealant.
   b. Secure in place with neoprene head screws at maximum 12-inches on center.

E. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Install flashing as follows:
1. Install lead flashings at all soil pipe penetrations. Turn lead flashing down inside piping, being careful not to block vent piping with flashing.
2. Provide Penetration Seal System at all small penetrations not otherwise detailed.
   a. Clean roof surfaces to receive Penetration Seal Systems.
   b. Clean pipes and penetrating elements to remove plastic cement, bitumen, and other contaminants by wire brushing and scraping.
   c. Caulk around penetrating elements with curb adhesive.
   d. Apply beads of curb adhesive to flat side of first precast curb component. Place caulked curb onto roof surface to form half circle around penetrating element.
   e. Apply beads of curb adhesive to flat side and to scarf joints of second precast curb component. Place second section of curb onto roof surface to form circle with first section. Press scarf joints together firmly and press both sections down.
   f. Apply continuous bead of curb adhesive around outside edge of curb at roof.
   g. Fill around penetrating element with pourable sealant to top of curb.
3. **Pitch pans are not desired**. Install only where specifically indicated, or approved by Architect. Provide flanged umbrellas at all pitch pans.
   a. Fill with non-shrink grout to 1-inch from top of flange.
   b. Top with Pitch Pan Filler - Sealant Type ES-2.
4. Seal with elastomeric sealant and clamp flashing to pipes penetrating roof except for lead flashing on vent piping.

F. Protect all membrane penetrations as indicated and as recommended in SMACNA and NRCA manuals.

3.6 MISCELLANEOUS FLASHING INSTALLATION

A. Equipment Support Flashing: Coordinate installation of equipment support flashing with installation of roofing and equipment. Weld or seal flashing with elastomeric sealant to equipment support member.

3.7 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.8 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder and sealants.

C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of installation, remove unused materials and clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain in a clean condition during construction.

D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

3.9 SCHEDULE - MATERIALS

A. Exposed to View Components:
   1. One-Piece Flashing and Expansion Joint Terminations: Metallic coated steel sheet, powder coated to match adjacent prepainted metallic-coated steel sheet components.
   2. All Other Components: Metallic coated steel sheet, powder coated to match adjacent prepainted metallic-coated steel sheet components.

B. Concealed from View Components, (Counterflashings, Expansion Joint Covers, Etc.): Stainless steel sheet.

C. Roof Penetration Flashings: Stainless steel sheet.

D. Rain Hoods and Umbrellas: Stainless steel sheet.

END OF SECTION 07 6200

CERTIFICATION OF AUTHORIZED FABRICATOR
For
Shop-Fabricated Edge Metal Flashings
As Tested By

NATIONAL
ES TESTING SERVICE, INC.

Instructions: Please complete and return the following information for each sheet metal fabrication shop location (e.g., shops at different addresses) to be included in your company's authorized certification of tested products per ANSI/SPRI ES-1 2003 guidelines.

FAX BACK TO: 866-298-6767

Primary Contact Person: _____

Title (Primary Contact): _____

Company Name: _____

Company Address: _____

City, State, ZIP: _____

Telephone: _____

FAX: _____

Website: _____

E-Mail (Primary Contact): _____

Equipment List (All Equipment Used To Fabricate Submitted Details):

_____

_____

_____

_____

_____

NATIONAL
ES TESTING SERVICE, INC.

Authorized Fabricator Agreement

Enabling Shop Fabricated Products to be Compliant to the Guidelines of ANSI/SPRI ES-1 2003/2007

This agreement is made the _____day of _____, 200___ by and between National ES Testing Service, Inc. (NESTS) 312 Penwood Trail, Dacula, Georgia 30019 and:

Company Name: _____
(Hereinafter "Authorized Fabricator")

Address: _____

City, State, ZIP: _____

Phone Number: _____

NESTS has developed a purpose built ANSI/SPRI ES-1 Test Apparatus in strict accordance to the guidelines of the Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems approved December 11,2003, for the purpose of testing wind resistance of specific shop fabricated, metal roof edge flashing, fascias and coping systems. NESTS's tests performed on behalf of the Authorized Fabricator signifies specific shop fabricated metal roof edge flashing, fascias and coping systems fabricated and installed in accordance with the Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems are in compliance with ANSI/SPRI ES-1 for the specific loads indicated as listed in the Certificate of Compliance document.

Now therefore, and in consideration of the mutual covenants herein expressed and other lawful valuable consideration, the parties hereto agree as follows:

1. NESTS agrees to:provide the Authorized Fabricator with one copy of each tested product's Certificate of Compliance and the accompanying test data in Microsoft Excel 2003 format;provide the Authorized Fabricator a one (1) year Certificate of Compliance from the date of full payment of testing services

performed, renewable for additional one (1) year periods following the periodic follow-up audit performed at the authorized fabricator's facilities by NESTS, and payment in full for this yearly audit.

2. The Authorized Fabricator agrees to:Maintain in good condition all equipment used and as listed on the Certification of Authorized Fabricator Form for the fabrication of compliant details as tested on the date listed on the individual Certificate of Compliance form(s).

Pay a non-refundable $2500.00 fee for each tested detail, material composition and size, for test services rendered on behalf of the Authorized Fabricator. The Authorized Fabricator must furnish NESTS with full scale, complete representations of each detail to be tested, in the exact condition said details would be supplied for installation to Authorized Fabricator's customer(s). The cost of supplying these details and the associated freight charges are the full responsibility of the Authorized Fabricator. A 50% down payment must be received prior to the commencement of all testing. Final payment must be received In-Full prior to the issuance of the Certificate of Compliance(s) to the Authorized Fabricator. Furthermore, the Authorized Fabricator agrees to pay an annual Authorized Fabricator Fee of $750.00 plus the actual travel costs (+ 15%) for issuance of an additional one (1) year Certificate of Compliance for all details as tested on the date of the original issuance.

Maintain an accurate record of all edge metal flashings, fascias and coping system configurations fabricated by the Authorized Fabricator for which certification applies. This record shall include the project name, building owner(s) names, addresses and phone number(s), location and date of substantial completion, the installing contractor(s) name, address and phone number(s), specific configurations installed, metal type and the total lineal footage fabricated of all components to the certified details. A copy of this record shall be made available to NESTS upon NESTS's request.

Hold NESTS harmless and to defend and indemnify NESTS against any and all liability, loss, expense or damage from claims, demands, court costs (including legal fees), or for judgments arising out of any negligent or intentional acts of the Authorized Fabricator or third parties relating to the use of the listed products on the Certificate of Compliance, or arising from the use of this Certificate of Compliance.

NESTS will not, under any circumstances, be held liable to the Authorized Fabricator for any damages, including indirect, special, punitive or consequential damages, or any third party claims which may arise as a result of NESTS allowing the Authorized Fabricator to use the Certificate(s) of Compliance as provided for in this authorized fabricator agreement. The maximum aggregate liability of NESTS for

damages in connection with the use of this listing and this authorized fabricator agreement shall not exceed the annual listing fee of $750.00 paid to NESTS by the Authorized Fabricator.

3. Any other charges and fees associated with the Certificate of Compliance issued by NESTS that may come up now or in the future to remain compliant with the current ANSI/SPRI ES-1 document, will be the sole responsibility of the Authorized Fabricator, and paid prior to any continuation or issuance further certifications.
4. In the event NESTS detects or is made aware (by any means) of any deviation or variance from this authorized fabricator agreement, or improper or unauthorized use of the NESTS Certificate of Compliance, and upon written notice to the Authorized Fabricator, NESTS reserves the right to terminate this authorized fabricator agreement.
5. If NESTS is served with a subpoena, court order or other similar document requesting disclosure of information relating to the Certificate of Compliance or this authorized fabricator agreement, NESTS will promptly notify the Authorized Fabricator. In the event the Authorized Fabricator chooses to contest the request, NESTS will attempt to cooperate with the Authorized Fabricator. The responsibility for contesting the request including all court costs, attorneys' fees, travel costs or any and all related costs shall rest solely with the Authorized Fabricator. Any costs incurred by NESTS in responding to a request will be invoiced by NESTS to the Authorized Fabricator and shall be deemed due upon receipt.
6. The rights extended to the Authorized Fabricator under this authorized fabricator agreement may not be subcontracted to, transferred to, assigned to or acquired by any other person or entity without NESTS's prior written authorization.
7. This authorized fabricator agreement can be terminated by either NESTS or the Authorized Fabricator upon not less than thirty (30) days written notice to the other party. Such notice shall designate a termination date and the notice period shall be deemed to commence upon the date of mailing of the notice to the other party by registered or certified mail, return receipt requested.
8. The authorized fabricator agreement shall continue to be in effect for a period of one (1) year from the date first written above. It shall be subject to automatic renewal thereafter for a period of one year, and the subsequent year renewal fee in-full becomes due thirty (30) days prior to the renewal date, or is subject to immediate cancellation. Automatic renewal will occur unless terminated by NESTS or the Authorized Fabricator.

This agreement is accepted by:

National ES Testing Service, Inc.
Tim Tunney
President

Date

Company Name:

Signature of Officer of Authorized Fabricator

Date

NATIONAL

ES Testing Service, Inc.

"The Right Choice for Your Roof"

Certificate of ANSI/SPRI ES-1 Compliance

National ES Testing Service, Inc. hereby certifies that the Product(s) listed below have been tested in accordance with the protocols of the ANSI/SPRI ES-1 Roof Edge Standard, and when installed as required will withstand the Design Pressures as calculated using ES-1 for the below listed project, and as prescribed by Section 1504.5 of the 2003 and 2006 International Building Code.

Product(s) Certified:
Building Location:
Architect:
Building Owner:
Completion Date:
Installing Contractor:
Material Tested:

Certificate Number:

Building Height:
Building Exposure:
Importance Classification:
Design Wind Speed:
Horizontal Design Pressure (psf):
Vertical Design Pressure (psf):
Product Size:

Dated: _____

Authorized Signature for National ES Testing Service, Inc: _____

Disclaimer

All basic wind speed velocities and velocity pressure calculations are based on the maps and formulas provided in the document ANS/SPRI ES-1 2003 "Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems" and the SEI/ACSE 7-02 standard. Although every care has been taken to ensure that the information based on state and county is accurate according to the standards, official wind speed requirements can vary based on local and county jurisdiction. It is highly recommended that any information regarding wind speed velocity provided be verified with local and county officials before any action is taken. No liability is accepted or implied by National ES Testing Service, Inc. for such information and advice.

National ES Testing Service, Inc.● PO Box 485 ● Dacula, GA 30019
O# 404-234-3905 ● Fax: 866-648-0692 ● www.nationalestesting.com

the standard in safety

Underwriters Laboratories

January 31, 2008

National ES Testing Service, Inc.
Mr. Tim Tunney
PO Box 485
312 Penwood Trail
Dacula, Ga. 30019

Subject: ANSI/SPRI ES-1 Test Equipment

This is to confirm that Underwriters Laboratories, Inc. has witnessed and completed an ANSI/SPRI ES-1 Test series utilizing the equipment designed and provided by National ES Testing Services, Inc.

The observed test equipment was controlled by a proprietary software program and fully programmable Windows based computer of which controls pneumatically driven loading rams both horizontally and vertically to apply uniform loading spaced 12-in OC across the centerline of the particular perimeter edge flashing system under review. For copings products, the equipment provides simultaneous loading spaced 12-in OC across the centerline of both the top of the coping and to one of the faces of the test specimen. The testing was then repeated with the opposite face of the coping. Independent "scales", separate from the operating program of the test machine, were utilized to verify and record the specific pound per square foot (psf) applied at each incremental load scheduled during the applicable ES-1 test being performed either horizontally, vertically, or simultaneously horizontally and vertically.

Based on Underwriter Laboratories observations, it was determined that the loading capability of the National ES Testing Service, Inc. machine complied with the loading applications stated, and as required in the 2003 ANSI/SPRI ES-1 Standard. The loading equipment was also capable of the loading applications included in the proposed 2007 revisions to the ANSI/SPRI ES-1 Standard that are still under the American National Standards Institute review process.

UL offers Data Acceptance Programs whereby test work conducted by third-party test facilities is used to facilitate the conduct of investigations of products. When data is to be used for this purpose, under our Witness Test Data Program (WTDP), the facilities must be found to be in accordance with national and international accreditation criteria. For additional information on UL's Data Acceptance Programs, please access www.UL.com/dap.

If you should have additional questions, please feel free to contact us.

Very truly yours

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Reviewed by

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END OF SECTION 07 6210

SECTION 07 7200 - ROOF ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes:
1. Roof curbs.
2. Equipment supports.
3. Roof hatches.
4. Pipe Supports/Hangers.
5. Access Ladders
6. Roof supports.
7. Fall Through Protection (for Roof Hatches)

B. Related Requirements:
1. Section 06 1055 "Roofing Carpentry" for roof sheathing, wood cants, and wood nailers.
2. Section 07 4113 "Metal Roof Panels" for preformed metal roofing.
3. Division 07 low-slope roofing Sections for roofing accessories.
4. Section 07 6200 "Sheet Metal Flashing and Trim" for shop- and field-fabricated metal flashing and counterflashing, roof expansion-joint covers, and miscellaneous sheet metal trim and accessories.
5. Section 22 0500 “Common Work Results for Plumbing” for plumbing and piping modifications, removal, and reinstallation.
6. Section 23 0500 “Common Work Results for HVAC” for HVAC equipment modifications, removal, and reinstallation.
7. Section 26 0500 “Common Work Results for Electrical” for electrical equipment disconnection and reconnection.

1.3 UNIT PRICES

A. Installation of Pipe Supports/Hangers (for Additional Areas Not-in-Contract):
1. Basis of Measurement: By each unit, by each size listed on Bid Form - Alternates & Unit Prices each size.
2. Basis of Payment: Includes pipe support unit, assembled and installed, membrane protection materials, and accessories.

1.4 REFERENCES

A. Aluminum Association (AA): Specifications for Aluminum Structures.

B. American Society for Testing and Materials (ASTM):
1. A 36: Carbon Structural Steel.
2. A 53: Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
3. A 123: Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
4. A 153: Zinc Coating (Hot-Dip) Steel and Iron Hardware.
5. A 167: Stainless and Heat Resisting Chromium-Nickel Steel Plate, Sheet and Strip..-
6. A 240: Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for

Pressure Vessels and for General Applications.
7. A 500: Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
8. A 653: Steel Sheet, Zinc Coated, (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip process, Structural (Physical) Quality Property.
9. A 666: Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
10. A 755: Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
11. A 780: Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
12. A 792: Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
13. A 924: Steel Sheet, Zinc Coated, (galvanized) by the Hot-Dip process.
14. A 1011: Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
15. B 209: Aluminum and Aluminum-Alloy Sheet and Plate.
16. B 221: Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.
17. C 208: Cellulosic Fiber Insulating Board.
18. C 726: Mineral Fiber Roof Insulation Board.
19. C 920: Elastomeric Joint Sealants.
20. C 1289: Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
21. C 1311: Solvent Release Sealants.
22. D 638: Tensile Properties of Rigid Plastic.
23. D 226: Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
24. D 256: Determining the Izod Pendulum Impact Resistance of Plastics.
25. D 695: Compressive Properties of Rigid Plastic.
26. D 785: Rockwell Hardness of Plastics and Electrical Insulating Materials.
27. D 1003: Haze and Luminous Transmittance of Transparent Plastics.
28. D 2240: Rubber Property – Durometer Hardness.
29. D 2244: Color Tolerance and Calculation of Color Differences from Instrumentally Measured Color Coordinates.
30. D 4214: Evaluating the Degree of Chalking of Exterior Paint Films.
31. D 4397: Polyethylene Sheeting for Construction, Industrial and Agricultural Applications.
32. D 4586: Asphalt Roof Cement, Asbestos-Free.
33. D 4802: Poly(Methyl Methacrylate) Acrylic Plastic Sheet.

C. Manufacturer's Standardization Society of the Valve and Fittings Industry, Inc. (MSS):
1. SP-58 Pipe Hangers and Supports, Materials, Design and Manufacture.
2. SP-59 Pipe Hangers and Supports, Selection and Application.

D. National Roofing Contractors Association (NRCA): Roofing and Waterproofing Manual.

E. Sheet Metal and Air Conditioning Contractor's National Association (SMACNA): Architectural Sheet Metal Manual.

F. Underwriters' Laboratories (UL):
1. Fire Hazard Classifications.
2. UL 793 - Standard for Safety Automatically Operated Roof Vents for Smoke and Heat.

1.5 SYSTEM DESCRIPTION

A. Manufactured Curbs: Engineered, prefabricated structural box curb assembly designed

for installation onto roof deck or structural framing, capable of supporting weight of roof-mounted equipment without deformation. Include integral base plate, treated wood nailer and insulation.

B. Pipe Supports: Support all roof mounted piping with engineered, prefabricated, portable system designed for installation on roof without roof penetrations, flashings, or damage to roofing materials. Include bases, structural steel frames, and adjustable height pipe hangers or supports suitable for existing and proposed piping and conduits.

C. Roof Hatches: Engineered, prefabricated structural box curb assembly designed for installation onto roof deck or structural framing. Include integral base plate, treated wood nailer and insulation.

1.6 DESIGN REQUIREMENTS

A. Fabricate and install Roof Accessories to comply with NRCA recommendations that: (1) top of curb to top of roofing membrane be a minimum of 8-inches; (2) Suspended Pipe supports up to 24” wide have 14” of clearance from bottom of support to top of roofing membrane; (3) Suspended Pipe supports 25” to 36” wide have 18” of clearance from bottom of support to top of roofing membrane; and (4) Suspended Pipe Supports 37” to 48” wide have 24” of clearance from bottom of support to top of roofing membrane.

1.7 ACTION SUBMITTALS

A. Product List: Submit list of proposed Products and manufacturers, including all items specified in Part 2 – Products or otherwise required by the Work.

B. Product Data: For each type of roof accessory indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

C. Shop Drawings: Show fabrication and installation details for roof accessories. Show layouts of roof accessories including plans and elevations. Indicate dimensions, weights, loadings, required clearances, method of field assembly, and components. Include plans, elevations, sections, details, and attachments to other work.

1.8 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Roof plans, drawn to scale, and coordinating penetrations and roof-mounted items. Show the following:
   1. Size and location of roof accessories specified in this Section.
   2. Method of attaching roof accessories to roof or building structure.
   3. Other roof-mounted items including mechanical and electrical equipment, ductwork, piping, and conduit.

B. Samples: For each type of exposed factory-applied finish required and for each type of roof accessory indicated, prepared on Samples of size to adequately show color.

C. Manufacturer's Installation Instructions: Include installation sequence, special instructions and precautions, and Material Safety Data Sheets (MSDS).

D. Certification: Provide current letter(s) on Company’s letterhead, signed by an authorized employee or corporate officer attesting to all following items:
   1. Qualifications: Certify and document items in Article on Quality Assurance, and;
   2. Products: Certify that selected products meet or exceed specified requirements:
      a. Quality Assurance/Control Data: Provide Design Data, Test Reports, Certificates, Manufacturer's Installation Instructions, and Manufacturer's

Field Reports.

b. Test Reports: Certified test reports or labeling agency file numbers indicating compliance with specified performance characteristics and physical properties.

c. Manufacturer's Certification: Each product meets or exceeds specified requirements.

1.9 CLOSEOUT SUBMITTALS

A. Project Record Documents: Accurately record exact location of roof penetrations and any items installed but not visible after installation of roofing system or other Products.

B. Operation and Maintenance Data:

1. Include complete instructions for normal maintenance and local contacts for service and spare parts.
2. Include cleaning and stain removal methods and recommended cleaning materials, polishes, and waxes.

C. Warranty: Executed special warranty.

1.10 QUALITY ASSURANCE

A. Manufacturer: Company specializing in the manufacturer of products specified in this Section with minimum five years documented experience.

B. Applicator: Company specializing in installing the work of this Section with minimum three years documented experience and approved by the manufacturer.

C. Supervisor/Foreman: Individual that is a direct employee of Applicator Company experienced in using selected manufacturer's Products.

D. Sheet Metal Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" details for fabrication of units, including flanges and cap flashing to coordinate with type of roofing indicated.

E. Perform work in accordance with MSS SP-59.

F. Maintain one copy of each document accessible to site.

G. Pre-Installation Conference:

1. Convene two weeks prior to commencing work of this Section, under provisions of Section 01 3100 "Project Management and Coordination."
2. Require attendance of parties directly affecting work of this Section.
3. Review conditions of installation, installation procedures, and coordination with related work.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Pack, handle, and ship roof accessories properly labeled in heavy-duty packaging to prevent damage.

B. Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer.

1. Protect from damage from sunlight, weather, excessive temperatures and construction operations.

1.12 FIELD CONDITIONS

A. Field Measurements: Verify required openings for each type of roof accessory by field measurements before fabrication and indicate measurements on Shop Drawings.

B. Regulatory Requirements:
   1. Conform to International Building Code as amended by the City of Corpus Christi code for fire and wind loading requirements.
   2. Provide certification of inspection confirming approval of by authority having jurisdiction.

C. Environmental Requirements:
   1. Do not install Roof Accessories when chances for inclement weather exist, or might occur before installation can be completed and accessories made weatherproof.
   2. Maintain waterproof integrity of building during and after installation of Roof Accessories.

D. Existing Conditions: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings.
   1. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.
   2. Allow for field tolerances if taking field measurements before fabrication is not possible.

1.13 COORDINATION

A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.
   1. With Architect's approval, adjust location of roof accessories that would interrupt roof drainage routes, roof expansion joints or other construction elements.

B. Sequence work to allow installation of Roof Accessories that are mounted directly on roof deck during installation of new roofing system. Do not cut into new roofing system to retrofit Roofing Accessories unless specifically permitted by Architect.

C. Coordinate with installation of mechanical and electrical equipment, hardware, and assemblies to ensure Roof Accessories are properly located and in place to receive equipment installed by others.

1.14 WARRANTY

A. Warranty: Cover damage to Roof Accessories and substrates resulting from failure of Roof Accessories to perform as intended, including resist penetration of water. Include replacement of defective materials and labor.
   1. Manufactured Curbs and Equipment Supports: Provide warranty on curbs against structural failure.
   2. Pipe Support System: Provide warranty covering pipe bases against deterioration for same time period as roofing warranty.
   3. Roof Hatches: Provide warranty against deterioration and structural failure.
   4. Warranty Period:
      a. Pipe Support System: Same duration as Roofing System Warranty.
      b. Other Items: 5 years from date of Substantial Completion.

B. Special Warranty on Painted Finishes: Manufacturer's standard form in which

manufacturer agrees to repair finish or replace roof accessories that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:
   a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
   b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
   c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers listed in other Part 2 articles.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers listed in other Part 2 articles.

2.2 PERFORMANCE REQUIREMENTS

A. Provide roof accessories that have been manufactured, fabricated and installed to withstand design loads from and to maintain performance criteria stated by manufacturer without defects, damage or failure.

2.3 METAL MATERIALS

A. Metallic-Coated Steel Sheet: Restricted flatness steel sheet, metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755.
   1. Galvanized Steel Sheet: ASTM A 653, G90 coated and mill phosphatized for field painting.
   2. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792, AZ50 coated.

B. Prepainted Metallic-Coated Steel Sheet: Steel sheet metallic coated by hot-dip process and prepainted by coil-coating process to comply with ASTM A 755/A 755M.
   1. Galvanized Steel Sheet: ASTM A 653, G90 coated.
   2. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792, Class AZ50 coated.
   3. Exposed Finishes: High-Performance Organic Finish (2-Coat Fluoropolymer): Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's written instructions.
      a. Fluoropolymer 2-Coat System: Manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with physical properties and coating performance requirements in AAMA 2605, except as modified below:
         1) Humidity Resistance: 1000 hours.
         2) Salt-Spray Resistance: 1000 hours.

C. Aluminum Sheet: ASTM B 209, alloy and temper recommended by manufacturer for type of use and[mill] finish.[Coil-coat finish as follows:]
   1. Factory-Prime Coating: Where painting after installation is indicated, provide pretreatment and white or light-colored, factory-applied, baked-on epoxy primer coat; with a minimum dry film thickness of 0.2 mil.

2. Class II, Clear Anodic Finish: AA-M12C22A31 (Mechanical Finish: Nonspecular as fabricated; Chemical Finish: Etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.010 mm or thicker) complying with AAMA 611.
3. Class II, Color Anodic Finish: AA-M12C22A32/A34 (Mechanical Finish: Nonspecular as fabricated; Chemical Finish: Etched, medium matte; Anodic Coating: Architectural Class II, integrally colored or electrolytically deposited color coating 0.010 mm or thicker) complying with AAMA 611.
   a. Color: To be selected by Architect from Manufacturer's Standard Colors.
4. Baked-Enamel Finish: AA-C12C42R1x (Chemical Finish: Cleaned with inhibited chemicals; Chemical Finish: Acid-chromate-fluoride-phosphate conversion coating; Organic Coating: As specified below). Apply baked enamel complying with paint manufacturer's written instructions for cleaning, conversion coating, and painting.
   a. Organic Coating: Thermosetting, modified-acrylic enamel primer/topcoat system complying with AAMA 2603 except with a minimum dry film thickness of 1.5 mils, medium gloss.
   b. Color and Gloss: As selected by Architect from manufacturer's full range.
5. High-Performance Organic Finish (2-Coat Fluoropolymer): AA-C12C40R1x (Chemical Finish: Cleaned with inhibited chemicals; Chemical Finish: Conversion coating; Organic Coating: Manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with AAMA 2605 and with coating and resin manufacturer's written instructions.
   a. Color and Gloss: As selected by Architect from manufacturer's full range.
6. Powder-Coat Finish: Immediately after cleaning and pretreating, electrostatically apply manufacturer's standard baked-polymer thermosetting powder finish. Comply with resin manufacturer's written instructions for application, baking, and minimum dry film thickness.
   a. Color and Gloss: As selected by Architect from manufacturer's full range.

D. Aluminum Extrusions and Tubes: A STM B 221, alloy and temper recommended by manufacturer for type of use, mill finished.

E. Stainless-Steel Shapes or Sheet: ASTM A 240 or ASTM A 666, Type 304 or Type 316, No. 2D finish.

F. Steel Shapes: ASTM A 36, hot-dip galvanized to comply with ASTM A 123/A 123M, unless otherwise indicated.

G. Steel Tube: ASTM A 500, round tube, baked-enamel finished.

H. Galvanized Steel Tube: ASTM A 500, round tube, hot-dip galvanized to comply with ASTM A 123.

I. Galvanized Steel Pipe: ASTM A 53.

2.4 MISCELLANEOUS MATERIALS

A. Cellulosic-Fiber Board Insulation: ASTM C 208, Type II, Grade 1, not less than 1 inch thick.

B. Glass-Fiber Board Insulation: ASTM C 726, not less than 1 inch thick.

C. Polyisocyanurate Board Insulation: ASTM C 1289, not less than 1 inch thick.

D. Wood Nailers: Softwood lumber, pressure treated with waterborne preservatives for aboveground use, complying with AWPA C2; not less than 1-1/2 inches thick.

E. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

F. Polyethylene Sheet: 6-mil thick, polyethylene sheet complying with ASTM D 4397.

G. Felt: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.
   1. Slip Sheet: Rosin-sized paper, minimum 3 lb/100 sq. ft.

H. Fasteners: Same metal as metals being fastened, or nonmagnetic stainless steel or other noncorrosive metal as recommended by roof accessory manufacturer. Match finish of exposed fasteners with finish of material being fastened. Provide nonremovable fastener heads to exterior exposed fasteners.

I. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, or PVC; or flat design of foam rubber, sponge neoprene, or cork.

J. Sealant: of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

K. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant, polyisobutylene plasticized and heavy bodied for hooked-type expansion joints with limited movement.

L. Roofing Cement: ASTM D 4586, non-asbestos, fibrated asphalt cement designed for trowel application or other adhesive compatible with roofing system.

2.5 ROOF CURBS

A. Roof Curbs: Provide metal roof curbs, internally reinforced and capable of supporting superimposed live and dead loads, including equipment loads and other construction to be supported on roof curbs. Fabricate with welded or sealed mechanical corner joints, and integral formed mounting flange at perimeter bottom. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.
   1. Available Manufacturers:
      a. Custom Curb, Inc.
      b. LM Curbs.
      c. Pate Company (The).
      d. Thaler Metal Industries Ltd.
      e. ThyCurb; Div. of Thybar Corporation.
   2. Load Requirements: As required to support existing equipment.
   3. Material: Metallic-coated steel sheet, 0.079 inch.
   4. Liner: Same material as curb, of manufacturer's standard thickness and finish.
   5. Factory install wood nailers at tops of curbs.
   6. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.
   7. Factory insulate curbs with 1-1/2-inch thick, glass-fiber board insulation.
   8. Curb height may be determined by adding thickness of roof insulation and minimum base flashing height recommended by roofing membrane manufacturer. Fabricate units to minimum height of 12 inches above the new roof surface

unless otherwise indicated.

9. Sloping Roofs: Where slope of roof deck exceeds 1:48, fabricate curb units with water diverter or cricket and with height tapered to match slope to level tops of units.

2.6 EQUIPMENT SUPPORTS

A. Equipment Supports: Provide metal equipment supports, internally reinforced and capable of supporting superimposed live and dead loads, including equipment loads and other construction to be supported. Fabricate with welded or sealed mechanical corner joints, with integral formed mounting flange at perimeter bottom. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

1. Available Manufacturers:
    a. Custom Curb, Inc.
    b. LM Curbs.
    c. Pate Company (The).
    d. Thaler Metal Industries Ltd.
    e. ThyCurb; Div. of Thybar Corporation.
2. Load Requirements: As required to support equipment weight.
3. Material: Metallic-coated steel sheet, 0.079 inch thick.
4. Factory-install continuous wood nailers 3-1/2 wide at tops of equipment supports.
5. Metal Counterflashing: Manufacturer's standard removable counterflashing, fabricated of same metal and finish as equipment support.
6. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.
7. Fabricate units to minimum height of 12 inches above the new roof surface unless otherwise indicated.
8. Sloping Roofs: Where slope of roof deck exceeds 1:48, fabricate curb units with water diverter or cricket and with height tapered to match slope to level tops of units.

2.7 ROOF HATCHES

A. Roof Hatches: Fabricate roof hatches with insulated double-wall lids and insulated single wall curb frame with integral deck mounting flange and lid frame counterflashing. Fabricate with welded or mechanically fastened and sealed corner joints. Provide continuous weathertight perimeter gasketing and equip with corrosion-resistant or hot-dip galvanized hardware.

1. Available Manufacturers:
    a. Babcock-Davis; a Cierra Products Inc. Company.
    b. Bilco Company (The).
    c. Custom Curb, Inc.
    d. Nystrom, Inc.
    e. ThyCurb; Div of Thybar Corporation.
    f. Wasco Products, Inc.
2. Loads: Fabricate roof hatches to withstand 40-lbf/sq. ft. external and 20-lbf/sq. ft. internal loads.
3. Type and Size: Single-leaf lid, size to match existing.
4. Curb and Lid Material: Stainless Steel sheet, 0.079 inch thick.
5. board.
6. Interior Lid Liner: Manufacturer's standard metal liner of same material and finish as outer metal lid.
7. Exterior Curb Liner: Manufacturer's standard metal liner of same material and finish

as metal curb.

8. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.
9. Fabricate units to minimum height of 12 Inches, unless otherwise indicated.
10. Sloping Roofs: Where slope or roof deck exceeds 1:48, fabricate hatch curbs with height tapered to match slope to level tops of units.
11. Hardware: Stainless steel spring latch with turn handles, butt- or pintle-type hinge system, and padlock hasps inside and outside.
    a. Provide 2-point latch on covers larger than 84-inches.
    b. Provide remote-control operation.

2.8 FALL THROUGH PROTECTION (FOR ROOF HATCHES)

A. Roof Hatch Fall protection Safety Rail and Ladder Extension System: Manufacturer's standard Complete system, including rails, gate and Labels.

B. Manufacturer: SafePro L.P., 1355 N. Walton Walker, Dallas, TX 75211; Phone: 1-877-723-3570; Fax: 214-330-5435; Website: www.safeprosafety.com
1. Provide system complete, sized for individual Roof Hatches (Field Verify). Verify required gate swing before ordering.
2. Install as per manufacturer's instructions.

2.9 ROOF MOUNTED PIPE / EQUIPMENT SUPPORTS

A. Pipe Support System and Hangers: Adjustable height, with bases, traffic pads, and manufacturer's recommended hardware for mounting on roof membrane, suitable for quantity of pipe runs and sizes, with EPDM end caps.
1. Hot-dip galvanize completed assemblies. Stainless steel when framing is stainless steel.
2. Fabricate to MSS SP-58 and MSS SP-69.
3. Pipe Size 2-1/2-inch and Smaller: Single roller supports for piping subject to expansion and contraction; with 3-sided channels and pipe clamps.
4. Pipe Size 3-inch and Larger: Rollers, clevis hangers or band hangers, to allow for expansion and contraction without movement of the bases
5. Available Manufacturers:
    a. Advanced Support Products, Inc.
    b. Mapa Products
    c. Miro Industries, Inc.
    d. Portable Pipe Hangers, Inc.
6. Steel Framing: 12 gage minimum cold-rolled, hot dipped galvanized steel perforated channel sections equal to Uni-strut, Portable Pipe Hangers, or previously approved alternate.
7. Bases: Black, injection molded, moisture resistant, chemical resistant, non-flammable high density polypropylene plastic, or manufacturer's standard approved.
8. Accessory Hardware: Hot dipped galvanized, clamps, bolts nuts and washers as required for a complete system.
9. Base Pedestal: 3000 PSI reinforced, pre-cast concrete pavers not less than four inches larger than pedestal base size.
10. Traffic Pad: Recycled elastomers vulcanized into pads, 3/8-inches thick; TufPad® manufactured by Rubber Products, Inc. or roof membrane traffic pads as specified in Division 07 Section "[Styrene Butadiene Styrene (SBS) Modified Asphalt Bituminous Roofing]."
    a. Size: Not less than four (4") inches larger in both directions pedestal base.

11. Support Height: As indicated or required for existing items to be supported.

B. Mechanical Units and Duct Supports: Same manufacturer as pipe supports, and suitable for item to be supported, including manufacturer's standard hardware for mounting to structure or structural roof deck.

2.10 ACCESS LADDERS

A. Access Ladders: All welded construction with feet fabricated to accept lag bolting to roof surface. Refer to Plans for sizes and locations.

1. Available Manufacturers:
   a. P. W. Platforms, Inc.
      2906 Holmes Road
      Houston, TX 77051
      1.800.231.9936
      www.pwplatforms.com

   b. O'Keefee's Inc. Architectural Building Products
      www.okeeffes.com

2. Loads: 500 lb. capacity
3. Size: 24" wide "Max-Trax" stair treads and platform. Platform size (Refer to Drawings). Refer to Plans for sizes and locations. Field measurements and Shop drawings required for Architect Approval.
4. Frame Material: aluminum
   a. Finish: Mill finish
5. Standards: Meet or exceed all applicable OSHA, ANSI and IBC Standards.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of work.
   1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored and is ready to receive roof accessories.
   2. Verify dimensions of roof openings for roof accessories.
   3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protect adjacent surfaces, including roofing system from damage during installation of Roofing Accessories.

B. Clean surfaces of roof to receive pipe support bases. Remove loose gravel, dirt, dust, oils, and other foreign materials from all roofs. Prime existing substrate or membrane with primer that is compatible with and acceptable roofing membrane manufacturer.

3.3 INSTALLATION

A. General: Install roof accessories according to manufacturer's written instructions. Anchor roof accessories securely in place and capable of resisting forces specified. Use fasteners, separators, sealants, and other miscellaneous items as required for

completing roof accessory installation. Install roof accessories to resist exposure to weather without failing, rattling, leaking, and fastener disengagement.

B. Coordinate installation with adjacent Work such as roofing, sheet metal and other work to ensure creation of a complete weatherproof assembly. Anchor work securely to supporting structure, but allow for differential and thermal movement.

C. Install roof accessories to fit substrates and to result in watertight performance.

D. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating acceptable to roofing membrane manufacturer or by other permanent separation as recommended by manufacturer.
   1. Coat concealed side of uncoated aluminum and stainless-steel roof accessories with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
   2. Underlayment: Where installing exposed-to-view components of roof accessories directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet, or install a course of polyethylene underlayment.
   3. Bed flanges in thick coat of asphalt roofing cement where required by roof accessory manufacturers for waterproof performance.

E. Install roof accessories level, plumb, true to line and elevation, and without warping, jogs in alignment, excessive oil canning, buckling, or tool marks.

F. Roof Curb Installation:
   1. Locate curbs and support framing where indicated or instructed by Owner's Representative.
   2. Set roof curb so top surface of roof curb is level.

G. Equipment Support Installation:
   1. Locate curbs and support framing where indicated or instructed by Owner's Representative.
   2. Set equipment support so top surface of equipment support is level.

H. Roof Hatch Installation:
   1. Locate new roof hatches where indicated to replace existing units.
   2. Orient roof hatch and install access ladder to avoid opening toward a roof edge, change in roof elevation, or other obstacles that might impair safe access onto roof.
   3. Check roof hatch for proper operation. Adjust operating mechanism as required. Clean and lubricate joints and hardware.
   4. Anchor to roof deck with fasteners suitable for substrate.
   5. Attach safety railing system to roof hatch curb.
   6. Attach ladder safety post according to manufacturer's written instructions.
   7. After installation, remove shipping clips from components. Do not remove "risk-of-fall" labels from units.
   8. Paint Roof hatch as per Paint Schedule.

I. Coping Mounted Safety Railing System Installation.
   1. Coordinate installation with preparation of perimeter lumber to accept Railing System. Properly secure lumber before fastening Railing system.
   2. Cover attachment points with new coping.

J. Roof Hatch Fall protection Safety Rail and Ladder Extension System Installation:
   1. Manufacturer's standard Complete system, including rails, gate and Labels.
   2. Verify required gate swing before Installing.

K. Roof Mounted Pipe / Equipment Support Installation:
   1. Locate bases and support framing as indicated on shop drawings or as required for existing conditions. Completely support all piping, conduit, ducts, and equipment whether indicated or not.
      a. Do not use wood or wire to support items.
      b. Maximum Deflection: 1/240th of span.
      c. Maximum Load on Membrane: Two and one-half (2.5) pounds per square inch.
   2. Set bases with adhesive in accordance with manufacturer's installation instructions and as acceptable to membrane manufacturer. Accurately locate and align bases.
   3. Install support devices at spacings to support weight of piping and conduit, but in no case exceeding 10-feet on center.
   4. Set framing posts into bases and assemble framing structure as indicated.
   5. Use galvanized fasteners for galvanized framing and stainless steel fasteners for stainless steel framing.

L. Seal joints with sealant as required by manufacturer of roof accessories.

3.4 FIELD QUALITY CONTROL

A. Site inspection will be performed under provisions of Section 01 4000 "Quality Requirements".

B. Provide manufacturer's field services under provisions of Section 01 4000 "Quality Requirements".

C. Request site attendance of Roof Accessory manufacturers during installation of the work if required to confirm compliance with instructions or for special or unusual conditions.

3.5 TOUCH UP

A. Touch up factory-primed surfaces with compatible primer ready for field painting in accordance with Section 09 9000 "Painting."

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

3.6 CLEANING

A. Clean exposed surfaces according to manufacturer's written instructions.
   1. Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products.
   2. Clean metal and glazing using non-abrasive materials and methods. Remove and replace work that cannot be successfully cleaned.
   3. Remove adhesive from supports, pipes and bases, and leave work in clean condition.

B. Remove all construction debris, packaging, unused fasteners, adhesives, and other installation materials from project site and dispose of legally.

C. Reclean as necessary to prevent damage. Protect completed work from damage and

deterioration and inspect immediately before final acceptance of project.

3.7 PROTECTION

A. Protect finished installation under provisions of Section 01 5000 “Temporary Facilities and Controls”.

B. Do not permit traffic over unprotected roof surfaces.

END OF SECTION 07 7200

SECTION 07 9200 – ROOFING AND WALL SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Urethane joint sealants.

B. Related Sections:
   1. Division 07 Sections "SBS Modified Bituminous Membrane Roofing" for application and locations for sealants used in conjunction with roofing.
   2. Division 07 Section "Sheet Metal Flashing and Trim" for sealants used in conjunction with metal flashing for roofing.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. C 920 - Elastomeric Joint Sealants
   2. D 1056 - Flexible Cellular Materials - Sponge or Expanded Rubber.

1.4 PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

1.5 ACTION SUBMITTALS

A. Product List: Submit list of proposed Products and manufacturers, including all items specified in Part 2 – Products or otherwise required by the Work.

B. Product Data: For each selected joint-sealant product indicated, indicating sealant chemical characteristics, performance criteria, preparation, limitations, colors available, and Material Safety Data Sheets (MSDS).

C. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

D. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch wide joints formed between two 6-inch long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

E. Joint-Sealant Schedule: Include the following information:
   1. Joint-sealant application, joint location, and designation.
   2. Joint-sealant manufacturer and product name.
   3. Joint-sealant formulation.
   4. Joint-sealant color.

1.6 INFORMATIONAL SUBMITTALS

A. Manufacturer's Installation Instructions: Include substrate preparation requirements, special precautions and installation temperature range.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

C. Preinstallation Conference: Conduct conference at Project site.

1.8 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:
   1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
   2. When joint substrates are wet.
   3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
   4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 URETHANE JOINT SEALANTS

A. Single-Component, Nonsag, Urethane Joint Sealant – ES-1: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. BASF Building Systems; Sonolastic Ultra.
      b. Pecora Corporation; Dynatrol I-XL.
      c. Sika Corporation, Construction Products Division; Sikaflex - 1a.
      d. Tremco Incorporated; Vulkem 116.

B. Single-Component, Pourable, Traffic-Grade, Urethane Joint Sealant – ES-2: ASTM C 920, Type S, Grade P, Class 25, for Use T.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. BASF Building Systems; Sonolastic SL 1.
      b. Bostik, Inc.; Chem-Calk 950.
      c. Pecora Corporation; Urexpan NR-201.
      d. Sika Corporation. Construction Products Division; Sikaflex - 1CSL.
      e. Tremco Incorporated; Vulkem 45.

2.3 SILICONE JOINT SEALANTS

A. Single-Component, Non-Staining, Low Dirt Pick-Up, Low Modulus, Silicone Sealant – ES-3: ASTM C 920, Type S, Grade NS, Class 50, for Use NT, M, G, A & O.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Tremco Incorporated; Spectrem® 3

2.4 JOINT SEALANT BACKING

A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.5 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

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

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
   1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
   2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
      a. Concrete.
      b. Masonry.
      c. Exterior insulation and finish systems.
   3. Remove laitance and form-release agents from concrete.

4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
   a. Metal.
   b. Glass.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
   1. Do not leave gaps between ends of sealant backings.
   2. Do not stretch, twist, puncture, or tear sealant backings.
   3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
   1. Place sealants so they directly contact and fully wet joint substrates.
   2. Completely fill recesses in each joint configuration.
   3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
   1. Remove excess sealant from surfaces adjacent to joints.
   2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
   3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
   4. Provide flush joint profile where indicated per Figure 8B in ASTM C 1193.
   5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 8C in ASTM C 1193.
      a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application JS-1:
   1. Joint Locations: Exterior joints in vertical surfaces and horizontal non-traffic surfaces:
      a. Joints in flashing and sheet metal components.
      b. Joints between different materials not listed above.
   2. Joint Sealant: Single-component nonsag urethane sealant ES-1.
   3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors, to match sheet metal, paint and masonry colors.

B. Joint-Sealant Application JS-2: Pitch Pan Filler.
   1. Joint Sealant: Single-component urethane sealant ES-2.
   2. Joint-Sealant Color: Black.

C. Joint-Sealant Application JS-3:
   1. Joint Locations: Exterior joints in vertical surfaces and horizontal non-traffic surfaces:
      a. Joints between Concrete, Concrete Masonry and Clay Masonry.
   2. Joint Sealant: Single-component nonsag silicone sealant ES-3.
   3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors, to match concrete and masonry colors.

END OF SECTION 07 9200

SECTION 13 34 19 - RETROFIT STEEL SUB-PURLINS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Retrofit steel sub-purlins.

1.2 RELATED SECTIONS

A. Section 07 4113 – Metal Roof Panels.

1.3 REFERENCES

A. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

B. ASTM A 1011/A 1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.

1.4 SUBMITTALS

A. Comply with Division 1 - Submittal Procedures.

B. Product Data: Submit manufacturer's product data, including installation instructions.

C. Shop Drawings: Submit manufacturer's shop drawings for sub-purlins indicating gage, yield strength, flange and web sizes, cutout dimensions, and punch pattern for attachment holes in base flange.

D. Design Data: Submit design data from independent engineering firm indicating table of wind uplift capacity of sub-purlins.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened bundles, containers, and packaging, with labels clearly identifying product name and manufacturer.

B. Storage:
   1. Store materials in accordance with manufacturer's instructions.
   2. Protect sub-purlins from corrosion, deformation, and other damage.
   3. Store sub-purlins off ground, with 1 end elevated to provide drainage.

C. Handling: Protect materials during handling and installation from corrosion, deformation, and other damage.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Roof Hugger, Inc., PO Box 1027, Odessa, Florida 33556. Toll Free Phone (800) 771-1711. Toll Free Fax (877) 202-2254. Phone (813) 909-4424. Fax (813) 909-4511. Website www.roofhugger.com. E-Mail dale@roofhugger.com.

2.2 RETROFIT STEEL SUB-PURLINS

A. Retrofit Sub-Purlins: "Roof Hugger".
   1. Description:
      a. 1-piece, custom-punched, Z-section.
      b. Prepunched to nest into existing rib profiles.
      c. Prepunched for fasteners.
      d. Fastens directly into existing purlins with fasteners.
   2. Material: Galvanized steel, ASTM A 653 or A 1011, G-90, yield strength 50 ksi.
   3. Thickness: 16 gauge.
   4. Web Height: As required for wind loading

B. Base Flange: Prepunch base flange to manufacturer's standard.

C. Fasteners:
   1. Attachment to Existing Purlins: #12-14 threads per inch, self-drilling, Tek-2.
      a. Length: Required to penetrate existing purlins in accordance with fastener attachment standards.
   2. Sub-Purlins Installed Mid-Span: Expansion-type fasteners, #10-4 Fablock fasteners or equal.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas to receive sub-purlins. Notify Architect if areas are not acceptable. Do not begin installation until unacceptable conditions have been corrected.

B. Verify existing purlins and eave struts are in good serviceable condition, without rust-thru of flanges.

C. Field Verify Before Installation of Sub-Purlins:
   1. Existing panel profile and panel rib dimensions.
   2. Existing panel run-out by measuring roof over several 20-foot areas to confirm panels were installed on module and in-square. Note variations.

3.2 INSTALLATION

A. Install sub-purlins in accordance with manufacturer's instructions at locations indicated on the Drawings.

B. Limit installation of sub-purlins to amount that can be roofed over each day.

C. Install fasteners as required per linear foot to achieve required wind loading resistance.

D. Install sub-purlins directly over existing purlins and fasten to existing purlin through existing panel pan section.

E. Install expansion-type fasteners by field-drilling through sub-purlin and existing roof panel for sub-purlins installed in mid-span.

F. Install 1 expansion-type fastener on each side of main rib for attachment of sub-purlin to existing standing-seam panels.

G. Install 1 expansion-type fastener between main ribs for attachment of sub-purlin to existing screw-down panels for mid-span attachment.

H. Removal of Existing Roof Fasteners:
   1. Do not remove existing roof fasteners unless installation of sub-purlins over fasteners causes sub-purlins to roll or “porpoise”. Some distortion of base flange of sub-purlins caused by existing roof fasteners is normal.

END OF SECTION 13 3419

SECTION 22 0500 – COMMON WORK RESULTS FOR PLUMBING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Common Work Results for Plumbing specifically applicable to Division 22 Work, in addition to Division 01 - General Requirements.
   2. Installation of primary and overflow roof drains and associated piping.
   3. Lifting, moving, re-installation, and minor modifications to existing plumbing and piping for roof drains, soil pipes, and vents; and equipment piping, drain lines, service lines, and connections.
   4. Anchors, brackets, fasteners, hardware, and accessories for related Work.

B. Related Requirements:
   1. Section 07 5216 “Styrene-Butadiene-Styrene (SBS) Modified Bitumen Membrane Roofing” for installation of roof penetration flashings.
   2. Section 07 7200 “Roof Accessories” for equipment support curbs and pipe support devices.

1.3 PERFORMANCE REQUIREMENTS

A. General Performance: Existing, modified, or replaced plumbing, piping, connections, and equipment shall withstand required pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, modification, or other defects in construction. Plumbing and piping shall remain watertight.

1.4 ALLOWANCES

A. Cash Allowance: Refer to Division 01 Section “Allowances” for allowance sum applicable to Work.

1.5 UNIT PRICES

A. Refer to Division 01 Section "Unit Prices" for description of Work in this Section affected by unit prices.

B. Installation of Roof Drain and Associated Piping:
   1. Basis of Measurement: By each drain.
   2. Basis of Payment: Includes roof drain assembly and linear feet of drain piping listed in Section 00 0410 Document “Proposal, Alternates & Unit Prices Form” with insulation and covering, including all necessary hangers, supports, and hardware; and testing of piping prior to installation of insulation and protective covering.

1.6 ACTION SUBMITTALS

A. Product List: Submit list of proposed Products and manufacturers, including all items specified in Part 2 – Products or otherwise required by the Work.

B. Product Data: For each type of product required. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes. Include rated

capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

C. Shop Drawings: For required modifications. Include plans, elevations, sections, details, and attachments to other work.

D. Provide layout of affected piping, including:
   1. Riser diagrams.
   2. Hanger diagrams indicating proposed attachment and locations.
   3. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

1.7 INFORMATIONAL SUBMITTALS

A. Samples: For each exposed product and for each color and texture specified.

B. Schedule: List each area of work and all systems or equipment affected. Indicate proposed time of disconnection, re-connection, and duration for shutdowns.

C. Qualification Data: For qualified Installer, Applicator, manufacturer, fabricator, Professional Engineer, testing agency, factory-authorized service representative.

1.8 CLOSEOUT SUBMITTALS

A. Welding certificates.

B. Maintenance Data: For products and materials to include in maintenance manuals.

C. Operation and Maintenance Data: For systems, subsystems, or equipment to include in emergency, operation, and maintenance manuals.

1.9 QUALIFICATIONS

A. Installer: Company specializing in installing the work of this Division with a minimum of five (5) years documented experience working with the systems and Products in place and proposed or required. Licensed by jurisdictions having authority to perform the required work.

B. Installer Qualifications: An employer of workers trained and approved by manufacturer for installation of units required for this Project.

C. Plumbing: Conform to applicable Plumbing Code.

D. Obtain permits, and request inspections from authority having jurisdiction.

E. Preinstallation Conference: Conduct conference at Project site.
   1. Review methods and procedures related to the work.

1.10 FIELD CONDITIONS

A. Install Work in existing locations and as required or as directed unless prevented by field conditions.

B. Prepare drawings showing proposed re-arrangement of Work to meet Project conditions, including changes to Work specified in other Sections. Obtain permission of Owner's Representative before processing.

C. Do not install products or materials that are wet, moisture damaged, or mold damaged.

D. Environmental Limitations: Do not deliver or install products or materials until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above ceilings is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

E. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit work to be performed according to manufacturer's written instructions and warranty requirements.

F. Field Measurements: Verify actual dimensions of openings and contiguous construction by field measurements before fabrication.

1.11 COORDINATION

A. Construct Work in sequence under provisions of Section 01 3100 “Project Management and Coordination.”

B. Coordinate disconnections to minimize disruptions to Owner’s occupancy.

C. Ensure sufficient materials and workforces are on hand for all operations. Do not take equipment or systems out of operation longer than one day, unless specifically authorized in writing by Owner’s Representative.

1.12 PROJECT RECORD DOCUMENTS

A. Accurately record locations of utilities remaining, rerouted utilities, and new utilities by horizontal dimensions, elevations or inverts, and slope gradients.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Existing, modified, or replaced plumbing, piping, connections, and equipment shall withstand required pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, modification, or other defects in construction. Plumbing and piping shall remain watertight.
   1. Comply with performance requirements specified, as determined by testing assemblies representing those indicated for this Project.

2.2 MATERIALS

A. Primary Products: Those required for original installation.

B. Piping Materials:
   1. Cast-Iron Soil Pipe and Fittings: ASTM A 74, Class SV.
   2. Push-on Gaskets for Cast Iron Soil Pipe: ASTM C 564.
   3. Caulked Joints for CI Soil Pipe: FS HH- P-117, Type II.
   4. No Hub Joints: ASTM D 3183.
   5. Copper Tubing: ASTM B 75.
   6. Wrought Copper Solder Fittings: ANSI B 16.22.
   7. Steel Pipe: ASTM A 53B.
   8. Malleable Iron Threaded Fittings: ANSI B 16.3.
   9. Cast-Iron Threaded Fittings: FS WW-P-501E.
   10. Flange Bolt, Sets: ASME Pressure Piping.
   11. PVC Piping and Fittings: Schedule 40.

12. Unions in Copper or Brass Lines: 125 pound all brass, screwed pattern, ground joint, equal to Chase, Crane or Mueller.
13. Mechanical Couplings: Victaulic Style 77.
14. Piping Insulation and Cover: Closed cell insulation, minimum 2-inches thick.
    a. Exterior Exposure: Minimum 26 gage aluminum jacket protective cover, with lock bands.
    b. Interior: Match existing.

C. Downspout Nozzle: Cast bronze; Josam 25010 series or Zurn Z-199 with loose wall flange, sized to fit drain piping.

D. Roof Drain – Deck Mounted Type for new Locations or existing locations not scheduled to use Retrofit Type: (Both Primary and Emergency Overflow) Cast-iron body and Strainer; size as indicated or to match existing, with deck clamp, strainer, and accessories required for installation conditions; manufactured by Josam, Zurn or approved equal.

E. Roof Drain – Retrofit Type: (Both Primary and Emergency Overflow) Zurn RD2150 or approved equal. Cast-iron body and Strainer; Sized to properly install in existing drains.

F. Roof Top Condensate Receptor Drain: (Replacement Drain) Zurn Z127-DP with Top-Set® Deck Plate and retrofit Tail Piece, or approved equal. Cast-iron body and Strainer; Sized to properly install in existing drains.

G. Product Substitution: For any proposed change in materials or for any new materials, submit request for substitution under provisions of Division 01 Section “Product Requirements”.

2.3 TESTS

A. Provide testing of all relocated or modified systems and equipment under provisions of Section 01 4000 “Quality Requirements.”

B. Test All existing drains, Drain Lines and associated Components for leaks and blockage as per the General Notes of the Construction Drawings.

C. Test in accordance with recognized standards and as recommended by equipment manufacturers.

D. Notify Owner’s Representative 24 hours prior to all testing.

E. Record all test results and corrective measures taken. Provide results to Owner with Project Record Documents under provisions of Section 01 7700 “Closeout Procedures.”

PART 3 - EXECUTION

3.1 EXAMINATION

A. Inspect existing conditions prior to commencing Work, including elements subject to damage or movement during Work.

B. After uncovering existing work, inspect conditions affecting performance of Work.

C. Confirm operational condition of equipment and systems. Notify Owner in writing of any deficiencies prior to Work

D. Beginning Work means acceptance of existing conditions and responsibility to return system or equipment to operating condition upon completion of Work.

3.2 PREPARATION

A. Provide temporary supports to ensure structural integrity of the Work.

B. Provide devices and methods to protect other portions of Project from damage, debris, or contamination.

C. Provide protection from elements for areas that may be exposed by uncovering work.

D. Provide temporary connections and maintain operational capacity of systems or equipment that will be displaced more than one day, unless instructed otherwise.

3.3 DRAIN PIPING INSTALLATION

A. General: Coordinate with Owner and verify acceptable materials and installation methods prior to beginning work.

B. Install piping in general location indicated. Route to avoid existing equipment and utilities.

C. Provide hangers and bracing to adequately support and restrain piping when filled with water.

D. Slope piping approximately 1/8 inch per foot form overflow connection to exterior wall for discharge.

E. Test all joints and fittings to ensure pipes are water tight.

F. Provide downspout nozzle at pipe discharge and seal to exterior face of wall.

3.4 PERFORMANCE

A. Execute work by methods that will avoid damage to other Work, and provide proper surfaces to accommodate reinstallation and reconnection.

B. Employ skilled and experienced installer to perform all operations.

C. Employ original installer to perform operations on systems or equipment under warranty.

D. Cut rigid materials using masonry saw or core drill. Pneumatic impact tools not allowed without prior approval.

E. Restore Work with new Products, as required for original installation, and in accordance with requirements of Contract Documents.

F. Fit Work air and water tight to adjacent elements and around penetrating elements.

3.5 TESTING AND ADJUSTING

A. Test all modified and relocated systems and equipment.
   1. Pressure test refrigerant piping prior to covering and recharging.
   2. Test gas lines in areas of Work in accordance with applicable codes and Utility Company recommendations.

B. Correct all deficiencies identified, including replacement of parts and components when required.

C. Adjust all Products and equipment to ensure proper operation and function.

3.6 CLEANING

A. Clean work under provisions of Section 01 7300 “Execution.”

B. Clean Owner occupied areas when soiled by Work or operations of this Division.

END OF SECTION 22 0500

SECTION 23 0500 – COMMON WORK RESULTS FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Common Work Results for HVAC specifically applicable to Division 23 Work, in addition to Division 01 - General Requirements.
   2. Lifting, moving, re-installation, and minor modifications to existing equipment, curbs, and service lines and connections.
   3. Anchors, brackets, fasteners, hardware, and accessories for related Work.

B. Related Sections:
   1. Division 07 Section “Styrene-Butadiene-Styrene (SBS) Modified Bituminous Membrane Roofing” for installation roof penetration flashings.
   2. Division 07 Section “Roof Accessories” for equipment support curbs and pipe support devices.

1.3 PERFORMANCE REQUIREMENTS

A. General Performance: Existing, modified, or replaced HVAC equipment shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, modification, or other defects in construction. Ductwork shall remain watertight and airtight.

1.4 ACTION SUBMITTALS

A. Product List: Submit list of proposed Products and manufacturers, including all items specified in Part 2 – Products or otherwise required by the Work.

B. Product Data: For each type of product required.

C. Shop Drawings: For required modifications. Include plans, elevations, sections, details, and attachments to other work.
   1. Provide layout of affected ductwork and piping, including:
      a. Riser diagrams.
      b. Hanger diagrams indicating proposed attachment and locations.
      c. Ductwork jointing and all special sheetmetal and insulating conditions.
   2. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
   3. Wiring Diagrams: For power, signal, and control wiring.

1.5 INFORMATIONAL SUBMITTALS

A. Schedule: List each area of work and all systems or equipment affected. Indicate proposed time of disconnection, re-connection, and duration for shutdowns.

B. Qualification Data: For qualified Installer.

1.6 CLOSEOUT SUBMITTALS

A. Welding certificates.

B. Maintenance Data: For proposed products or materials to include in maintenance manuals.

C. Operation and Maintenance Data: For proposed systems, subsystems, or equipment to include in operation and maintenance manuals.

1.7 QUALIFICATIONS

A. Installer: Company specializing in installing the work of this Division with a minimum of five (5) years documented experience working with the systems and Products in place and proposed or required. Licensed by jurisdictions having authority to perform the required work.

B. Installer Qualifications: An employer of workers trained and approved to perform required Work.

C. Conform to applicable Mechanical Code and other applicable regulations for all work performed under this Division.

D. Obtain permits, and request inspections from authority having jurisdiction.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

F. Preinstallation Conference: Conduct conference at Project site.

1.8 PROJECT CONDITIONS

A. Install Work in existing locations and as required or as directed unless prevented by Project conditions.

B. Prepare drawings showing proposed re-arrangement of Work to meet Project conditions, including changes to Work specified in other Sections. Obtain permission of Architect before processing.

C. Do not install products or materials that are wet, moisture damaged, or mold damaged.

D. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit installation to be performed according to manufacturer's written instructions and warranty requirements.

E. Field Measurements: Verify actual dimensions of contiguous construction by field measurements before fabrication.

1.9 COORDINATION

A. Construct Work in sequence under provisions of Division 01 Section “Project Management and Coordination.”

B. Coordinate disconnections to minimize disruptions to Owner’s occupancy.

C. Ensure sufficient materials and workforces are on hand for all operations. Do not take equipment or systems out of operation longer than one day, unless specifically authorized in writing by Owner's Representative.

1.10 PROJECT RECORD DOCUMENTS

A. Submit in accordance with Division 01 Sections "Submittals" and "Closeout Procedures".

B. Accurately record locations of utilities remaining, rerouted utilities, and new utilities by horizontal dimensions, elevations or inverts, and slope gradients.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Primary Products: Those required for original installation.

B. Ductwork Materials:
   1. Galvanized Steel: ASTM A 446, Grade A, G90, 24-gage minimum core steel, or as required for conditions.
   2. Duct Lining: Mat faced duct liner; neoprene coated one side; minimum 1-inch thick; Linacoustic manufacturer by Manville.
      a. Average Thermal Conductivity: Maximum 0.26 BTU in/sq ft/degree F at mean temperature of 75 F.
   3. Interior and Exterior Duct Joints Sealer: Kingco Seal-Rite 18-120, Blue Glue, and Hardcast.

C. Product Substitution: For any proposed change in materials or for any new materials, submit request for substitution under provisions of Division 15 Section "Product Requirements".

2.2 FABRICATION

A. Provide ductwork extensions or modifications where required due to movement or raising of mechanical equipment, in accordance with recognized industry standards and the following:
   1. Low Pressure Ducts: SMACNA HVAC Duct Construction Standards, Latest Edition.
   2. Pressure Class: 1-inch w.g., unless otherwise indicated.
   3. Elbows: Match existing or square, with factory-fabricated turning vanes.
   4. Changes in Direction: Rounded elbows with centerline radius equal to 1-1/2 times duct width, in plane of bend.
   5. Transitions in Size or Shape: Gradual slopes on all sides.
      a. Increases in Dimensions in the Direction of Air Flow: Maximum slope of 1:7 on any side.
      b. Decreases in Dimensions in the Direction of Air Flow: Maximum slope of 1:4.
   6. Ducts in Excess of 36-inches: Use SMACNA "J" and "F" connections.

B. Install duct liner in accordance with manufacturer's instructions using weld pins or Tuffbond adhesive and adhesive type metal clips.
   1. Do not reduce airflow area of existing ductwork.

C. Seal all joints water and air tight.

2.3 TESTS

A. Provide testing of all relocated or modified systems and equipment under provisions of Division 01 Section "Quality Requirements."

B. Test in accordance with recognized standards and as recommended by equipment manufacturers.

C. Notify Owner's Representative 24 hours prior to all testing.

D. Record all test results and corrective measures taken. Provide results to Owner with Project Record Documents under provisions of Division 01 Section "Closeout Procedures."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Inspect existing conditions prior to commencing Work, including elements subject to damage or movement during Work.

B. After uncovering existing work, inspect conditions affecting performance of Work.

C. Confirm operational condition of equipment and systems. Notify Owner in writing of any deficiencies prior to Work

D. Beginning Work means acceptance of existing conditions and responsibility to return system or equipment to operating condition upon completion of Work.

3.2 PREPARATION

A. Provide temporary supports to ensure structural integrity of the Work.

B. Provide devices and methods to protect other portions of Project from damage, debris, or contamination.

C. Provide protection from elements for areas that may be exposed by uncovering work.

D. Provide temporary connections and maintain operational capacity of systems or equipment that will be displaced more than one day, unless instructed otherwise.

3.3 PERFORMANCE

A. Execute work by methods that will avoid damage to other Work, and provide proper surfaces to accommodate reinstallation and reconnection.

B. Employ skilled and experienced installer to perform all operations.

C. Employ original installer to perform operations on systems or equipment under warranty.

D. Cut rigid materials using masonry saw or core drill. Pneumatic impact tools not allowed without prior approval.

E. Restore Work with new Products, as required for original installation, and in accordance with requirements of Contract Documents.

F. Fit Work air and water tight to adjacent elements and around penetrating elements.

3.4 TESTING AND ADJUSTING

A. Test all modified and relocated systems and equipment.
   1. Pressure test refrigerant piping prior to covering and recharging.
   2. Test gas lines in areas of Work in accordance with applicable codes and Utility Company recommendations.

B. Correct all deficiencies identified, including replacement of parts and components when required.

C. Adjust all Products and equipment to ensure proper operation and function.

3.5 CLEANING

A. Clean work under provisions of Division 01 Section “Execution.”

B. Clean Owner occupied areas when soiled by Work or operations of this Division.

END OF SECTION 23 0500

SECTION 26 0500 – COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Common Work Results for Electrical specifically applicable to Division 26 Work, in addition to Division 01 - General Requirements.
   2. Lifting, moving, re-installation, repairs, and minor modifications to existing equipment, and service lines and connections.
   3. Anchors, brackets, fasteners, hardware, and accessories for related Work.

B. Related Sections:
   1. Division 07 Section “Styrene-Butadiene-Styrene (SBS) Modified Bituminous Membrane Roofing” for installation roof penetration flashings.
   2. Division 07 Section “Roof Accessories” for equipment support curbs and pipe support devices.

1.3 UNIT PRICES

A. Refer to Division 01 Section "Unit Prices" for description of Work in this Section affected by unit prices.

B. Replacement of Damaged or Deteriorated Roof Mounted Electrical Systems required to execute Roof Replacement Work:
   1. Basis of Measurement: By ten (10) linear feet by each conduit size listed in Section 00 Document “Bid Form”.
   2. Basis of Payment: Includes removal of damaged conduit, wiring, and associated materials and hardware; installation of new conduit, wiring, and all necessary hangers, supports, and hardware; and testing of repaired system prior to installation work covering repairs.

1.4 PERFORMANCE REQUIREMENTS

A. General Performance: Existing, modified, or replaced electrical equipment and appliances shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, modification, or other defects in construction. Electrical components shall remain watertight.

1.5 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.

1.6 ACTION SUBMITTALS

A. Product List: Submit list of proposed Products and manufacturers, including all items specified in Part 2 – Products or otherwise required by the Work.

B. Product Data: For each type of product required.

C. Shop Drawings: For required modifications. Include plans, elevations, sections, details, and attachments to other work.
   1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
   2. Wiring Diagrams: For power, signal, and control wiring.

1.7 INFORMATIONAL SUBMITTALS

A. Schedule: List each area of work and all systems or equipment affected. Indicate proposed time of disconnection, re-connection, and durations for shutdowns.

B. Qualification Data: For qualified Installer.

1.8 CLOSEOUT SUBMITTALS

A. Maintenance Data: For proposed products or materials to include in maintenance manuals.

B. Operation and Maintenance Data: For proposed systems, subsystems, or equipment to include in operation and maintenance manuals.

C. Closeout Submittals: Submit under provisions of Division 01 Section “Execution.”
   1. Project Record Documents: Accurately record exact location of roof penetrations and any items installed but not visible after installation of roofing system or other Products.

1.9 QUALIFICATIONS

A. Installer: Company specializing in installing the work of this Division with a minimum of five (5) years documented experience working with the systems and Products in place and proposed or required. Licensed by jurisdictions having authority to perform the required work.

B. Installer Qualifications: An employer of workers trained and approved to perform required Work.

C. Conform to NFPA 70 and applicable Building Code for all electrical work.

D. Obtain permits, and request inspections from authority having jurisdiction.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

F. Preinstallation Conference: Conduct conference at Project site.

1.10 PROJECT CONDITIONS

A. Repair electrical conduit and devices as required by roofing replacement Work in existing locations and as directed or as required unless prevented by Project conditions.

B. Install Work in existing locations and as required or as directed unless prevented by Project conditions.

C. Prepare drawings showing proposed re-arrangement of Work to meet Project conditions, including changes to Work specified in other Sections. Obtain permission of Architect before proceeding.

D. Do not install products or materials that are wet, moisture damaged, or mold damaged.

E. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit required work to be performed according to manufacturer's written instructions and warranty requirements.

F. Field Measurements: Verify actual dimensions of contiguous construction by field measurements before fabrication.

1.11 COORDINATION

A. Construct Work in sequence under provisions of Division 01 Section “Project Management and Coordination.”

B. Coordinate disconnections to minimize disruptions to Owner’s occupancy.

C. Coordinate with other Trades and Owner to ensure electrical installation does not inhibit other Work.

D. Ensure sufficient materials and workforces are on hand for all operations. Do not take equipment or systems out of operation longer than one day, unless specifically authorized in writing by Owner’s Representative.

1.12 PROJECT RECORD DOCUMENTS

A. Accurately record locations of electrical equipment, appliances, and conduits remaining, rerouted conduits, and new electrical equipment and wiring by horizontal dimensions and elevations.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Primary Products: Those required for original installation.

B. Product Substitution: For any proposed change in materials or for any new materials, submit request for substitution under provisions of Division 1 Section “Product Requirements.”

PART 3 - EXECUTION

3.1 EXAMINATION

A. Inspect existing conditions prior to commencing Work, including elements subject to damage or movement during Work.

B. After uncovering existing work, inspect conditions affecting performance of Work.

C. Confirm operational condition of equipment and systems. Notify Owner in writing of any deficiencies prior to Work

D. Beginning Work means acceptance of existing conditions and responsibility to return system or equipment to operating condition upon completion of Work.

3.2 PREPARATION

A. Provide temporary supports to ensure structural integrity of the Work.

B. Provide devices and methods to protect other portions of Project from damage, debris, or contamination.

C. Provide protection from elements for areas that may be exposed by uncovering work.

D. Provide temporary connections and maintain operational capacity of systems or equipment that will be displaced more than one day, unless instructed otherwise.

3.3 PERFORMANCE

A. Execute work by methods that will avoid damage to other Work, and provide proper terminations to accommodate reinstallation and reconnection.

B. Employ skilled and experienced installer to perform all operations.

C. Employ original installer to perform operations on systems or equipment under warranty.

D. Cut rigid materials using masonry saw or core drill. Pneumatic impact tools not allowed without prior approval.

E. Restore Work with new Products, as required for original installation, and in accordance with requirements of Contract Documents.

F. Fit Work water tight to adjacent elements and around penetrating elements.

3.4 ELECTRICAL WIRING AND SYSTEMS REPAIRS

A. Verify need and extent of all repairs with Owner's Representative. Coordinate shut down and start-up requirements for each systems and each occurrence.

B. Remove conduit and associated materials from point of damaged to nearest pull box or other connection point in both directions, unless instructed otherwise by Owner's Representative.

C. Replace with new conduit and wiring of same diameter and gage as original.

D. Use screwed or welded connections to match existing conditions.

E. After repairs are completed, but prior to covering or concealing repaired elements, test repairs at full load or power, under observation by Owner's Representative.

F. Seal all connections watertight, including those between new and existing materials.

3.5 TESTING AND ADJUSTING

A. Test all modified and relocated systems and equipment.

B. Correct all deficiencies identified, including replacement of parts and components when required.

C. Adjust all Products and equipment to ensure proper operation and function.

3.6 CLEANING

A. Clean work under provisions of Division 01 Section "Execution."

B. Clean Owner occupied areas when soiled by Work or operations of this Division.

END OF SECTION 26 0500

TEXAS SOUTHMOST COLLEGE

CONSTRUCTION PLANS FOR

TEXAS SOUTHMOST COLLEGE

ROOF REPLACEMENT AND REPAIRS

(RCSP #19-10)

TSC BOARD OF TRUSTEES

ADELA G. GARZA	**CHAIR**
JUAN MENDEZ III, J.D.	**VICE CHAIR**
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DR. TONY ZAVALETA	**TRUSTEE**

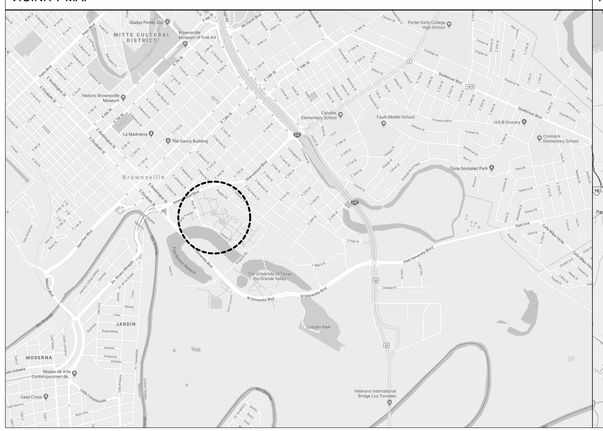
TEXAS SOUTHMOST COLLEGE
80 Fort Brown St., Brownsville, TX, 78520
Phone: 956-295-3600

PREPARED BY:

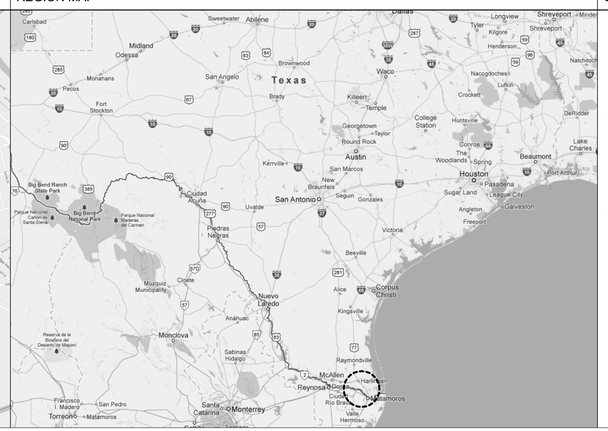
Amtech Solutions, Inc.

AMTECH SOLUTIONS
1600 N. Jackson Rd. Ste #3
Pharr, Texas 78577
T 956.686.3095 F 956.686.2233

VICINITY MAP



REGION MAP



GENERAL NOTES

1. PROVIDE CRICKETS ON THE HIGH SIDE OF ALL CURBS 24" OR GREATER WIDE TO DIVERT ROOF DRAINAGE TO DISCHARGE AREAS (SCUPPERS, ROOF DRAINS, ETC.)
2. PROVIDE 4" LAP JOINTS FOR ALL SHEET METAL FLASHING RECEIVERS.
3. FLASH ALL ROUND ROOF PENETRATIONS UNLESS OTHERWISE NOTED.
4. PROVIDE CURBS FOR ALL VENTILATORS WITH A DECK OPENING OF 12-INCHES OR GREATER.
5. RAISE ALL ROOF MOUNTED APPURTENANCES, EQUIPMENT, PIPING, ETC. TO 8-INCH MINIMUM HEIGHT ABOVE TOP OF ROOF MEMBRANE OR AS REQUIRED TO PROVIDE CLEARANCES AS RECOMMENDED BY NRCA STANDARDS.
6. FLASH ALL SOIL PIPES.
7. PROVIDE TRAFFIC PADS AT ALL LADDERS, ROOF HATCHES, RTU ACCESS PANELS.
8. ALL ROOFTOP APPURTENANCES, EQUIPMENT, PIPING, ETC. SHALL BE ATTACHED / REATTACHED IN A MANNER TO PROVIDE CODE REQUIRED WIND RESISTANCE AS CALCULATED BY ASCE-7.
9. VERIFY WITH OWNER AND REMOVE ALL ABANDONED OR NON-FUNCTIONAL ROOF MOUNTED EQUIPMENT AND ACCESSORIES.
10. VERIFY ROOF DRAIN PIPING IS SEALED AND NOT RESTRICTED. REPLACE ALL MISSING OR BROKEN DRAIN COMPONENTS (STRAINERS, CLAMPING RINGS, ETC.).
11. RAISE ALL PLUMBING, GAS, ELECTRICAL & MECHANICAL LINES & SUPPORT WITH ADJUSTABLE PIPE SUPPORTS AS SPECIFIED. REMOVE EXISTING WOOD BLOCKING SUPPORTS & REPLACE AS SPECIFIED.
12. "N.I.C." SHALL INDICATE AREAS DESIGNATED ONLY FOR MINOR SELECTIVE REPAIRS.

TABLE OF CONTENTS

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

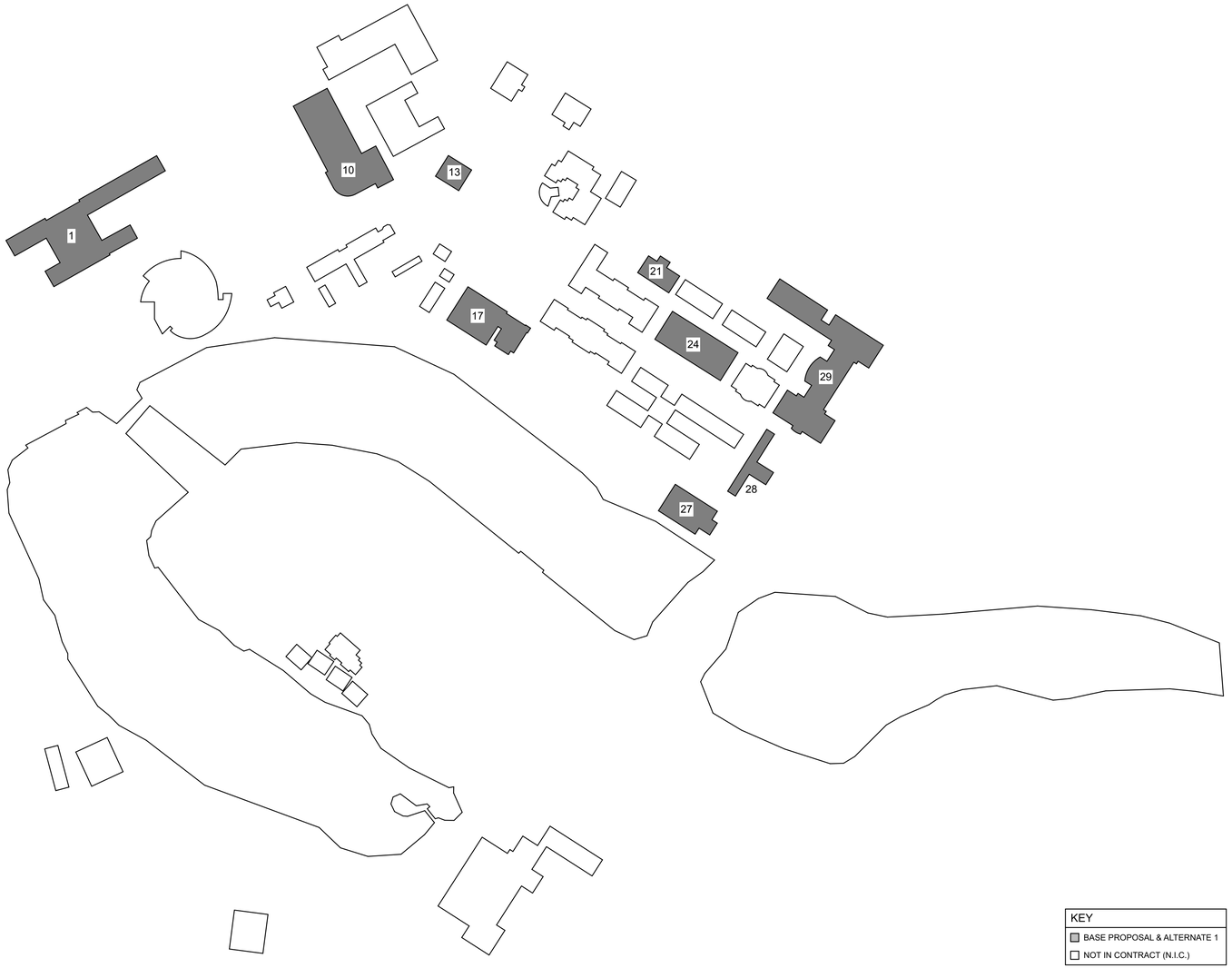
REGISTERED ARCHITECT ALLEN L. HIGGINS 23139 STATE OF TEXAS

3/20/19

TEXAS SOUTHMOST COLLEGE
ROOF REPLACEMENT AND REPAIRS
2017

AMTECH SOLUTIONS
1600 N. Jackson Rd. Ste #3
Pharr, Texas 78577
T 956.686.3095 F 956.686.2233

TITLE SHEET	
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
1 OF 29	SHEET: T1



KEY

- BASE PROPOSAL & ALTERNATE 1
- NOT IN CONTRACT (N.I.C.)

ROOF AREA TABULATIONS

1 Fort Brown Memorial Center

Roof Area A1	3,754 SF
Roof Area A2	2,795 SF
Roof Area A3	7,142 SF
Roof Area A4	893 SF
Roof Area A5	14,579 SF
Roof Area B	20,574 SF
Roof Area C	600 SF
Roof Area D	600 SF
Roof Area E	4,583 SF
Total	**55,520 SF**

10 Oliveira Student Services

Roof Area A	1,317 SF
Roof Area A1 Gutter	319 SF
Roof Area A2 Gutter	48 SF
Roof Area B	3,270 SF
Roof Area C	289 SF
Roof Area D	11,476 SF
Roof Area D1 Gutter	1,214 SF
Roof Area E	1,607 SF
Roof Area F	24,521 SF
Roof Area G	345 SF
Roof Area H	345 SF
Total	**44,751 SF**

13 Music Building

Roof Area A	2,851 SF
Roof Area B	2,957 SF
Total	**5,808 SF**

17 Garza Gymnasium

Roof Area A	2,440 SF
Roof Area B	12,444 SF
Roof Area C	2,440 SF
Roof Area D	578 SF
Roof Area E	668 SF
Roof Area F	208 SF
Roof Area G	100 SF
Roof Area H	289 SF
Roof Area J	536 SF
Roof Area K	3,784 SF
Roof Area L	1,157 SF
Roof Area M	86 SF
Roof Area N	79 SF
Roof Area O	442 SF
Total	**25,251 SF**

21 Guerra Early Childhood Center

Roof Area A	5,871 SF
Roof Area A1 Gutter	939 SF
Roof Area B	702 SF
Total	**7,512 SF**

24 Cortez Hall

Roof Area A	10,185 SF
Roof Area B	15,015 SF
Total	**25,200 SF**

27 Bookstore

Roof Area A	410 SF
Roof Area B	198 SF
Roof Area C	2,330 SF
Roof Area D	520 SF
Roof Area E	221 SF
Roof Area F	2,600 SF
Roof Area G	9,266 SF
Roof Area J	660 SF
Roof Area K	396 SF
Total	**16,601 SF**

28 Cavalry Hall

Roof Area A	5,824 SF
Roof Area A1 Gutter	1,974 SF
Roof Area B	520 SF
Roof Area C	4,693 SF
Total	**13,011 SF**

29 Science, Engineering, and Technology Building

Roof Area A	6,712 SF	Roof Area J4	213 SF
Roof Area A1 Gutter	464 SF	Roof Area L	462 SF
Roof Area A2 Gutter	464 SF	Roof Area L1 Gutter	164 SF
Roof Area A3	3,760 SF	Roof Area M	462 SF
Roof Area A4	3,760 SF	Roof Area M1 Gutter	129 SF
Roof Area D	1,411 SF	Roof Area N	4,838 SF
Roof Area E	4,560 SF	Roof Area N1 Gutter	263 SF
Roof Area E1 Gutter	196 SF	Roof Area N2 Gutter	109 SF
Roof Area E2 Gutter	109 SF	Roof Area N4	310 SF
Roof Area E4	310 SF	Roof Area O	492 SF
Roof Area F	4,560 SF	Roof Area P	4,838 SF
Roof Area F1 Gutter	196 SF	Roof Area P1 Gutter	263 SF
Roof Area F2	642 SF	Roof Area P2	642 SF
Roof Area F4	361 SF	Roof Area P4	361 SF
Roof Area G	462 SF	Roof Area Q	915 SF
Roof Area G1 Gutter	164 SF	Roof Area R	10,719 SF
Roof Area H	462 SF	Roof Area R1 Gutter	609 SF
Roof Area H1 Gutter	129 SF	Roof Area R2 Gutter	263 SF
Roof Area J	2,427 SF	Roof Area R3 Gutter	263 SF
Roof Area J1	213 SF	Roof Area S	480 SF
Roof Area J2	213 SF	Roof Area T	385 SF
Roof Area J3	213 SF	**Total**	**58,968 SF**

NORTH

TEXAS SOUTHMOST COLLEGE - CAMPUS MAP

NOT TO SCALE

CODE REVIEW MATRIX (REFER TO NUMBERED CODE ITEMS ON SIDE OF OVERALL CHART):

#	BUILDING	GROSS AREA	OCCUPANCY	CONSTRUCTION TYPE	ADDRESS/ GENERAL	PERFORMANCE REQUIREMENTS	ROOF COVERINGS	ROOF INSULATION	ENERGY REQUIREMENTS	
1	FORT BROWN MEMORIAL CENTER	SEE TAB. BELOW	A	II	1	2	4	5	6	
10	OLIVEIRA STUDENT SERVICES CENTER	SEE TAB. BELOW	B	II	1	2	3 & 4	5	6	
13	MUSIC BUILDING	SEE TAB. BELOW	A-3	III	1	2	3	5	6	
17	GARZA GYMNASIUM	SEE TAB. BELOW	A	II	1	2	3 & 4	5	6	
21	GUERRA EARLY CHILDHOOD CENTER	SEE TAB. BELOW	E	II	1	2	3 & 4	5	6	
24	CORTEZ HALL	SEE TAB. BELOW	B	II	1	2	3	5	6	
27	BOOKSTORE	SEE TAB. BELOW	M	II	1	2	3 & 4	5	6	
28	CAVALRY HALL	SEE TAB. BELOW	B	V	1	2	3	5	6	
29	SCIENCE ENGINEERING AND TECHNOLOGY BUILDING	SEE TAB. BELOW	B	II	1	2	3 & 4	5	6	

CODE COMPLIANCE ITEMS:

CODE ITEMS

1

GENERAL ITEMS:

Edition: IBC 2015
Address: 80 Fort Brown St.
Brownsville, TX 78520
Occupancy (Chapter 3): See Itemized Code Review Above
Type of Construction (Table 601): See Itemized Code Review Above

(CONTRACTOR MUST FIELD-VERIFY ALL ROOF AREAS AND DIMENSIONS FOR BIDDING AND CONSTRUCTION)

2

ROOF ASSEMBLIES AND ROOFTOP STRUCTURES (Chapter 15):

PERFORMANCE REQUIREMENTS (Section 1504):

Wind Resistance of Nonballasted Roofs (Section 1504.3): Roof coverings installed on roofs in accordance with Section 1507 that are mechanically attached or adhered to the roof deck shall be designed to resist the design wind load pressures for components and cladding in accordance with Section 1609.

Other roof Systems (Section 1504.3.1): Built-up, modified bitumen, fully adhered or mechanically attached single-ply roof systems, metal panel roof systems applied to a solid or closely fitted deck and other types of membrane roof coverings shall be tested in accordance with FM 4474, UL 580 or UL 1897.

Edge Securement for Low-Slope Roofs (Section 1504.5): Low-slope built-up, modified bitumen and single ply roof system metal edge securement, except gutters, shall be designed and installed for wind loads in accordance with Chapter 16 and tested for resistance in accordance with Test Methods RE-1, RE-2 and RE-3 or ANSI/SPRI ES-1, except maximum basic wind speed shall be determined from Figure 1609A, 1609B, or 1609C as applicable.

Aggregate (Section 1504.8): Not Permitted - 1609.2 Hurricane Prone Region

Fire Classification (Section 1505):
Minimum Roof Covering Classification (Table 1505.1) B

3

REQUIREMENTS FOR ROOF COVERINGS (Section 1507):

METAL ROOF PANELS (Section 1507.4.1):

Deck Requirements (1507.4.1): Metal roof panel roof coverings shall be applied to a solid or closely fitted deck, except where the roof covering is specifically designed to be applied to spaced supports.

Deck Slope (1507.4.2.3): The minimum slope for standing seam metal roof shall be 1/4 unit vertical in 12 units horizontal (2% slope)

Material Standards (1507.4.3): Metal-sheet roof covering systems that incorporate supporting structural members shall be designed in accordance with Chapter 22. Metal sheet roof coverings installed over structural decking shall comply with Table 1507.4.3(1). The materials used for metal-sheet roof coverings shall be naturally corrosion resistant or provided with corrosion resistance in accordance with the standards and minimum thicknesses shown in Table 1507.4.3(2).

Attachment (1507.4.4): Metal roof panels shall be secured to the supports in accordance with the approved manufacturer's fasteners. In the absence of manufacturer recommendations, the following fasteners shall be used:- Stainless-steel fasteners are acceptable for all types of metal roofs

Underlayment and High Wind (1507.4.5): Underlayment applied in areas subject to high winds V[asd]² greater than110 mph (49 m/s) as determined in accordance with Section shall be applied with corrosion-resistant fasteners in accordance with the manufacturer's installation instructions. Fasteners are to be applied along the overlap not more than 36 inches (914 mm) on center. Underlayment installed where V[asd], in accordance with Section 1609.3.1, equals or exceeds 120 mph (54 m/s) shall comply with ASTM D226 Type II, ASTM D4869 Type IV, or ASTM D1970. The underlayment shall be attached in a grid pattern of 12 inches (305 mm) between side laps with a 6-inch (152 mm) spacing at the side laps. Underlayment shall be applied in accordance with the manufacturer's installation instructions except all laps shall be a minimum of 4 inches (102 mm). Underlayment shall be attached using metal or plastic cap nails with a head diameter of not less than 1 inch (25 mm) with a thickness of at least 32-gauge [0.0134 inch (0.34 mm)] sheet metal. The cap nail shank shall be a minimum of 12 gauge [0.105 inch (2.67 mm)] with a length to penetrate through the roof sheathing or a minimum of 3/4" inch (19.1 mm) into the roof sheathing.

Exception: As an alternative, adhered underlayment complying with ASTM D1970 shall be permitted.

4

MODIFIED BITUMEN (Section 1507.11):

Slope (1507.11.1): Roof replacement or roof recover of existing low-slope roof coverings shall not be required to meet the minimum design slope requirement of one-quarter unit vertical in 12 units horizontal (2-percent slope) in Section 1507 for roofs that provide positive roof drainage

Material Standards (1507.11.2): Shall comply w/ CGSB 37-GP-56M, ASTM D 6162, ASTM D 6163, ASTM D 6164, ASTM D 6222, ASTM D 6223, ASTM D 6298 or ASTM D 6509

Roof Gardens and Landscaped Roofs (Section 1507.16): N/A

5

ROOF INSULATION (Section 1508):

Material Standards (Table 1508): Expanded Polystyrene - ASTM C578
Polyisocyanurate Board - ASTM C1289, Type I or II

6

INTERNATIONAL ENERGY CONSERVATION CODE REVIEW INFORMATION:

Edition: **IECC 2015**
Gross Area: **252,616 sq.ft.**

CLIMATE ZONE (Figure 301.1 or Table 301.1): **Cameron, TX - 2A(*)**
Asterisk (*) indicates a warm-humid location

BUILDING ENVELOPE REQUIREMENTS (SECTION 502):

OPAQUE ELEMENT, MAXIMUM U-FACTOR (Table 502.1.2):
ROOF: **Insulation Entirely Above Deck, U-0.048**
WALLS, ABOVE GRADE: NA
FLOORS: NA
SLAB-ON-GRADE FLOORS: NA

Specific insulation requirements - OPAQUE (Table 502.2(1)):
ROOF: **Insulation Entirely Above Deck, R-25ci**
WALLS, ABOVE GRADE: NA
SLAB-ON-GRADE FLOORS: NA

Specific requirements - FENESTRATION (Table 502.3): **NA**

AIR LEAKAGE (Section 502.4):
Sealing of the building envelope (502.4.3): Openings and penetrations in the building envelope shall be sealed with caulking materials or closed with gasketing systems compatible with the construction materials and location. Joints and seams shall be sealed in the same manner or taped or covered with a moisture vapor-permeable wrapping material. Sealing materials spanning joints between construction materials shall allow for expansion and contraction of the construction materials.

TOTAL BUILDING PERFORMANCE (Section 506): **ROOF ONLY - Alterations**

SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS (TABLE 506.5.1(1)):

ROOF - Reference:	ROOF - PROPOSED:
Type:	Insulation Entirely Above Deck
Gross area:	**252,616 sq.ft.**
U-factor (from Table 502.1.2):	U-0.039 **Exempt***
Solar absorptance:	0.75 **Exempt***
Emittance:	0.90 **Exempt***

*Exemption: Neither sheathing nor insulation is exposed.

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINS 23739 STATE OF TEXAS

3/20/19

TEXAS SOUTHMOST COLLEGE

ROOF REPLACEMENT AND REPAIRS

2017

AMTECH SOLUTIONS
1600 N. JACKSON RD. STE #3
PHARR, TEXAS 78577
T 956.686.3095 F 956.686.2233

CODE INFORMATION

DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
2 OF 29	SHEET: T2

GENERAL NOTES:

01 REPLACE DAMAGED EQUIPMENT

02 PROPERLY TIE DOWN MECHANICAL EQUIPMENT IN A MANNER THAT PROVIDES CODE REQUIRED WIND RESISTANCE AS CALCULATED BY ASCE-7

03 IF ASBESTOS CONTAINING MATERIALS ARE DETERMINED TO EXIST AT AREA SCHEDULED FOR WORK, THE REMOVAL, HANDLING, AND DISPOSAL OF THE ACM MUST TAKE PLACE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS

KEYED NOTES:

(A) TRIM TREES TO ELIMINATE CONTACT WITH ROOFING SYSTEM

(B) REGULAR GENERAL MAINTENANCE REQUIRED TO RETAIN THE EXISTING ROOF SYSTEM WARRANTY

(C) DOWNSPOUTS THROUGH ROOF

(D) PROPERLY MOUNT ELECTRICAL PANEL BOX

(E) EXTEND NEW GUTTER TO HIGH WALL

(F) PROVIDE CRICKET TO DIRECT WATER AROUND CANOPY STRUCTURE. FLASH AROUND CORNERS OF CANOPY WALL AS REQ'D. FILL. ANCHOR ENCLOSURE TO CANOPY STRUCTURE

(G) NEW CRICKET AND WALL IN-FILL SEE SHEET D1.2

EXISTING ROOF CONSTRUCTION

ROOF AREAS "A1", "A2", "A3" & "A5"
- FLOOD COAT & GRAVEL (OVER)
- 2 PLIES IN ASPHALT (OVER)
- 3/4" PERLITE (OVER)
- 3/4" PERLITE (OVER)
- 1 1/2" TONGUE & GROOVE WOOD DECK

ROOF AREAS "A4"
- FLOOD COAT & GRAVEL (OVER)
- 2 PLIES IN ASPHALT (OVER)
- 1/2" PERLITE (OVER)
- 1/2" PLYWOOD (OVER)
- 1 1/2" TONGUE & GROOVE WOOD DECK

ROOF AREA "E"
- FLOOD COAT & GRAVEL (OVER)
- 4 PLIES IN ASPHALT (OVER)
- 3/4" PERLITE (OVER)
- 3/4" PERLITE (OVER)
- 30 LB FELT (OVER)
- 1 1/2" TONGUE & GROOVE WOOD DECK

SCOPE OF WORK

BASE PROPOSAL

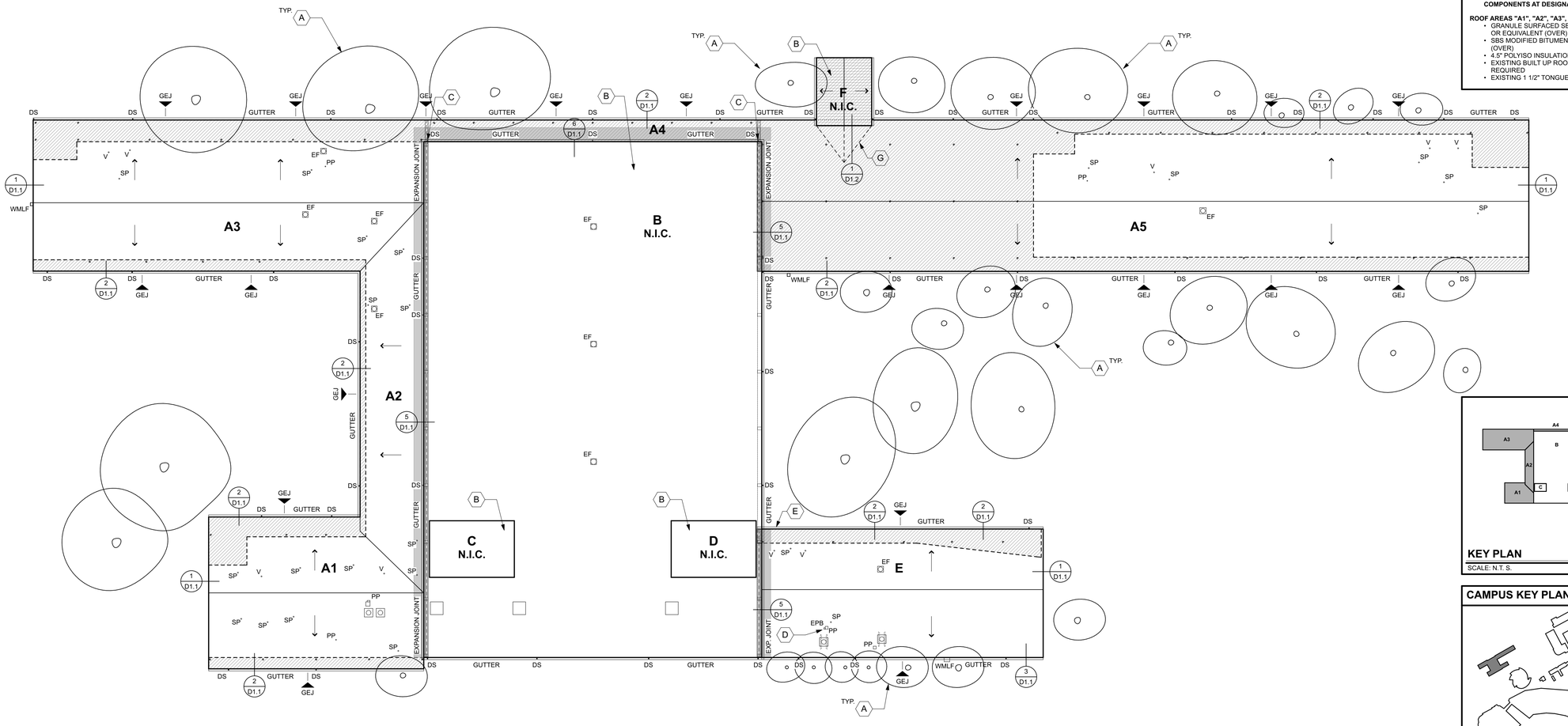
RETRO FIT SPECIFIED PRODUCTS AND SYSTEMS OVER EXISITING ROOFING AND COMPONENTS AT DESIGNATED AREAS:

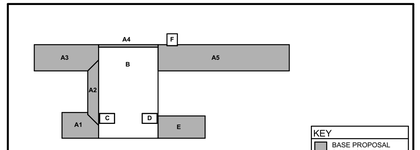
ROOF AREAS "A1", "A2", "A3", "A4", "A5" & "E"
- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD CAP FR CR G OR EQUIVALENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - JM DYNAWELD 180 S OR EQUIVALENT (OVER)
- 5/8" DENS DECK PRIME (OVER)
- 4.5" POLYISO INSULATION BOARD (OVER)
- EXISTING BUILT UP ROOF SYSTEM - SPUDDED, CLEANED, REPAIRED, AND PREPPED AS REQUIRED
- EXISTING 1 1/2" TONGUE & GROOVE WOOD DECK

ALTERNATE PROPOSAL

RETRO FIT SPECIFIED PRODUCTS AND SYSTEMS OVER EXISITING ROOFING AND COMPONENTS AT DESIGNATED AREAS:

ROOF AREAS "A1", "A2", "A3", "A4", "A5" & "E"
- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD CAP FR CR G OR EQUIVALENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - JM DYNAFAST HW MECHANICALLY FASTENED (OVER)
- 4.5" POLYISO INSULATION BOARD (OVER)
- EXISTING BUILT UP ROOF SYSTEM - SPUDDED, CLEANED, REPAIRED, AND PREPPED AS REQUIRED
- EXISTING 1 1/2" TONGUE & GROOVE WOOD DECK

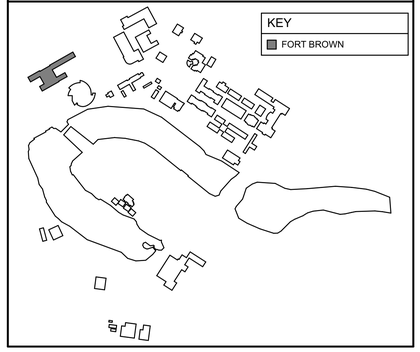




KEY PLAN

SCALE: N.T. S.

CAMPUS KEY PLAN



LEGEND

SP	SOIL PIPE	DETAIL 1/D0.1 & 1/D0.5	
HS	HOT STACK	DETAIL 10/D0.1 & 2/D0.5	
V	VENT	DETAIL 2/D0.1 & SHEET D0.5	
EF	EXHAUST FAN	DETAIL 4/D0.1 & SHEET D0.4	
A/C CU	A/C, OR COND. UNIT	SHEET D0.2	
RTU	ROOFTOP UNIT	SHEET D0.2	
DS	DOWNSPOUT	DETAIL 5 & 8/D0.1	
PP	PITCH PAN	DETAIL 3 & 6/D0.1	
RD	ROOF DRAIN	DETAIL 4/D24.1	

GEJ	GUTTER EXP. JT.	DETAIL 7/D0.1
	ELASTOMERIC COATING	
	NON A/C AREA BELOW	
	METAL PANEL DETERIORATION	
	REPORTED LEAKS	
	GAS LINE	DETAIL 9/D0.1
	ELEC. LINE	
	COND. LINE	
	TREE	

NORTH

1 FORT BROWN MEMORIAL CENTER

SCALE: 1" = 20' - 0"

0' 10' 20' 40' 60'

ISSUED FOR:	
SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

3/20/19

TEXAS SOUTHMOST COLLEGE

ROOF REPLACEMENT AND REPAIRS

2017

AMTECH SOLUTIONS
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1 FORT BROWN MEMORIAL CENTER	
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
3 OF 29	SHEET: R1

GENERAL NOTES:

01 PROPERLY TIE DOWN MECHANICAL EQUIPMENT IN A MANNER THAT PROVIDES CODE REQUIRED WIND RESISTANCE AS CALCULATED BY ASCE-7

02 IF ASBESTOS CONTAINING MATERIALS ARE DETERMINED TO EXIST AT AREA SCHEDULED FOR WORK, THE REMOVAL, HANDLING, AND DISPOSAL OF THE ACM MUST TAKE PLACE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS

KEYED NOTES:

(A) TRIM TREES TO ELIMINATE CONTACT WITH ROOFING SYSTEM

(B) REGULAR GENERAL MAINTENANCE REQUIRED TO RETAIN THE EXISTING ROOF SYSTEM WARRANTY

(C) ADDRESS LEAKS IDENTIFIED IN THIS AREA

EXISTING ROOF CONSTRUCTION

ROOF AREAS "A", "C" & "D"
- 2"x16" SINGLE LOCK STANDING SEAM METAL ROOF - GALVANIZED W/ STRIATIONS

ROOF AREAS "A1", "A2" & "D1"
- SINGLE-PLY MEMBRANE (OVER)
- SHEET METAL GUTTER

ROOF AREA "B"
- GRANULAR SURFACED MODIFIED BITUMEN CAP SHEET (OVER)
- 2 PLIES IN ASPHALT (OVER)
- 1/2” WOOD FIBER COVER BOARD (OVER)
- 4-PLY BUR (OVER)
- 3/4" PERLITE (OVER)
- 1/2" GYPSUM COVER BOARD (OVER)
- METAL DECK

ISSUED FOR:	
SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

SCOPE OF WORK

BASE PROPOSAL
- ROOF AREA "A" REMOVE EXISTING METAL ROOF & INSTALL SPECIFIED PRODUCTS AND SYSTEMS
- ROOF AREAS "C" AND "D" KEEP EXISTING METAL ROOF AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS
- ROOF AREA "B": REMOVE EXISTING DESIGNATED ROOFING DOWN TO DECK, AND REMOVE COMPONENTS
- ROOF AREA "E"-"G": SELECTIVE REPAIRS IN DESIGNATED AREAS AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS

ROOF AREA "A"
- MCELROY 138T STANDING SEAM ROOF (OVER)
- EXISTING INSULATION & SHEATHING
- REPLACE INSULATION & SHEATHING AT DAMAGED AREAS

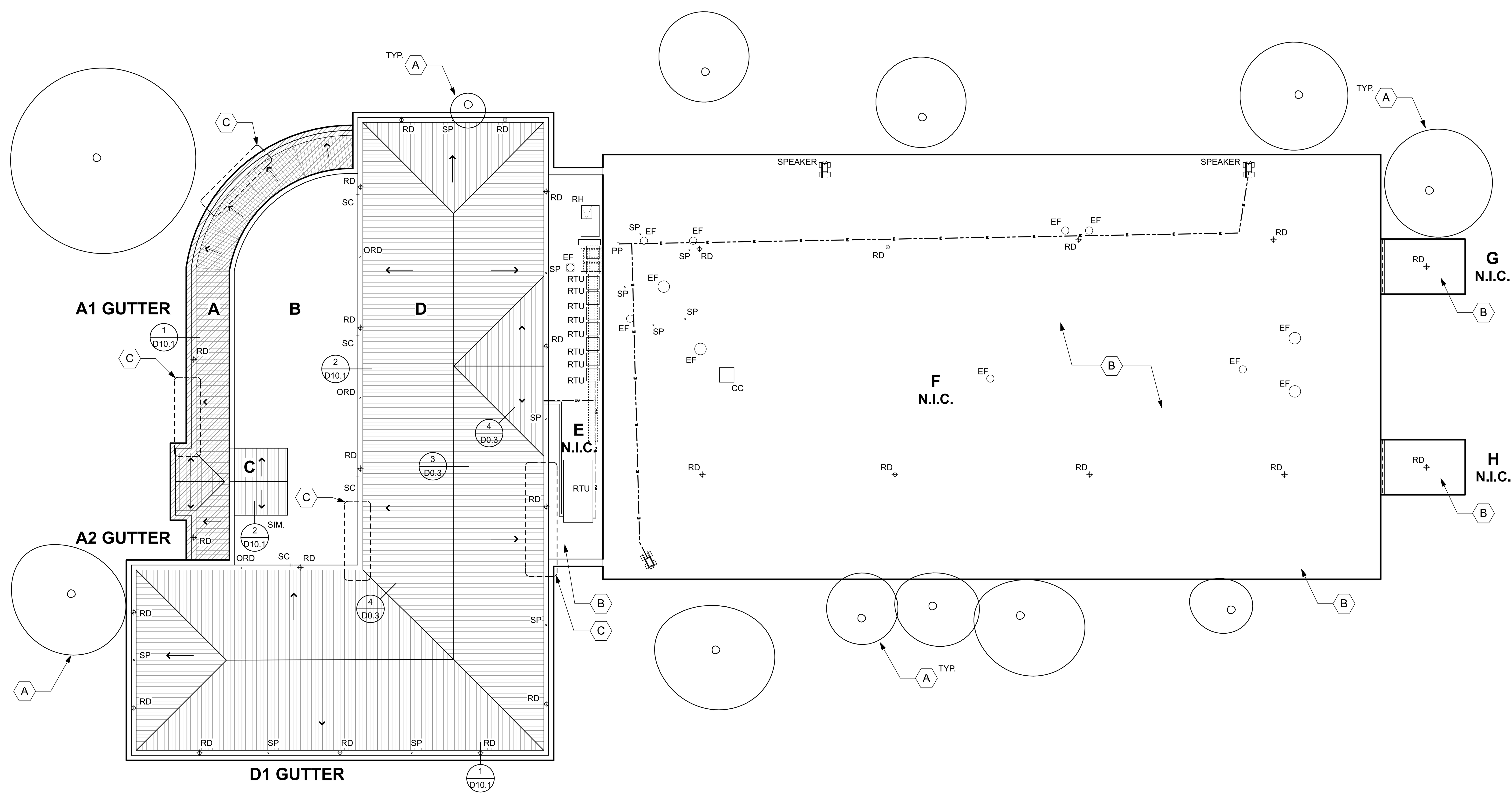
ROOF AREA "B"
- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD CAP FR CR G OR EQUIVALENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - JM DYNAWELD 180 S OR EQUIVALENT (OVER)
- 1/2" DENS DECK PRIME (OVER)
- 4.5" POLYISO INSULATION BOARD (OVER)
- EXISTING METAL DECK

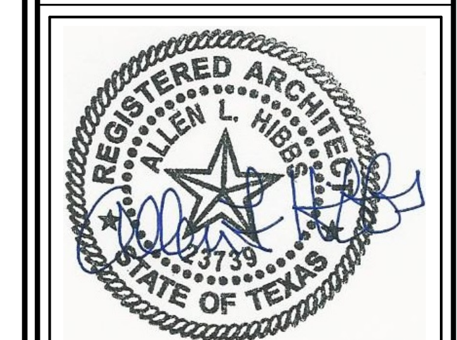
ROOF AREAS "C" & "D"
- MCELROY 138T STANDING SEAM WITH ROOF HUGGER (OVER)
- EXISTING INSULATION
- SELECTIVE REPAIRS ON GUTTER AND COPING

ALTERNATE PROPOSAL
- ROOF AREA "A" AND "D" : KEEP EXISTING METAL ROOF AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS
- ROOF AREA "B": REMOVE EXISTING DESIGNATED ROOFING DOWN TO DECK, AND REMOVE COMPONENTS
- ROOF AREA "E"-"G": SELECTIVE REPAIRS IN DESIGNATED AREAS AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS

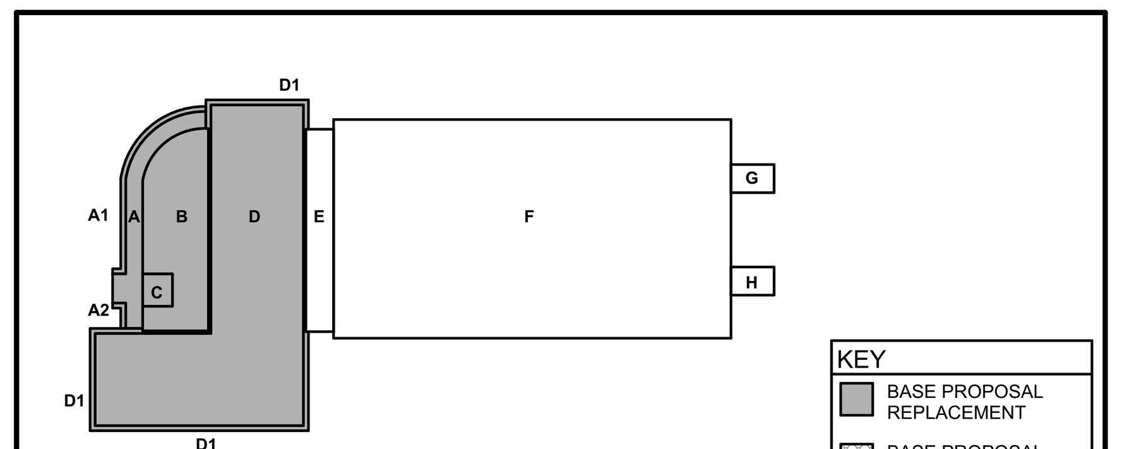
ROOF AREA "B"
- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD CAP FR CR G OR EQUIVALENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - JM DYNAFAST HW MECHANICALLY FASTENED (OVER)
- 4.5" POLYISO INSULATION BOARD (OVER)
- EXISTING METAL DECK

ROOF AREAS "C" & "D"
- MCELROY 138T STANDING SEAM WITH ROOF HUGGER (OVER)
- EXISTING INSULATION
- SELECTIVE REPAIRS ON GUTTER AND COPING



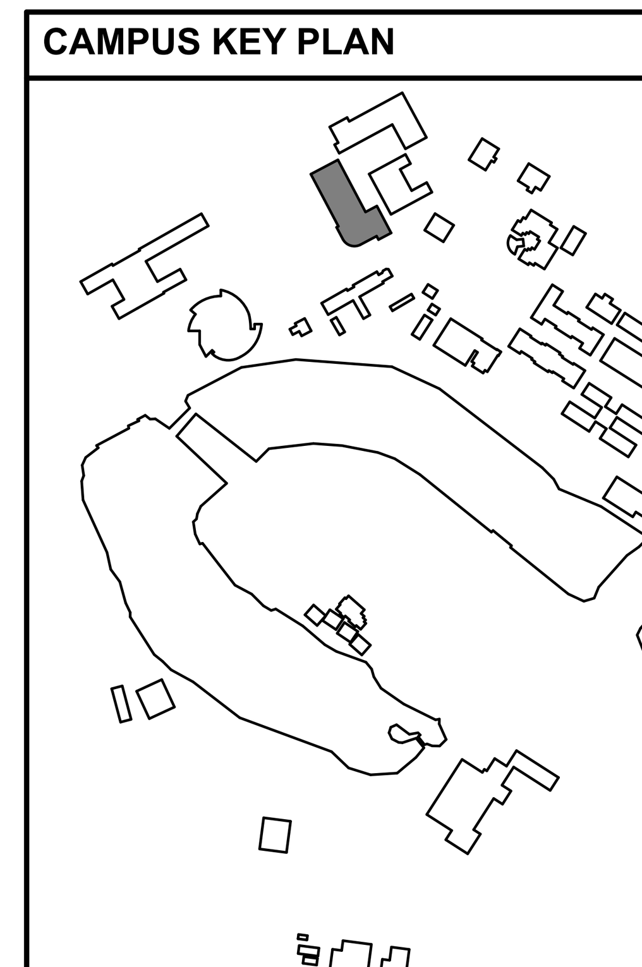


KEY PLAN



SCALE: N.T.S.

CAMPUS KEY PLAN



TEXAS SOUTHMOST COLLEGE
ROOF REPLACEMENT AND REPAIRS
2017

AMTECH SOLUTIONS
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PHARR, TEXAS 78577
T 956.686.3095 F 956.686.2233

LEGEND

Symbol	Description	Reference
SP	SOIL PIPE	DETAIL 1/D0.1 & 1/D0.5
HS	HOT STACK	DETAIL 10/D0.1 & 2/D0.5
V	VENT	DETAIL 2/D0.1 & SHEET D0.5
EF	EXHAUST FAN	DETAIL 4/D0.1 & SHEET D0.4
A/C CU	A/C, OR COND. UNIT	SHEET D0.2
RTU	ROOFTOP UNIT	SHEET D0.2
DS	DOWNSPOUT	DETAIL 5 & 8/D0.1
PP	PITCH PAN	DETAIL 3 & 6/D0.1
RD	ROOF DRAIN	DETAIL 4/D24.1
GEJ	GUTTER EXP. JT.	DETAIL 7/D0.1
	ELASTOMERIC COATING	
	NON A/C AREA BELOW	
	METAL PANEL DETERIORATION	
	REPORTED LEAKS	
	GAS LINE	DETAIL 9/D0.1
	ELEC. LINE	DETAIL 9/D0.1
	COND. LINE	DETAIL 9/D0.1
	TREE	

10 OLIVEIRA STUDENT SERVICES

NORTH

SCALE: 1" = 20' - 0"

0' 10' 20' 40' 60'

10 OLIVEIRA STUDENT SERVICES CENTER	
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
4 OF 29	SHEET: R2

GENERAL NOTES:

01 OBSERVATIONS OF EXISTING STRUCTURE HAVE NOT BEEN ASSESSED BY STRUCTURAL ENGINEER. THE FOLLOWING ROOF/BUILDING STRUCTURAL STIFFENING/SPANNING INFORMATION PROVIDED SERVE ONLY AS A GUIDE FOR PRICING. RECOMMENDATIONS FOR ROOF & BUILDING STRUCTURAL REINFORCING SHALL BE VERIFIED BY THE CONTRACTOR WITH A STRUCTURAL ENGINEER BEFORE INSTALLATION OF BASE OR ALTERNATE PROPOSAL. CONTRACTOR TO PROVIDE STRUCTURAL ENGINEERING DOCUMENTATION TO ARCHITECT FOR REVIEW

02 PROVIDE STRAP TIES AT ALL PURLIN TO BEAM ATTACHMENTS THAT ARE NOT PROPERLY BOLTED.

03 PROVIDE 2X2X1/8" BRACES AT PURLINS AT PERIMETER BEAM ON ONE SIDE OF EACH ROOF DECK.

04 REPLACE ALL GUTTERS, DOWNSPOUTS, AND SPLASH BLOCKS WITH NEW MATERIAL AS SPEC'D

KEYED NOTES:

(A) TRIM TREES TO ELIMINATE CONTACT WITH ROOFING SYSTEM

(B) REMOVE EXISTING R-PANEL SKIRT AND FRAMING

(C) REMOVE AND REPLACE EXISTING METAL WALL PANELS WITH NEW WALL PANELS AND FLASHING AS PER MANUFACTURER'S REQUIREMENTS

(D) FOR BASE PROPOSAL KEEP EXISTING RIDGE OF PROFILE OF BUILDING

EXISTING ROOF CONSTRUCTION

ROOF AREAS "A" & "B"
- POLYURETHANE FOAM (OVER)
- METAL R-PANEL

SCOPE OF WORK

PART 1 ROOF:

BASE PROPOSAL
- **REMOVE EXISTING DESIGNATED ROOFING DOWN TO FRAMING AND COMPONENTS IN DESIGNATED AREAS AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS**
- **TREAT FRAMING FOR RUST CONVERSION AND PAINT WITH W/ RED OXIDE PRIMER**
- **VERIFY STRUCTURAL DETAILS OF BUILDING WITH ENGINEER BEFORE INSTALLING NEW COMPONENTS**

ROOF AREAS "A" & "B"
- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD FR CR G OR EQUIVELENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - JM DYNAWELD 180 S OR EQUIVELENT (OVER)
- 1/2" COVER BOARD - DENSDECK PRIME OR EQUIVELENT (OVER)
- 4.5" POLYISO INSULATION BOARD (OVER)
- SBS MOD BIT BASE DYNAWELD 180 S TORCHED (OVER)
- 5/8" FIRE RATED COVER BOARD (OVER)
- METAL "F" DECK (OVER)
- EXISTING FRAMING TREATED FOR RUST CONVERSION & PAINTED WITH RED OXIDE PRIMER

ALTERNATE PROPOSAL
- **REMOVE EXISTING DESIGNATED ROOFING DOWN TO FRAMING AND COMPONENTS IN DESIGNATED AREAS AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS**
- **TREAT FRAMING FOR RUST CONVERSION AND PAINT WITH W/ RED OXIDE PRIMER**

ROOF AREAS "A" & "B"
- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD FR CR G OR EQUIVELENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - DYNAFAST HW MECHANICALLY FASTENED TO DECK OR POLYISO INSULATION (OVER)
- 4.5" POLYISO INSULATION BOARD (OVER)
- SBS MODIFIED BITUMEN BASE DYNAWELD 180 S TORCHED (OVER)
- 5/8" DENS DECK PRIME (OVER)
- 22 GAUGE TYPE F METAL DECK (OVER)
- TREAT EXISTING FRAMING FOR RUST CONVERSION & PAINTED WITH RED OXIDE PRIMER

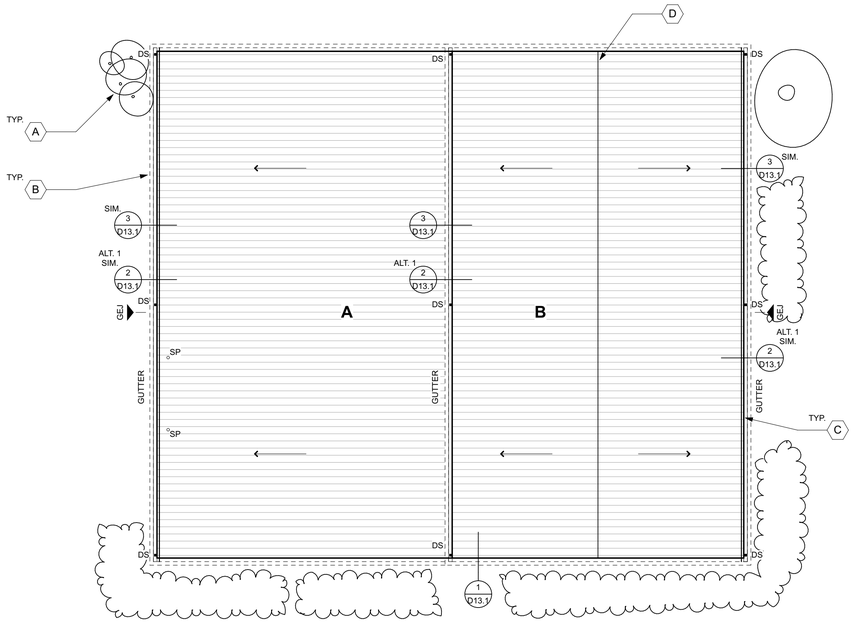
PART 2 SKIRT:

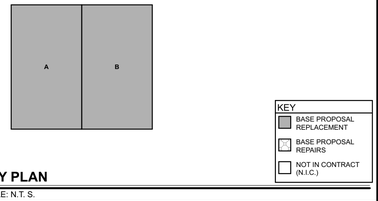
BASE PROPOSAL
- **REMOVE EXISTING DESIGNATED WALL PANELS ON AND BEHIND SKIRT, FRAMING, AND REMOVE STEEL SKIRT STRUCTURES**
- **REPLACE EXISTING WALL PANELS AS SPEC'D**
- **PATCH AND REPAIR AS REQ'D**

ALTERNATE PROPOSAL
- **REMOVE EXISTING DESIGNATED WALL PANELS ON AND BEHIND SKIRT, COMPONENTS, AND DAMAGED FRAMING**
- **ADD PARAPET WALL AS PER DETAIL 2/D13.1**
- **PATCH AND REPAIR AS REQ'D**

PART 3 INTERIORS:

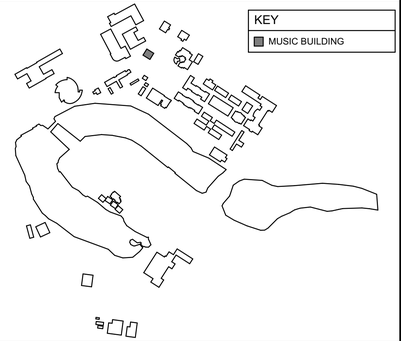
BASE PROPOSAL
- **KEEP EXISTING CLG. TILE IN PLACE DURING ROOF RENOVATION**
- **REMOVE AND REPLACE EXISTING CLG. TILES AFTER ROOF REPAIR**
- **PATCH AND REPAIR INTERIORS AS REQ'D**





KEY PLAN
SCALE: N.T. S.

CAMPUS KEY PLAN



LEGEND

•	SP	SOIL PIPE	DETAIL 1/D0.1 & 1/D0.5
○	HS	HOT STACK	DETAIL 10/D0.1 & 2/D0.5
○	V	VENT	DETAIL 2/D0.1 & SHEET D0.5
□	EF	EXHAUST FAN	DETAIL 4/D0.1 & SHEET D0.4
▣	A/C CU	A/C, OR COND. UNIT	SHEET D0.2
□	RTU	ROOFTOP UNIT	SHEET D0.2
·	DS	DOWNSPOUT	DETAIL 5 & 8/D0.1
∘	PP	PITCH PAN	DETAIL 3 & 6/D0.1
✥	RD	ROOF DRAIN	DETAIL 4/D24.1

GEJ		GUTTER EXP. JT.	DETAIL 7/D0.1
		ELASTOMERIC COATING	
		NON A/C AREA BELOW	
		METAL PANEL DETERIORATION	
		REPORTED LEAKS	
		GAS LINE	
		ELEC. LINE	DETAIL 9/D0.1
		COND. LINE	
	⊕	TREE	

NORTH

13 MUSIC BUILDING
SCALE: 1" = 10' - 0"
0' 5' 10" 20' 30'

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINS 23739 STATE OF TEXAS
3/20/19

TEXAS SOUTHMOST COLLEGE
ROOF REPLACEMENT AND REPAIRS
2017

AMTECH SOLUTIONS
1600 N. JACKSON RD. STE #3
PHARR, TEXAS 78577
T 956.686.3095 F 956.686.2233

13 MUSIC BUILDING

DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE:	3/20/19
SCALE:	SEE DRAWING
5 OF 29	SHEET: R3

GENERAL NOTES:

01 REPLACE DAMAGED EQUIPMENT

02 PROPERLY TIE DOWN MECHANICAL EQUIPMENT IN A MANNER THAT PROVIDES CODE REQUIRED WIND RESISTANCE AS CALCULATED BY ASCE-7

03 SCOPE LIMITED TO SELECTIVE REPAIRS ON ROOF AREAS D - G

04 IF ASBESTOS CONTAINING MATERIALS ARE DETERMINED TO EXIST AT AREA SCHEDULED FOR WORK, THE REMOVAL, HANDLING, AND DISPOSAL OF THE ACM MUST TAKE PLACE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS

KEYED NOTES:

(A) TRIM TREES TO ELIMINATE CONTACT WITH ROOFING SYSTEM

(B) REGULAR GENERAL MAINTENANCE REQUIRED TO RETAIN THE EXISTING ROOF SYSTEM WARRANTY

(C) REPLACE WITH PROPER EQUIPMENT

(D) MISSING CLIPS

(E) NO PERIMETER EDGE METAL

(F) REPLACE JACKETS AND INSULATION ON REFRIGERANT LINES

(G) REPLACE DAMAGED JUNCTION BOX AND CONDUITS

(H) REPLACE CORRODED STANDING SEAM PENETRATION HOOD

EXISTING ROOF CONSTRUCTION

ROOF AREAS "A" & "C"
- GRANULAR SURFACED MODIFIED BITUMEN CAP SHEET (OVER)
- 6 PLIES IN ASPHALT (OVER)
- 3" PERLITE (OVER)
- BASE SHEET (NAILED TO)
- ROSIN PAPER
- WOOD DECK

ROOF AREA "B"
- 1 1/2" SINGLE-LOCK STANDING SEAM METAL ROOF W/ PENCIL RIBS

SCOPE OF WORK

BASE PROPOSAL
- ROOF AREA "A" AND "C": REMOVE EXISTING DESIGNATED ROOFING DOWN TO DECK, AND REMOVE COMPONENTS AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS
- ROOF AREA "B" : REMOVE EXISTING METAL ROOF AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS
- ROOF AREA "D"-"N": SELECTIVE REPAIRS IN DESIGNATED AREAS AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS
- NEW R-PANEL OVER UNDERLAYMENT OVER EXISTING STUCCO
- PROVIDE NEW FASCIA TRIM TO COVER EXISTING EXPOSED WOOD LAMINATE BEAM ON RAKE SIDE OF BARREL VAULT

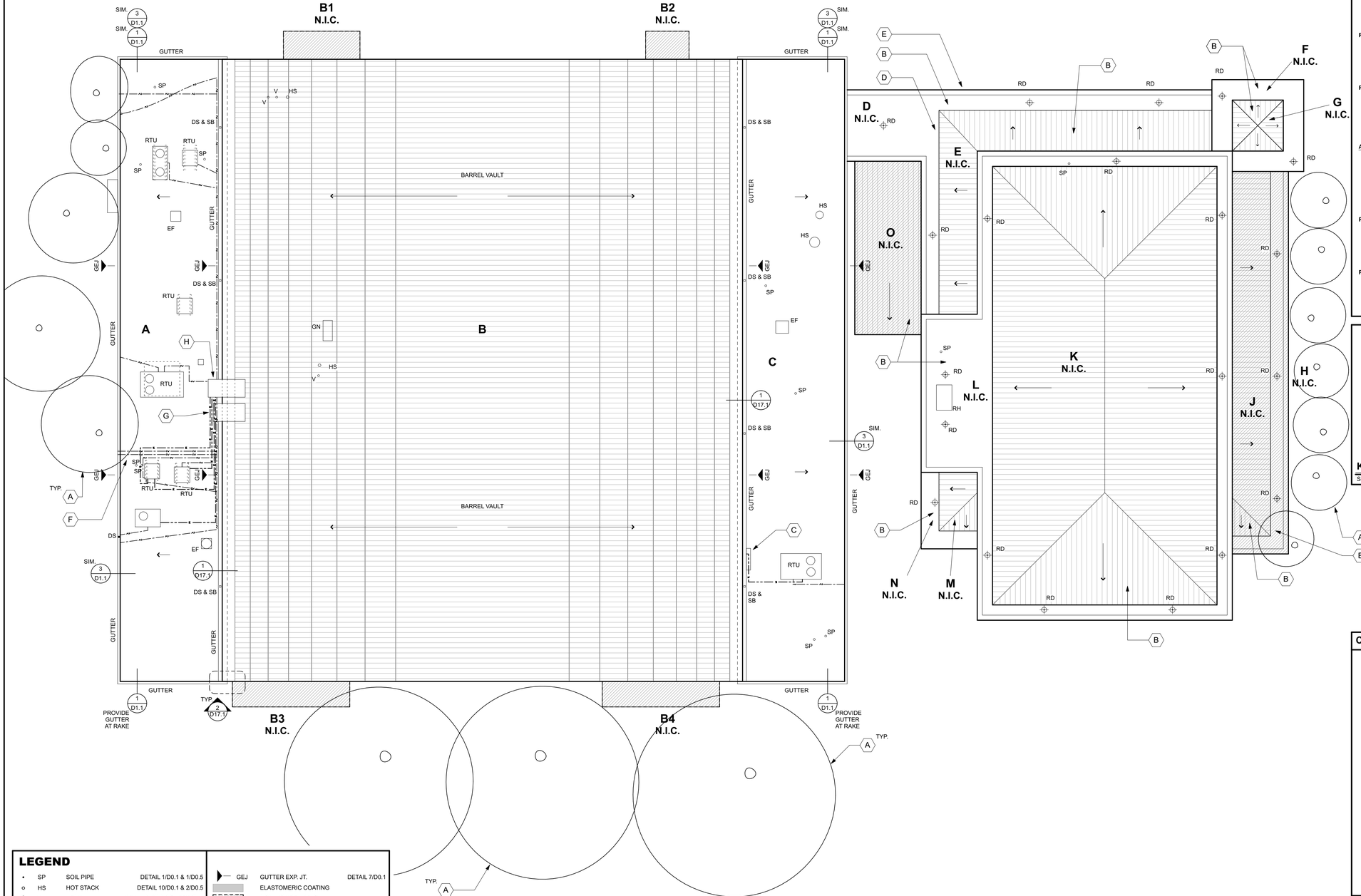
ROOF AREAS "A" & "C"
- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD CAP FR CR G OR EQUIVALENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - JM DYNAWELD 180 S OR EQUIVALENT (OVER)
- 1/2" DENS DECK PRIME (OVER)
- 4.5" POLYISO INSULATION BOARD (OVER)
- EXISTING WOOD DECK

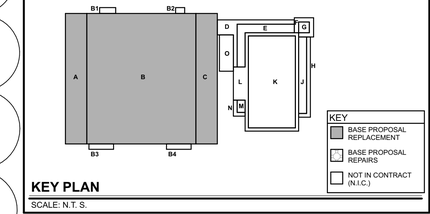
ROOF AREAS "B"
- 16" STANDING SEAM CONTINUOUS PANEL METAL ROOF (OVER)
- STAINLESS STEEL CLIPS (OVER)
- 4.5" POLYISO INSULATION BOARD (OVER)
- PEEL AND STICK ICE AND WATER SHIELD AS SPEC'D. (OVER)
- EXISTING ROOF DECK
- SELECTIVE REPAIRS ON GUTTER AND COPING AND WOOD BEAM FASCIA

ALTERNATE PROPOSAL
- ROOF AREA "A" AND "C": REMOVE EXISTING DESIGNATED ROOFING DOWN TO DECK, AND REMOVE COMPONENTS
- ROOF AREA "B" : REMOVE EXISTING METAL ROOF AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS
- ROOF AREA "D"-"N": SELECTIVE REPAIRS IN DESIGNATED AREAS AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS
- NEW R-PANEL OVER UNDERLAYMENT OVER EXISTING STUCCO
- PROVIDE NEW FASCIA TRIM TO COVER EXISTING EXPOSED WOOD LAMINATE BEAM ON RAKE SIDE OF BARREL VAULT

ROOF AREAS "A" & "C"
- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD CAP FR CR G OR EQUIVALENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - JM DYNAFAST HW MECHANICALLY FASTENED (OVER)
- 4.5" POLYISO INSULATION BOARD (OVER)
- EXISTING WOOD DECK

ROOF AREAS "B"
- 16" STADING SEAM CONTINUOUS PANEL METAL ROOF (OVER)
- STAINLESS STEEL CLIPS (OVER)
- 4.5" POLYISO INSULATION BOARD (OVER)
- PEEL AND STICK ICE AND WATER SHIELD AS SPEC'D. (OVER) EXISTING ROOF DECK
- SELECTIVE REPAIRS ON GUTTER AND COPING AND WOOD BEAM FASCIA

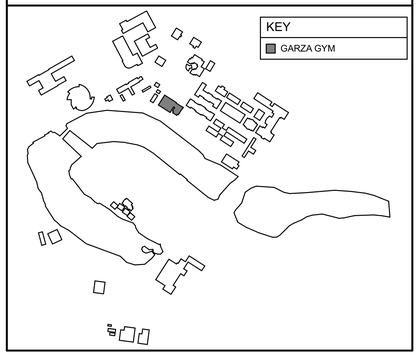




KEY PLAN

SCALE: N. T. S.

CAMPUS KEY PLAN



LEGEND

•	SP	SOIL PIPE	DETAIL 1/D0.1 & 1/D0.5
○	HS	HOT STACK	DETAIL 10/D0.1 & 2/D0.5
○	V	VENT	DETAIL 2/D0.1 & SHEET D0.5
□	EF	EXHAUST FAN	DETAIL 4/D0.1 & SHEET D0.4
▣	A/C CU	A/C, OR COND. UNIT	SHEET D0.2
□	RTU	ROOFTOP UNIT	SHEET D0.2
▪	DS	DOWNSPOUT	DETAIL 5 & 8/D0.1
▪	PP	PITCH PAN	DETAIL 3 & 6/D0.1
◆	RD	ROOF DRAIN	DETAIL 4/D24.1

GEJ	GUTTER EXP. JT.	DETAIL 7/D0.1
	ELASTOMERIC COATING	
	NON A/C AREA BELOW	
	METAL PANEL DETERIORATION	
	REPORTED LEAKS	
	GAS LINE	DETAIL 9/D0.1
	ELEC. LINE	
	COND. LINE	
	TREE	

NORTH

17 GARZA GYMNASIUM

SCALE: 1" = 10' - 0"

0' 5' 10' 20' 30'

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINS 23139 STATE OF TEXAS

3/20/19

TEXAS SOUTHMOST COLLEGE

ROOF REPLACEMENT AND REPAIRS

2017

AMTECH SOLUTIONS
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17 GARZA GYMNASIUM	
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
6 OF 29	SHEET: R4

GENERAL NOTES:

01 REPAIR COPING AND FLASHINGS

02 SLOPE FOR POSITIVE DRAINAGE TO GUTTER

KEYED NOTES:

A TRIM TREES TO ELIMINATE CONTACT WITH ROOFING SYSTEM

B PROVIDE CRICKETS TO DRAW TO SCUPPERS

C SHAPE ROOF FOR 5x5 SLOPING PLATFORM IN FROM OF ACCESS DOOR

D REPLACE ALL ROTTEN WOOD THAT EXISTS UNDER ROOF MEMBRANE WITH NEW TREATED LUMBER

E

EXISTING ROOF CONSTRUCTION

ROOF AREA "A"
- 2"x16" SINGLE LOCK STANDING SEAM METAL ROOF - GALVANIZED W/ STRIATIONS

ROOF AREA "A1"
- SHEET METAL GUTTER

ROOF AREA "B"
- GRANULAR SURFACED MODIFIED BITUMEN CAP SHEET AND BASE PLY (OVER)
- 6" TAPERED PERLITE INSULATION (OVER)
- BASE SHEET (FASTENED TO)
- PLYWOOD (FASTENED TO)
- METAL DECK

SCOPE OF WORK

BASE PROPOSAL
- ROOF AREA "A": KEEP EXISTING METAL ROOF
- ROOF AREA "A1": KEEP EXISTING GUTTER AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS FOR SELCTIVE REPAIRS. REMOVE AND RE-ATTACH COPING TO MEET ES1
- ROOF AREA "B": REMOVE EXISTING DESIGNATED ROOFING DOWN TO DECK, AND REMOVE COMPONENTS. INSTALL SPECIFIED PRODUCTS AND SYSTEMS.

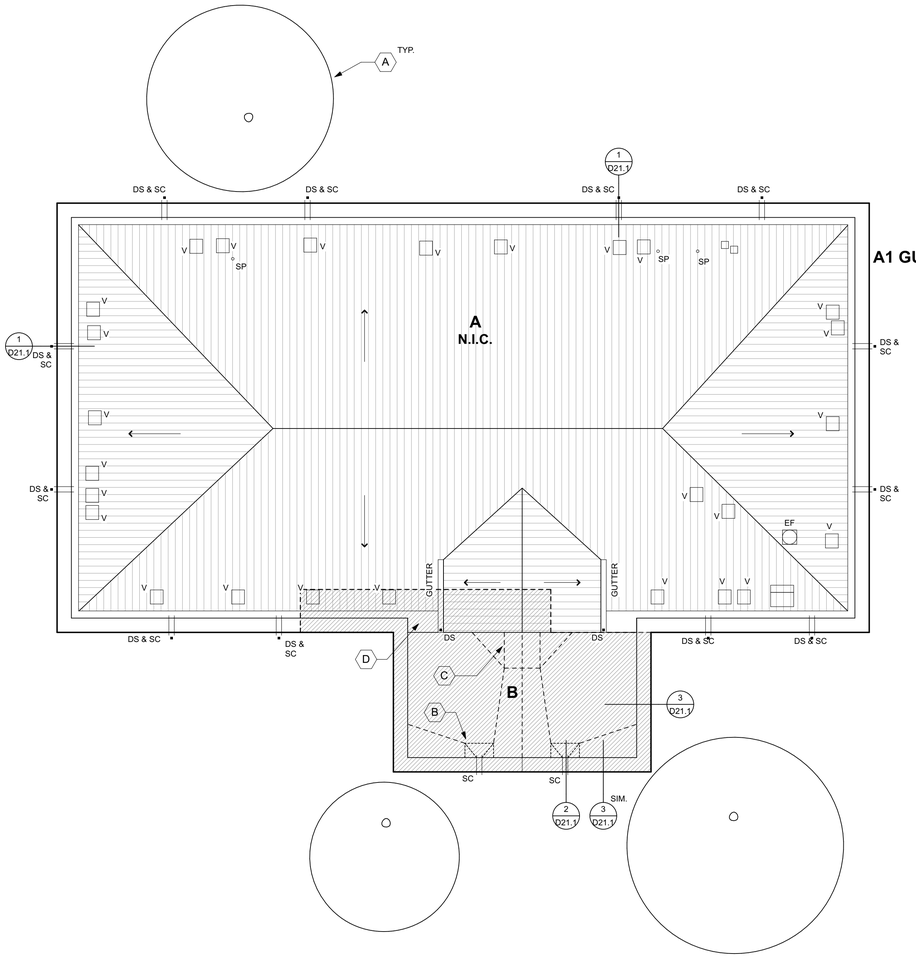
ROOF AREAS "A1 "
- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD CAP FR CR G OR EQUIVALENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - JM DYNAWELD HW MECHANICALLY FASTENED (OVER)
- BASE SHEET AS SPEC'D (OVER)
- PMMA COATING (OVER)
- EXISTING METAL GUTTER (OVER)
- EXISTING METAL ROOF

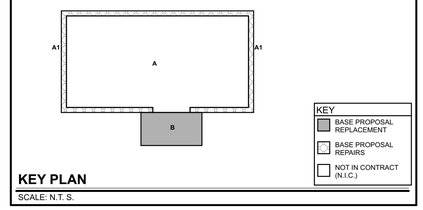
ROOF AREAS "B"
- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD CAP FR CR G OR EQUIVALENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - JM DYNAWELD 180 S OR EQUIVALENT (OVER)
- 1/2" DENS DECK PRIME (OVER)
- 4.5" POLYISO INSULATION BOARD (OVER)
- EXISTING METAL DECK

ALTERNATE PROPOSAL

ROOF AREAS "A1 "
- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD CAP FR CR G OR EQUIVALENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - JM DYNAWELD HW MECHANICALLY FASTENED (OVER)
- BASE SHEET AS SPEC'D (OVER)
- PMMA COATING (OVER)
- EXISTING METAL GUTTER (OVER)
- EXISTING METAL ROOF

ROOF AREAS "B"
- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD CAP FR CR G OR EQUIVALENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - JM DYNAWELD HW MECHANICALLY FASTENED (OVER)
- 4.5" POLYISO INSULATION BOARD (OVER)
- EXISTING METAL DECK

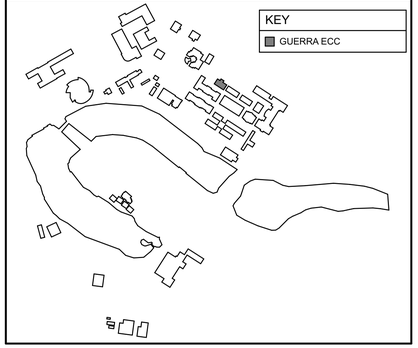




KEY PLAN

SCALE: N.T. S.

CAMPUS KEY PLAN



LEGEND

•	SP	SOIL PIPE	DETAIL 1/D0.1 & 1/D0.5
○	HS	HOT STACK	DETAIL 10/D0.1 & 2/D0.5
○	V	VENT	DETAIL 2/D0.1 & SHEET D0.5
□	EF	EXHAUST FAN	DETAIL 4/D0.1 & SHEET D0.4
▨	A/C CU	A/C, OR COND. UNIT	SHEET D0.2
□	RTU	ROOFTOP UNIT	SHEET D0.2
▪	DS	DOWNSPOUT	DETAIL 5 & 8/D0.1
▫	PP	PITCH PAN	DETAIL 3 & 6/D0.1
◆	RD	ROOF DRAIN	DETAIL 4/D24.1

▶—	GEJ	GUTTER EXP. JT.	DETAIL 7/D0.1
		ELASTOMERIC COATING	
		NON A/C AREA BELOW	
		METAL PANEL DETERIORATION	
		REPORTED LEAKS	
— • —		GAS LINE	DETAIL 9/D0.1
— / —		ELEC. LINE	
— w —		COND. LINE	
⊕		TREE	

NORTH

21 GUERRA EARLY CHILDHOOD CENTER

SCALE: 1" = 10' - 0"

0' 5' 10' 20' 30'

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINS 23739 STATE OF TEXAS

3/20/19

TEXAS SOUTHMOST COLLEGE

ROOF REPLACEMENT AND REPAIRS 2017

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21 GUERRA EARLY CHIDHOOD CENTER

DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE:	3/20/19
SCALE:	SEE DRAWING
7 OF 29	SHEET: R5

GENERAL NOTES:

01 REMOVE ABANDONED ELECTRICAL LINES

02 SCOPE LIMITED TO SELECTIVE REPAIRS ON ROOF AREA A

03 PROPERLY TIE DOWN MECHANICAL EQUIPMENT IN A MANNER THAT PROVIDES CODE REQUIRED WIND RESISTANCE AS CALCULATED BY ASCE-7

04 IF ASBESTOS CONTAINING MATERIALS ARE DETERMINED TO EXIST AT AREA SCHEDULED FOR WORK, THE REMOVAL, HANDLING, AND DISPOSAL OF THE ACM MUST TAKE PLACE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS

KEYED NOTES:

(A) TRIM TREES TO ELIMINATE CONTACT WITH ROOFING SYSTEM

(B) REGULAR GENERAL MAINTENANCE REQUIRED TO RETAIN THE EXISTING ROOF SYSTEM WARRANTY

(C) OVERFLOW SCUPPER TOO SMALL

(D) MISSING OVERFLOW SCUPPER

(E) ADDRESS LEAKS IDENTIFIED IN THIS AREA

EXISTING ROOF CONSTRUCTION

ROOF AREA "B"
- FLOOD COAT & GRAVEL (OVER)
- 3 PLIES IN ASPHALT (OVER)
- BASE SHEET (MECHANICALLY FASTENED TO)
- 4" LIGHTWEIGHT INSULATED CONCRETE (LWIC) (OVER)
- FLUTED METAL DECK

SCOPE OF WORK

BASE PROPOSAL

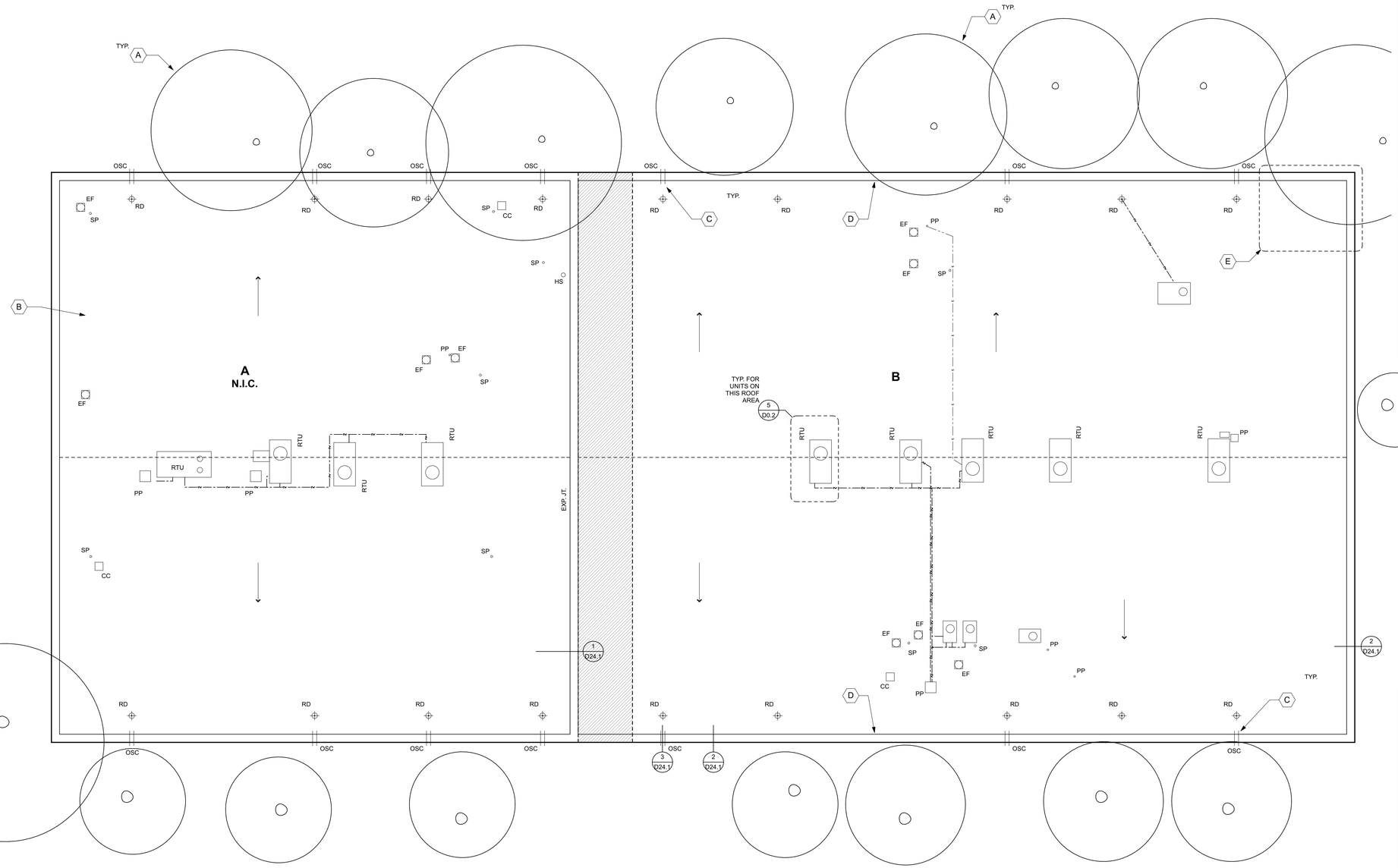
SPUD GRAVEL, KEEP EXISITNG B.U.R. AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS. WET ENCAPSULATE ASBESTOS ON PARAPET FLASHING. PROVIDE EXPANSION PONY WALL TO RAISE HEIGHT OF DIVIDING WALL FOR 8" MINIMUM FLASHING REQ'D.

ROOF AREAS "B"
- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD CAP FR CR G OR EQUIVALENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - JM DYNAWELD 180 S OR EQUIVALENT (OVER)
- 1/2" DENS DECK PRIME (OVER)
- 4.5" POLYISO INSULATION BOARD (OVER)
- EXISTING BUR SYSTEM SPUDDED, CLEANED, REPAIRED AND PREPPED AS REQUIRED

ALTERNATE PROPOSAL

SPUD GRAVEL, KEEP EXISITNG B.U.R. AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS. WET ENCAPSULATE ASBESTOS ON PARAPET FLASHING. PROVIDE EXPANSION PONY WALL TO RAISE HEIGHT OF DIVIDING WALL FOR 8" MINIMUM FLASHING REQ'D.

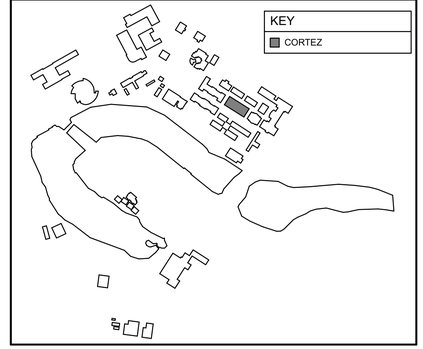
ROOF AREAS "B"
- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD CAP FR CR G OR EQUIVALENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - JM DYNAFAST HW MECHANICALLY FASTENED (OVER)
- 4.5" POLYISO INSULATION BOARD (OVER)
- EXISTING BUR SYSTEM SPUDDED, CLEANED, REPAIRED AND PREPPED AS REQUIRED



KEY PLAN

SCALE: N.T. S.

CAMPUS KEY PLAN



LEGEND

•	SP	SOIL PIPE	DETAIL 1/D0.1 & 1/D0.5
○	HS	HOT STACK	DETAIL 10/D0.1 & 2/D0.5
○	V	VENT	DETAIL 2/D0.1 & SHEET D0.5
□	EF	EXHAUST FAN	DETAIL 4/D0.1 & SHEET D0.4
▣	A/C CU	A/C, OR COND. UNIT	SHEET D0.2
□	RTU	ROOFTOP UNIT	SHEET D0.2
▪	DS	DOWNSPOUT	DETAIL 5 & 8/D0.1
▪	PP	PITCH PAN	DETAIL 3 & 6/D0.1
◆	RD	ROOF DRAIN	DETAIL 4/D24.1

▶	GEJ	GUTTER EXP. JT.	DETAIL 7/D0.1
		ELASTOMERIC COATING	
		NON A/C AREA BELOW	
		METAL PANEL DETERIORATION	
		REPORTED LEAKS	
		GAS LINE	
		ELEC. LINE	DETAIL 9/D0.1
		COND. LINE	
⊕		TREE	

NORTH

24 CORTEZ HALL

SCALE: 1" = 10' - 0"

0' 5' 10' 20' 30'

ISSUED FOR:	
SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINS 23739 STATE OF TEXAS

3/20/19

TEXAS SOUTHMOST COLLEGE

ROOF REPLACEMENT AND REPAIRS

2017

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24 CORTEZ HALL	
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
8 OF 29	SHEET: R6

GENERAL NOTES:

01 REFER TO STRUCTURAL PLANS FOR WINDSTORM DETAILS

02 SCOPE LIMITED TO SELECTIVE REPAIRS ON ALL ROOF AREAS EXCEPT DESIGNATED GUTTERS AND ROOF AREA B

03 REPLACE ALL ROTTEN OR DAMAGED DECK BOARDS AND WOOD WITH NEW LUMBER TO MATCH EXISTING

KEYED NOTES:

(A) TRIM TREES TO ELIMINATE CONTACT WITH ROOFING SYSTEM

(B) REGULAR GENERAL MAINTENANCE REQUIRED TO RETAIN THE EXISTING ROOF SYSTEM WARRANTY

(C) CLEAN ORGANIC DEBRIS FROM GUTTERS

(D) INSTALL NEW 22 GA. GUTTER W/ EXPANSION JOINT

(E) REPAIR CHIPPED TILES AND DAMAGED MORTAR

(F) REPLACE SPLASH BLOCKS

(G) SEE SHEET D27.1 FOR RCP & NOTES FOR STRUCTURAL REPAIRS

EXISTING ROOF CONSTRUCTION

ROOF AREA "B"
- FLOOD COAT & GRAVEL (OVER)
- 3 PLIES IN ASPHALT (OVER)
- 3/4" PERLITE (OVER)
- BASE SHEET (FASTENED TO)
- WOOD DECK

SCOPE OF WORK

BASE PROPOSAL

PROVIDE STRUCTURAL SUPPORT FOR COLLAPSING ROOF. REPLACE DAMAGED STRUCTURAL ELEMENTS. REMOVE EXISTING DESIGNATED ROOFING DOWN TO DECK AND COMPONENTS IN DESIGNATED AREAS AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS:

ROOF AREA "B":
- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD CAP FR CR G OR EQUIVALENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - JM DYNAWELD 180 S OR EQUIVALENT (OVER)
- 1/2" DENS DECK PRIME (OVER)
- TAPERED POLYISO INSULATION BOARD (OVER)
- EXISITING WOOD DECK

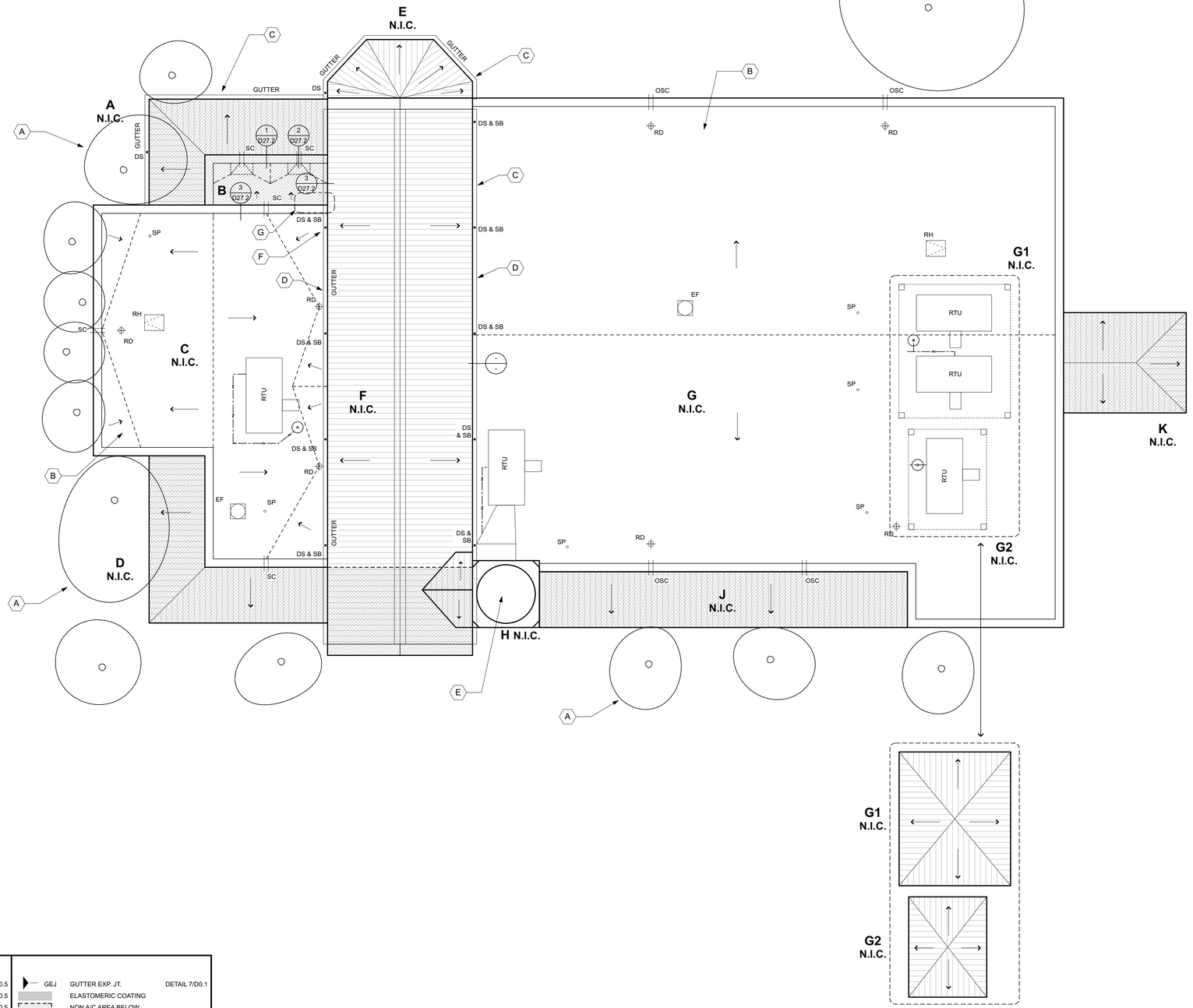
ROOF AREA "F":
- INSTALL NEW GUTTER AND DOWNSPOUT

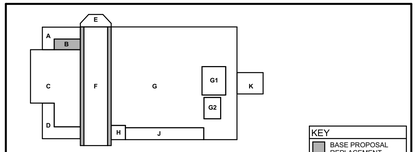
ALTERNATE PROPOSAL

REMOVE EXISTING DESIGNATED ROOFING AND COMPONENTS IN DESIGNATED AREAS AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS:

ROOF AREA "B":
- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD CAP FR CR G OR EQUIVALENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - JM DYNAFAST HW MECHANICALLY FASTENED (OVER)
- TAPERED POLYISO INSULATION BOARD (OVER)
- EXISTING WOOD DECK

ROOF AREA "F":
- INSTALL NEW 22 GA. GUTTER AND DOWNSPOUT TO MATCH EXISTING





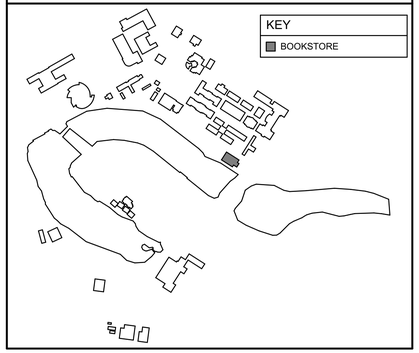
KEY PLAN

SCALE: N. T. S.

LEGEND

SP	SOIL PIPE	DETAIL 1/D0.1 & 1/D0.5	GEJ	GUTTER EXP. JT.	DETAIL 7/D0.1
HS	HOT STACK	DETAIL 10/D0.1 & 2/D0.5		ELASTOMERIC COATING	
V	VENT	DETAIL 2/D0.1 & SHEET D0.5		NON A/C AREA BELOW	
EF	EXHAUST FAN	DETAIL 4/D0.1 & SHEET D0.4		METAL PANEL DETERIORATION	
A/C CU	A/C, OR COND. UNIT	SHEET D0.2		REPORTED LEAKS	
RTU	ROOFTOP UNIT	SHEET D0.2		GAS LINE	
DS	DOWNSPOUT	DETAIL 5 & 8/D0.1		ELEC. LINE	DETAIL 9/D0.1
PP	PITCH PAN	DETAIL 3 & 6/D0.1		COND. LINE	
RD	ROOF DRAIN	DETAIL 4/D24.1		TREE	

CAMPUS KEY PLAN



27 BOOKSTORE

SCALE: 1" = 10' - 0"

NORTH 0' 5' 10' 20' 30'

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINS 23139 STATE OF TEXAS

3/20/19

TEXAS SOUTHMOST COLLEGE

ROOF REPLACEMENT AND REPAIRS

2017

AMTECH SOLUTIONS
1600 N. JACKSON RD. STE #3
PHARR, TEXAS 78577
T 956.686.3095 F 956.686.2233

27 BOOKSTORE	
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
9 OF 29	SHEET: R7

GENERAL NOTES:

01 PROPERLY TIE DOWN MECHANICAL EQUIPMENT IN A MANNER THAT PROVIDES CODE REQUIRED WIND RESISTANCE AS CALCULATED BY ASCE-7

02 SCOPE LIMITED TO SELECTIVE REPAIRS ON ALL ROOF AREAS OTHER THAN ROOF AREA B

03 IF ASBESTOS CONTAINING MATERIALS ARE DETERMINED TO EXIST AT AREA SCHEDULED FOR WORK, THE REMOVAL, HANDLING, AND DISPOSAL OF THE ACM MUST TAKE PLACE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS

04 PLANS AND SPECIFICATIONS TO BE APPROVED BY TEXAS HISTORICAL COMMISSION BEFORE COMMENCEMENT OF WORK

KEYED NOTES:

(A) TRIM TREES TO ELIMINATE CONTACT WITH ROOFING SYSTEM

(B) REPAIR LOOSE SHINGLES

(C) CLEAN ORGANIC DEBRIS FROM GUTTERS

EXISTING ROOF CONSTRUCTION

ROOF AREA "B"

- GRANULAR SURFACED MODIFIED BITUMEN CAP SHEET (OVER)
- BUR MEMBRANE IN ASPHALT (OVER)
- PERLITE INSULATION (OVER)
- BASE SHEET (MECHANICALLY FASTENED TO)
- ROSIN PAPER (OVER)
- WOOD DECK

SCOPE OF WORK

BASE PROPOSAL

REMOVE EXISTING DESIGNATED ROOFING DOWN TO DECK AND COMPONENTS IN DESIGNATED AREAS AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS:

ROOF AREA "B"

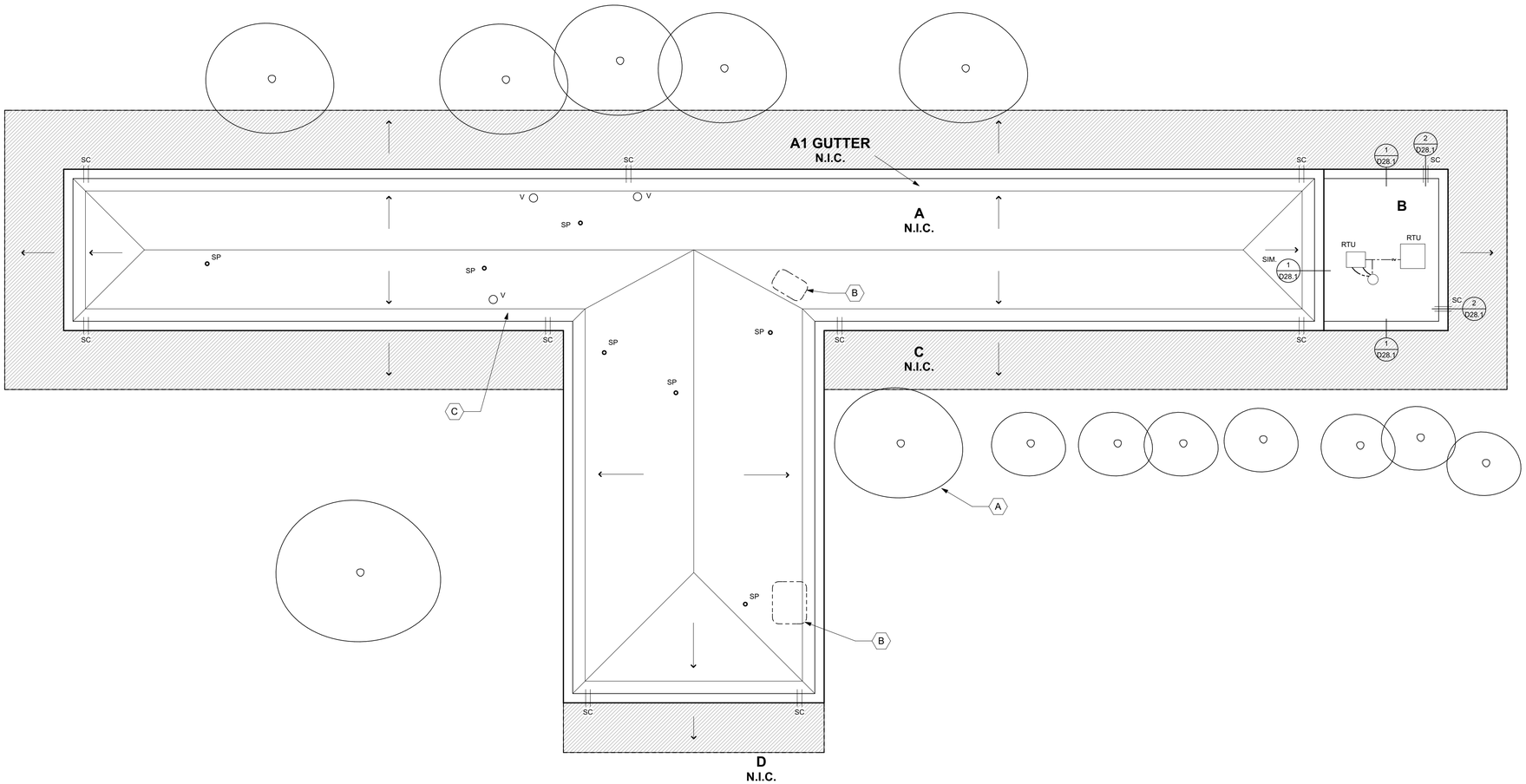
- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD CAP FR CR G OR EQUIVALENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - JM DYNAWELD 180 S OR EQUIVALENT (OVER)
- 1/2" DENS DECK PRIME (OVER)
- 4.5" POLYISO INSULATION BOARD (OVER)
- EXISTING WOOD DECK

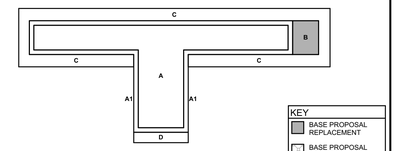
ALTERNATE PROPOSAL

REMOVE EXISTING DESIGNATED ROOFING AND COMPONENTS IN DESIGNATED AREAS AND INSTALL SPECIFIED PRODUCTS AND SYSTEMS:

ROOF AREA "B"

- GRANULE SURFACED SBS MODIFIED BITUMEN CAP SHEET - JM DYNAWELD CAP FR CR G OR EQUIVALENT (OVER)
- SBS MODIFIED BITUMEN BASE SHEET - JM DYNAFAST HW MECHANICALLY FASTENED (OVER)
- 4.5" POLYISO INSULATION BOARD (OVER)
- EXISTING WOOD DECK





KEY PLAN

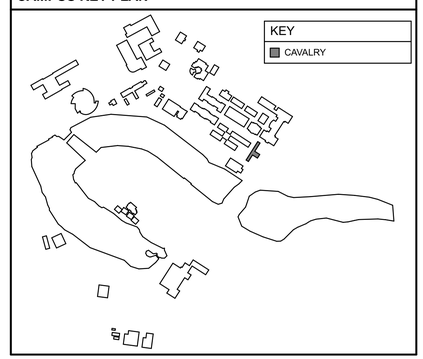
SCALE: N.T. S.

LEGEND

•	SP	SOIL PIPE	DETAIL 1/D0.1 & 1/D0.5
○	HS	HOT STACK	DETAIL 10/D0.1 & 2/D0.5
○	V	VENT	DETAIL 2/D0.1 & SHEET D0.5
□	EF	EXHAUST FAN	DETAIL 4/D0.1 & SHEET D0.4
▣	A/C CU	A/C, OR COND. UNIT	SHEET D0.2
□	RTU	ROOFTOP UNIT	SHEET D0.2
·	DS	DOWNSPOUT	DETAIL 5 & 8/D0.1
◦	PP	PITCH PAN	DETAIL 3 & 6/D0.1
✥	RD	ROOF DRAIN	DETAIL 4/D24.1

GEJ	GUTTER EXP. JT.	DETAIL 7/D0.1
	ELASTOMERIC COATING	
	NON A/C AREA BELOW	
	METAL PANEL DETERIORATION	
	REPORTED LEAKS	
	GAS LINE	
	ELEC. LINE	DETAIL 9/D0.1
	COND. LINE	
	TREE	

CAMPUS KEY PLAN



NORTH

28 CAVALRY HALL

SCALE: 1" = 10' - 0"

0' 5' 10' 20' 30'

ISSUED FOR:	
SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINS 23139 STATE OF TEXAS

3/20/19

TEXAS SOUTHMOST COLLEGE

ROOF REPLACEMENT AND REPAIRS

2017

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28 CAVALRY HALL	
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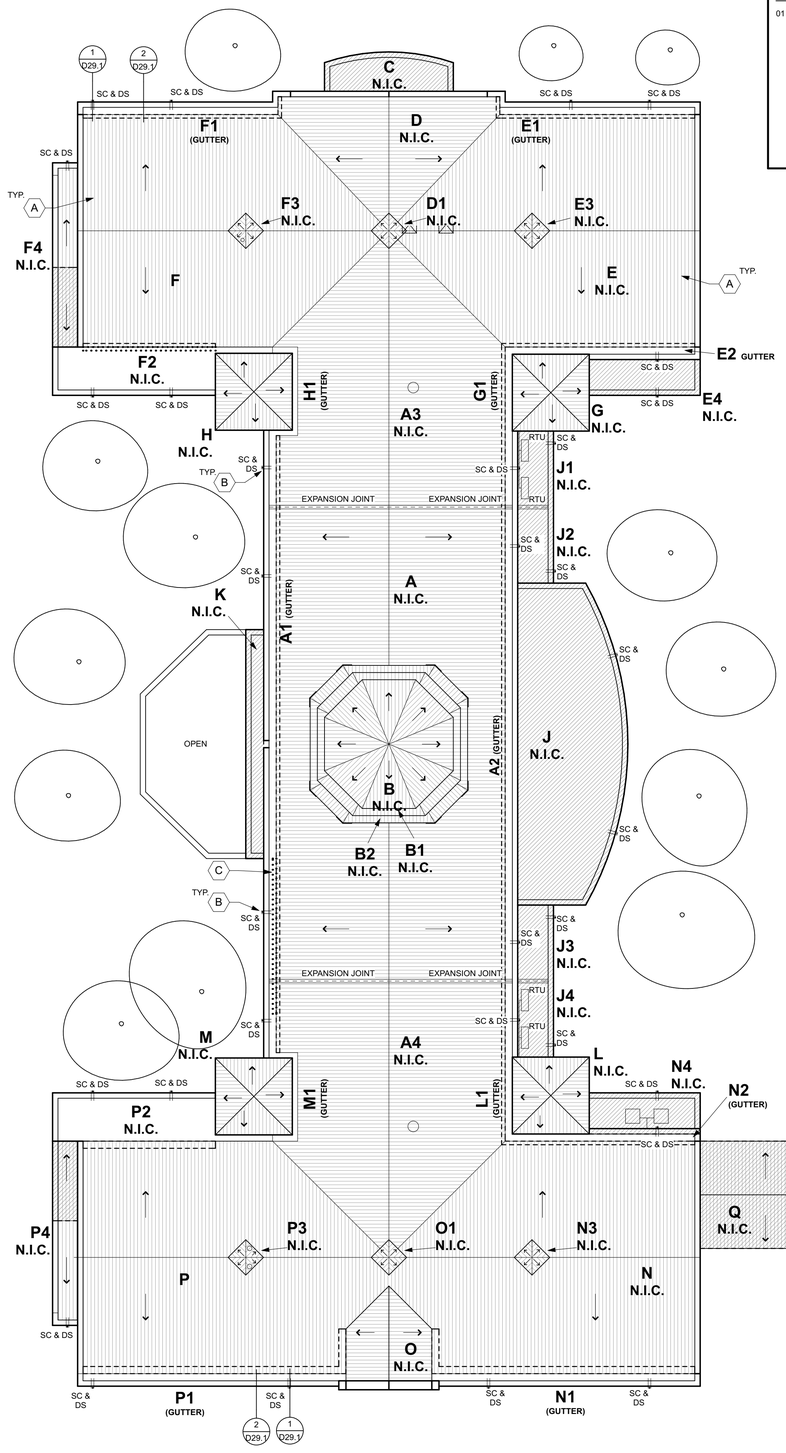
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
10 OF 29	SHEET: R8



GENERAL NOTES:

01 SCOPE LIMITED TO SELECTIVE REPAIRS ON NOTED AREAS AND PANEL REPLACEMENT ALONG PERIMETER OF EXISITING ROOF WHERE NOTED

KEYED NOTES:

(A) REGULAR GENERAL MAINTENANCE REQUIRED TO RETAIN THE EXISTING ROOF SYSTEM WARRANTY

(B) SCUPPERS ARE NOT STAINLESS STEEL - RUSTED THROUGH

(C) ADDRESS LEAKS IDENTIFIED IN THIS AREA

EXISTING ROOF CONSTRUCTION

ROOF AREAS "A1", "A2", "E1", "E2", "F1", "G1", "H1", "L1", "M1", "N1", "N2", "P1", "R1", "R2" & "R3"

- ALUMINUM SURFACE MOD. BIT. (TORCH APPLIED TO)
- 2 PLIES MOD BIT (ADHERED TO)
- PLYWOOD (FASTENED TO)
- METAL DECK

SCOPE OF WORK

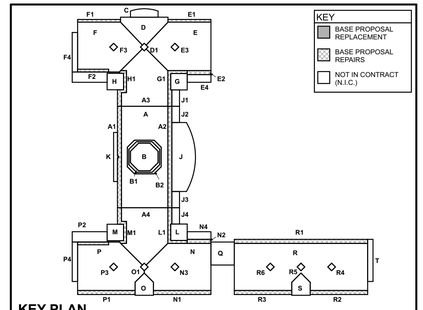
BASE PROPOSAL

- **DEMO ROOF PANEL UP TO HIGHEST POINT OF DETERIORATION OR 4' LENGTH (WHICHEVER IS LESS). INSTALL NEW PANEL TO MATCH EXISTING PER DETAILS ON SHEET D0.6**
- **CLEAN ALL GUTTERS AND PATCH & REPAIR GUTTERS/SCUPPERS AS SPECIFIED IN DESIGNATED LEAK AREAS OR IN ANY OTHER AREAS IDENTIFIED AS SEVERELY DEGRADED**
- **REPLACE DAMAGED SCUPPERS WITH 22 GA. STAINLESS STEEL AS REQ'D**

INSTALL THE SPECIFIED PRODUCTS AND SYSTEMS AT THE FOLLOWING AREAS:

ROOF AREAS "A1", "A2", "E1", "E2", "F", "F1", "G1", "H1", "L1", "M1", "N1", "N2", "P", "P1", "R1", "R2", & "R3"

- SELECTIVE METAL ROOFING AND SHEET METAL FLASHING REPAIRS



KEY PLAN

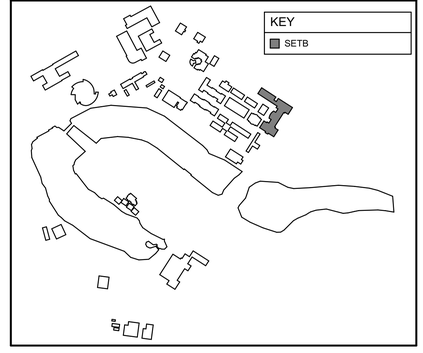
SCALE: N. T. S.

LEGEND

SP	SOIL PIPE	DETAIL 1/D0.1 & 1/D0.5
HS	HOT STACK	DETAIL 10/D0.1 & 2/D0.5
V	VENT	DETAIL 2/D0.1 & SHEET D0.5
EF	EXHAUST FAN	DETAIL 4/D0.1 & SHEET D0.4
A/C CU	A/C, OR COND. UNIT	SHEET D0.2
RTU	ROOFTOP UNIT	SHEET D0.2
DS	DOWNSPOUT	DETAIL 5 & 8/D0.1
PP	PITCH PAN	DETAIL 3 & 6/D0.1
RD	ROOF DRAIN	DETAIL 4/D24.1

GEJ	GUTTER EXP. JT.	DETAIL 7/D0.1
	ELASTOMERIC COATING	
	NON A/C AREA BELOW	
	METAL PANEL DETERIORATION	
	REPORTED LEAKS	
	GAS LINE	DETAIL 9/D0.1
	ELEC. LINE	
	COND. LINE	
	TREE	

CAMPUS KEY PLAN



NORTH

29 SCIENCE ENGINEERING AND TECHNOLOGY BUILDING

SCALE: 1" = 20' - 0"

0' 10' 20' 40' 60'

ISSUED FOR:	
SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

TEXAS SOUTHMOST COLLEGE

ROOF REPLACEMENT AND REPAIRS

2017

REGISTERED ARCHITECT ALLEN L. HIGGINS 23139 STATE OF TEXAS

3/20/19

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29 SCIENCE ENGINEERING & TECHNOLOGY BLDG	
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
11 OF 29	SHEET: R9

Assembly Identification

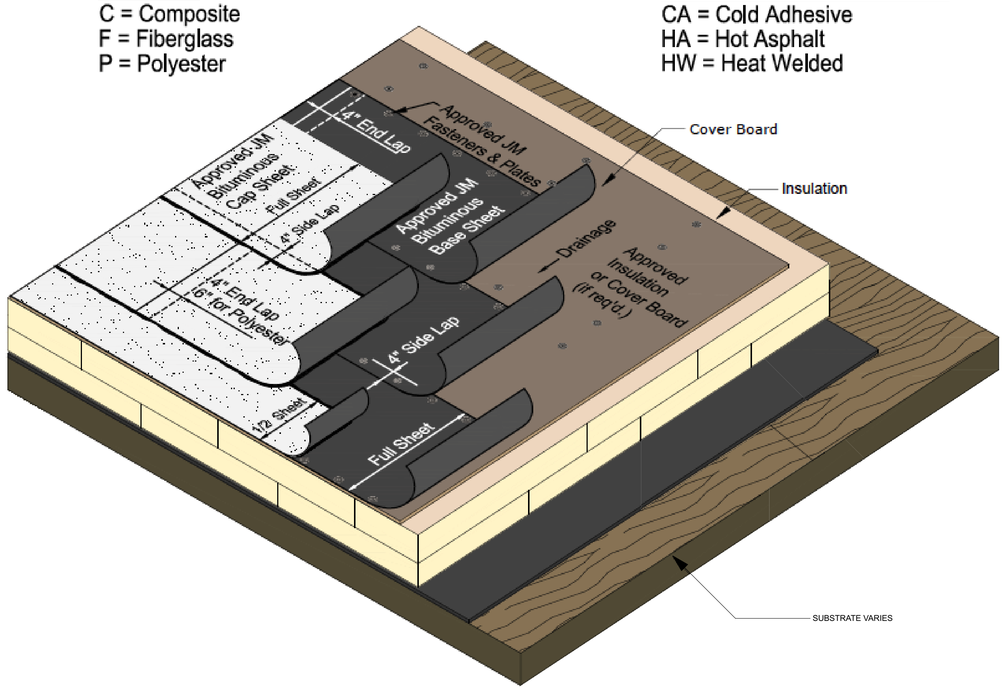
Substrate
I = Insulated

Number of Plies → 2 F I D-HW-CR

Surfacing
D = SBS Cap Sheet (Granule Surface)
CR = Mineral Surfaced Cool Roof Sheet

Cap Sheet
C = Composite
F = Fiberglass
P = Polyester

Cap Sheet Application Method
CA = Cold Adhesive
HA = Hot Asphalt
HW = Heat Welded



1 BASE PROPOSAL
N.T.S.

Assembly Identification

Substrate
I = Insulated

Number of Plies → 2 F I D-HW-CR

Surfacing
D = SBS Cap Sheet (Granule Surface)
CR = Mineral Surfaced Cool Roof Sheet

Cap Sheet
C = Composite
F = Fiberglass
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Cap Sheet Application Method
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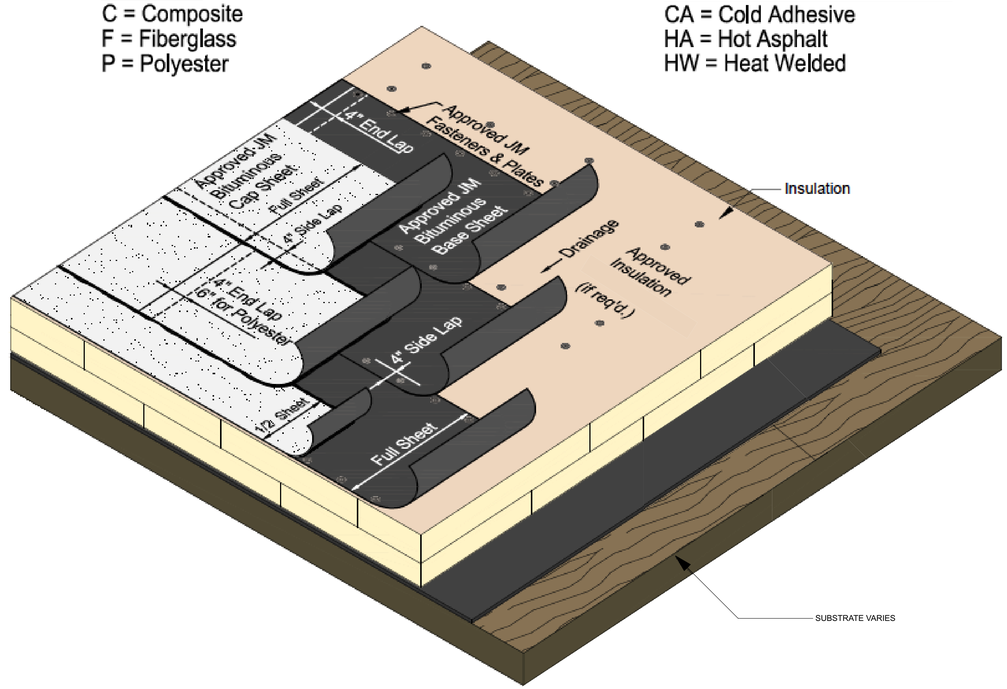
HA = Hot Asphalt
HW = Heat Welded



2 ALTERNATE PROPOSAL
N.T.S.

ISSUED FOR:

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ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINS 23139 STATE OF TEXAS
3/20/19

TEXAS SOUTHMOST COLLEGE
ROOF REPLACEMENT AND REPAIRS
2017

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Pharr, Texas 78577
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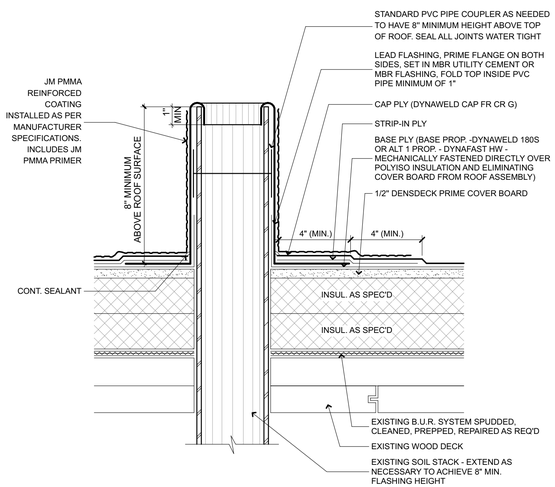
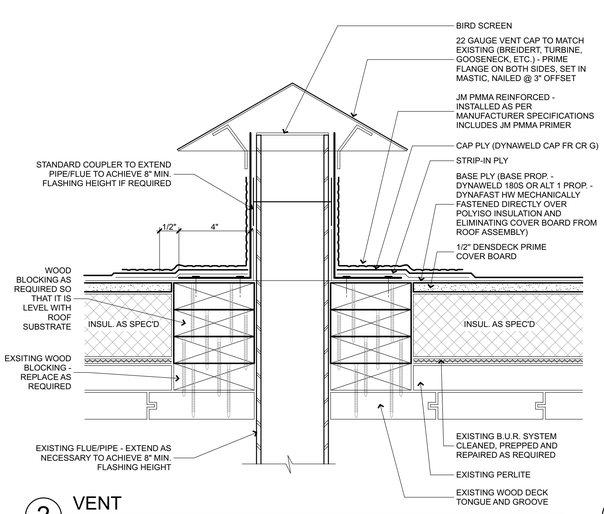
PROPOSAL ASSEMBLY

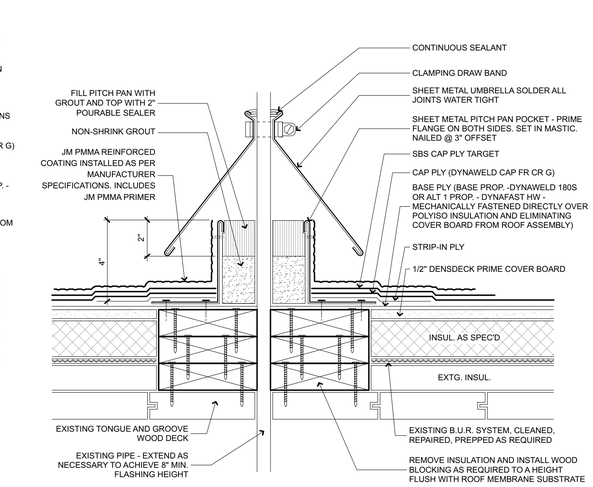
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
12 OF 29	SHEET: D0.0



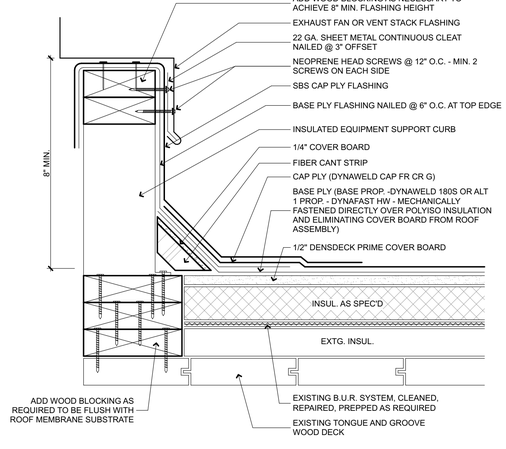
1 PIPE PENETRATION
N.T.S.



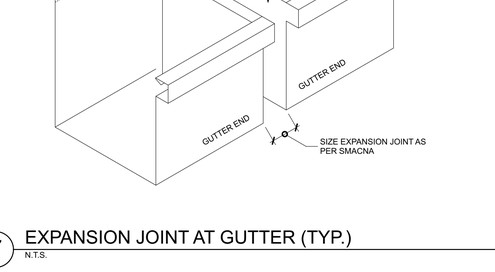
2 VENT
N.T.S.



3 PITCH PAN WITH UMBRELLA
N.T.S.

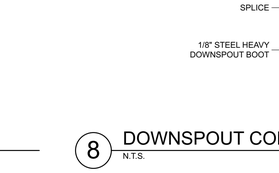


4 MECHANICAL CURB / EQUIPMENT SUPPORT
N.T.S.

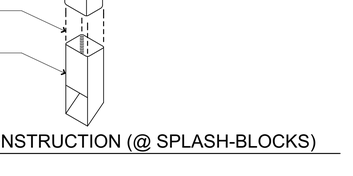


BOOT ELEVATION

BOOT SECTION

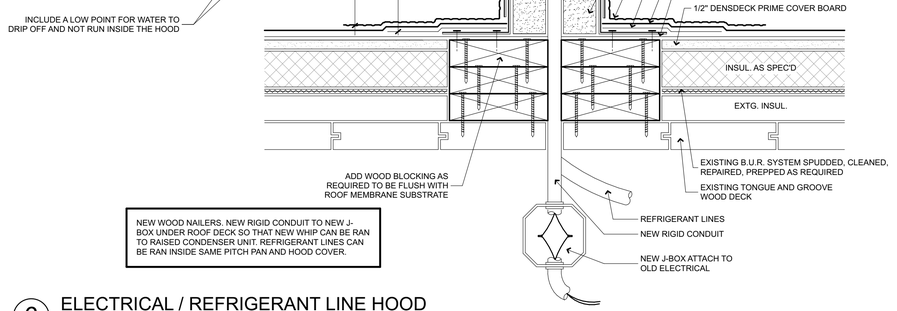


DOWNSPOUT PLAN



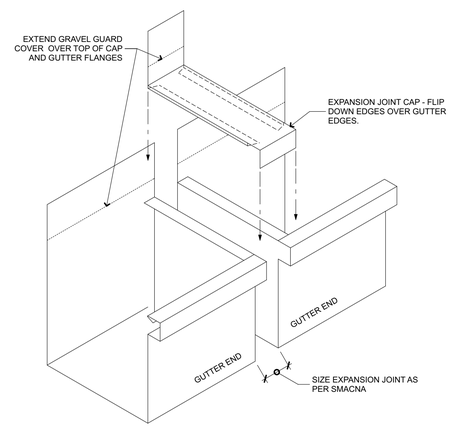
CONCRETE SPLASH-BLOCK (LANDSCAPED AREAS, ONLY)

5 DOWNSPOUTS & CONCRETE SPLASH-BLOCKS
N.T.S.

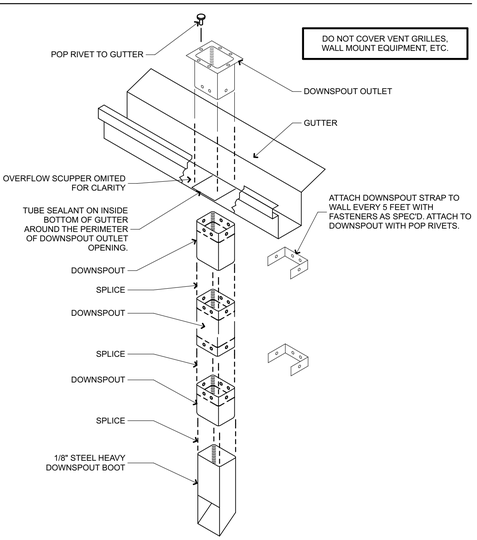


NEW WOOD NAILERS. NEW RIGID CONDUIT TO NEW J-BOX UNDER ROOF DECK SO THAT NEW WHIP CAN BE RAN TO RAISED CONDENSER UNIT. REFRIGERANT LINES CAN BE RAN INSIDE SAME PITCH PAN AND HOOD COVER.

6 ELECTRICAL / REFRIGERANT LINE HOOD
N.T.S.

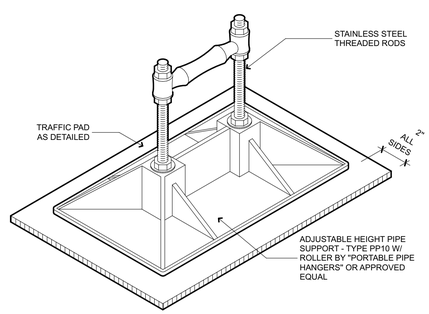


7 EXPANSION JOINT AT GUTTER (TYP.)
N.T.S.

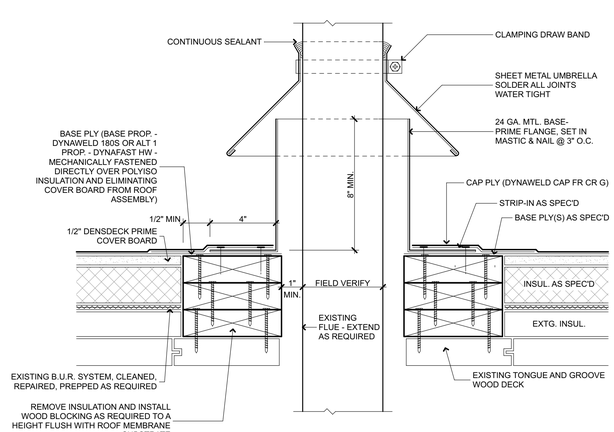


8 DOWNSPOUT CONSTRUCTION (@ SPLASH-BLOCKS)
N.T.S.

NOTES (TYP. TO ALL PIPE SUPPORTS):
1. PROVIDE ADJUSTABLE HEIGHT PIPE SUPPORTS FOR ALL ROOF UTILITY LINES - REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SPACING AND APPROPRIATE PIPE SUPPORT FOR SIZE OF PIPE
2. RAISE EXISTING GAS LINES, ELECTRICAL LINES, ETC. TO A MINIMUM HEIGHT OF 8-INCHES ABOVE NEW ROOF SYSTEM (EXCEPT CONDENSATION LINES)
3. PROVIDE POSITIVE SLOPE ALONG FULL LENGTH OF ALL CONDENSATION WATER LINES



9 PIPE SUPPORT
N.T.S.



10 HOT STACK
N.T.S.

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3/20/19

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ROOF REPLACEMENT AND REPAIRS
2017

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GENERAL DETAILS (MOD. BIT.)

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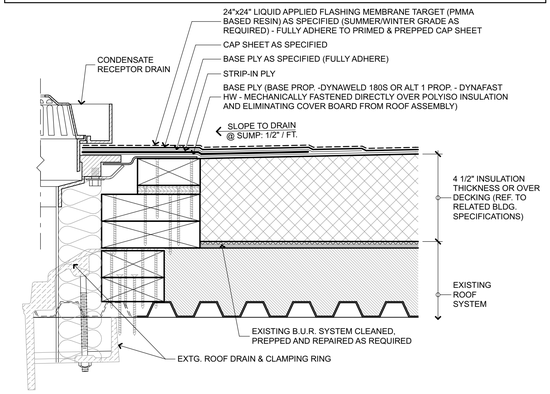
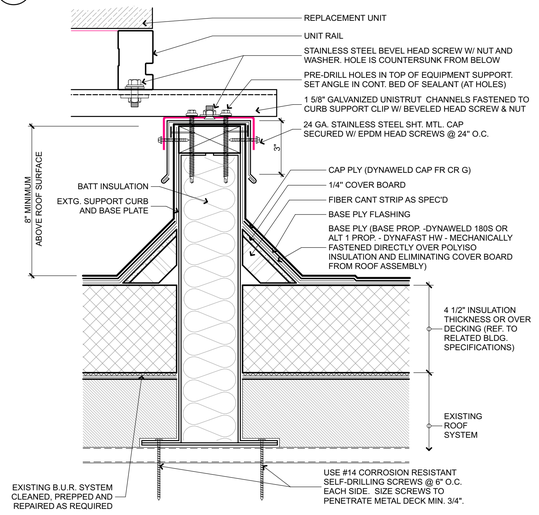
DATE:	3/20/19
SCALE:	SEE DRAWING
13 OF 29	SHEET: D0.1

NOTES (TYP. ALL ROOF DRAIN TYPES):

1. INSPECT EXISTING DRAIN COMPONENTS FOR DAMAGE. REPLACE DAMAGED COMPONENTS. FREE DRAIN LINE OF OBSTRUCTIONS AND TEST LINES TO INSURE THERE IS NO BLOCKAGE. TEST FOR LEAKS. REPAIR AND REFLASH AS NEEDED TO INSURE LEAK-FREE OPERATION.
2. IF DRAIN CAN NOT BE REPAIRED, REPLACE WITH NEW OF LIKE KIND.
3. SURFACE MEMBRANE AS SPECIFIED FOR BUILDING



1 CONDENSATE RECEPTOR DRAIN
3" = 1' - 0"



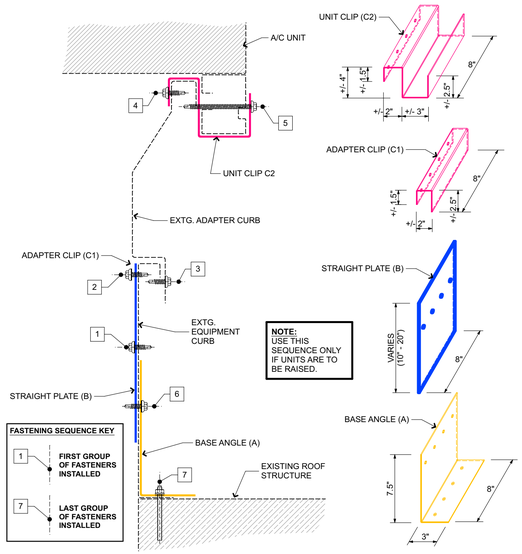
2 EXISTING EQUIPMENT SUPPORT
3" = 1' - 0"

INSTALLATION NOTES:

1. BASE ANGLE LOCATIONS ARE TO MATCH THE LOCATIONS OF THE CLIPS AND PLATES THAT SECURE THE AC UNIT / ADAPTER CURB TO THE EQUIPMENT CURBS TO PROVIDE A CONTINUOUS LOAD PATH.
2. CLIPS / PLATES / BASE ANGLES ARE TO BE INSTALLED ONLY ON THE LONG SIDES OF THE UNITS.
3. INSTALL THE EQUIPMENT SUPPORTS PARALLEL TO THE ROOF SLOPE, OR IF NOT POSSIBLE, PROVIDE CRICKETS TO DIRECT WATER AROUND THE SUPPORTS.

PRODUCT NOTES:

1. CLIP SIZES ARE FOR BIDDING PURPOSES ONLY. ACTUAL SIZES MUST BE COORDINATED WITH THE REPLACEMENT UNITS, THE NEW ADAPTER CURBS, EXISTING ADAPTER CURBS, THE EXISTING CURBS AND THE NEW PARTITIONED CURB EXTENSIONS. BID SPACINGS WILL BE VERIFIED BY STRUCTURAL ENGINEER, USING SUBMITTAL INFORMATION AND FINAL SPACINGS WILL BE ISSUED FOR INSTALLATION. OVERAGE OR CREDIT WILL BE CALCULATED BASED BASED ON SHOP DRAWINGS ADDITIONS OR REDUCTIONS TO THE QUANTITIES BID WILL BE CALCULATED BY UNIT PRICING INCLUDED IN THE PROPOSAL. THE COST OF ADDITIONAL QUANTITIES WILL BE PAID FOR WITH THE BETTERMENT ALLOWANCE. CREDITS TO THE OWNER FOR A REDUCTION IN QUANTITY WILL BE HANDLED BY CHANGE ORDER.
2. CLIP SPACINGS ARE FOR BIDDING PURPOSES ONLY. INSTALLATION SPACINGS WILL BE CALCULATED BASED ON THE SIZE AND WEIGHT OF THE ACTUAL EQUIPMENT USED, THE NEW ADAPTER CURBS, EXISTING ADAPTER CURBS, THE EXISTING CURBS AND THE NEW PARTITIONED CURB EXTENSIONS. BID SPACINGS WILL BE VERIFIED BY STRUCTURAL ENGINEER, USING SUBMITTAL INFORMATION AND FINAL SPACINGS WILL BE ISSUED FOR INSTALLATION. OVERAGE OR CREDIT WILL BE CALCULATED BASED BASED ON SHOP DRAWINGS ADDITIONS OR REDUCTIONS TO THE QUANTITIES BID WILL BE CALCULATED BY UNIT PRICING INCLUDED IN THE PROPOSAL. THE COST OF ADDITIONAL QUANTITIES WILL BE PAID FOR WITH THE BETTERMENT ALLOWANCE. CREDITS TO THE OWNER FOR A REDUCTION IN QUANTITY WILL BE HANDLED BY CHANGE ORDER.
3. IF MULTIPLE CURB ADAPTERS ARE USED, PROVIDE ADAPTER CLIPS FOR EACH ADAPTER, SPACED AS SCHEDULED.
4. CLIPS AND PLATES SHALL BE MANUFACTURED FROM 12GA. G-90 GALVANIZED STEEL PLATE, PRE-SHAPED AND PREPUNCHED FOR FASTENER LOCATIONS.

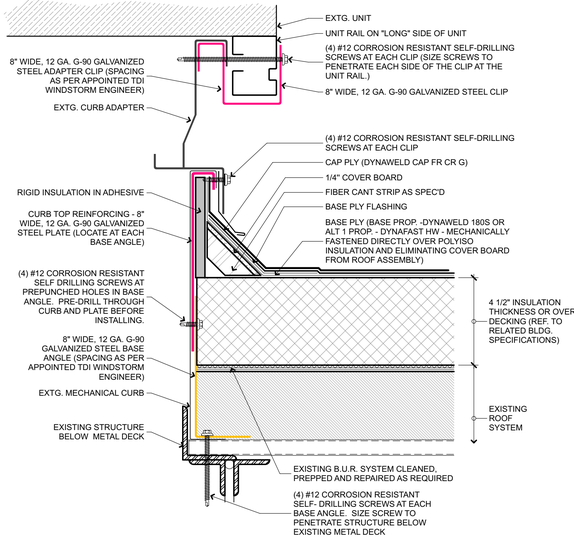


3 EQUIPMENT ATTACHMENT - UNIT TO ADAPTER CURB
3" = 1' - 0"

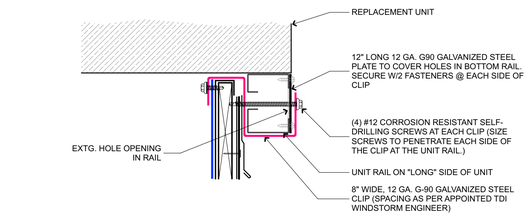
GENERAL NOTES:

1. CLIP QUANTITIES WILL BE DETERMINED BY DIVIDING THE CURB LENGTH (THE LENGTH OF THE LONGEST SIDE) BY THE MAX ALLOWABLE SPACING OF THE CLIPS (20") AND ROUNDING UP TO THE NEAREST WHOLE NUMBER. ROUNDING IS ALWAYS UP - NEVER DOWN. THIS WILL RESULT IN APPROPRIATE CLIP SPACINGS THAT WILL ALWAYS BE LESS THAN THE MAX ALLOWABLE.
2. EACH UNIT WILL RECEIVE CLIPS ON (2) SIDES - (THE LONGEST SIDES). THE # OF CLIPS LISTED IN THE TABLE BELOW IS FOR ONE SIDE ONLY. THE FIRST NUMBER IDENTIFIES THE # OF UNIT CLIPS REQUIRED FOR THE LISTED SPACING, WHILE THE SECOND NUMBER IDENTIFIES THE # OF ADAPTER CLIPS REQUIRED. FOR EXAMPLE, A LISTING OF 5/5 INDICATES FIVE (5) UNIT CLIPS PER SIDE, AND FIVE (5) ADAPTER CLIPS PER SIDE. PLEASE NOTE, IF THERE IS NO EXISTING ADAPTER CURB, THERE WILL BE NO ADAPTER CLIP COUNT. HOWEVER, IF NO ADAPTER IS CURRENTLY PRESENT, BUT WILL BE NEEDED TO PROPERLY ADAPT THE REPLACEMENT UNIT, ADAPTER CLIPS FOR THIS ADAPTER CURB MUST ALSO BE PROVIDED IN THE BASE BID. IF CLIP FASTENERS LAND OVER OPENINGS IN THE BOTTOM RAIL, INSTALL A 12GA CONTINUITY PLATE OVER THE HOLES AS PER DETAIL 9/D0.2 (THIS PAGE, RIGHT OF THIS NOTE).
3. STRAIGHT PLATES ARE INSTALLED TO PROVIDE LOAD PATH CONTINUITY FROM EITHER A UNIT CLIP OR ADAPTER CLIP, TO THE BASE ANGLE. THE QUANTITY AND LOCATION OF THE STRAIGHT PLATES IS TO MATCH THE QUANTITY AND LOCATION OF THE CLIPS.
4. EACH UNIT CURB WILL RECEIVE BASE ANGLES ON (2) SIDES - (THE LONGEST SIDES). THE # OF CLIPS LISTED IN THE TABLE BELOW IS FOR ONE SIDE ONLY. THE BASE ANGLE LOCATIONS ARE TO MATCH THE LOCATIONS OF THE CLIPS AND PLATES THAT SECURE THE AC UNIT / ADAPTER CURB TO THE EQUIPMENT CURBS.
5. REPAIR, PREP AND COLD GALVANIZE ALL CURB ADAPTER CORROSION. REPLACE ALL ADAPTER MOUNTED JUNCTION BOXES WITH NEW AND ALL CONDUITS TO AND FROM THE JUNCTION BOXES WITH NEW.
6. REROUTE ANY ELECTRICAL LINES, IF THEY ARE CURRENTLY RUNNING THROUGH CURB/CURB ADAPTERS AND RELOCATE THE TO RUN THROUGH ROOF PENETRATION TO FACILITATE INSTALLATION OF CURB REINFORCEMENT AND FLASHING.
7. INSTALL ADJUSTABLE PIPE SUPPORTS ON NEW TRAFFIC PADS, AS PER DETAIL 9/D0.1, OVER ALL MEP PIPES, CONDUITS, CONDENSATE LINES, ETC.

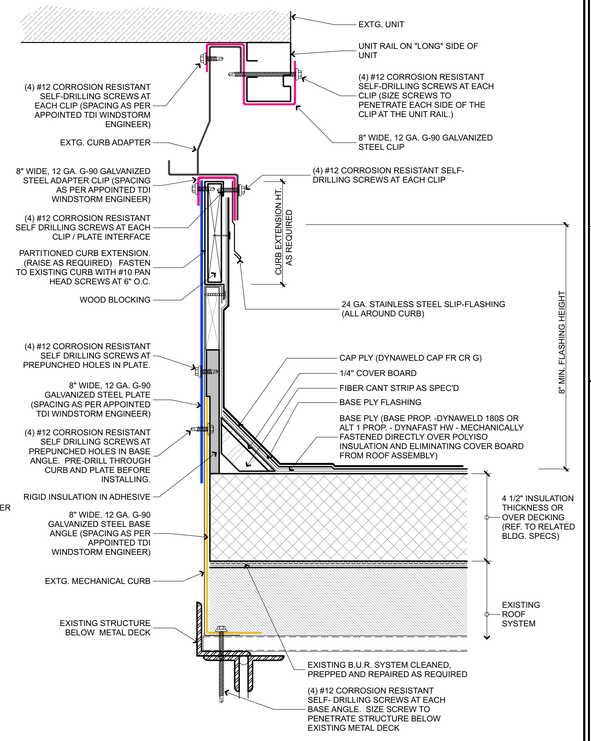
NOTE:
ALL CURBS MUST HAVE A MIN. FLASHING HEIGHT OF 8", FIELD-VERIFY ALL CURBS AND, IF ANY FINAL CURB HEIGHT MAY END UP UNDER 8", EITHER SECURE WRITTEN ACCEPTANCE FROM MEMBRANE MANUFACTURER AS ACCEPTABLE AND WARRANTABLE, OR RAISE IT ACCORDINGLY (RE.: DETAIL 5/D3). NO EXCEPTIONS.



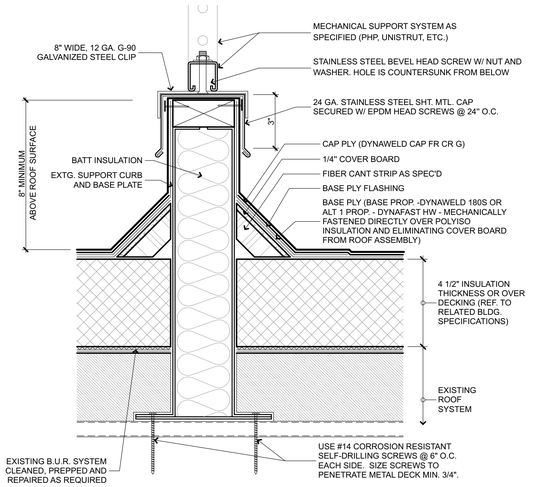
4 REINFORCED EXTG. CURB w/ADAPTER @ METAL DECK w/LWC
3" = 1' - 0"



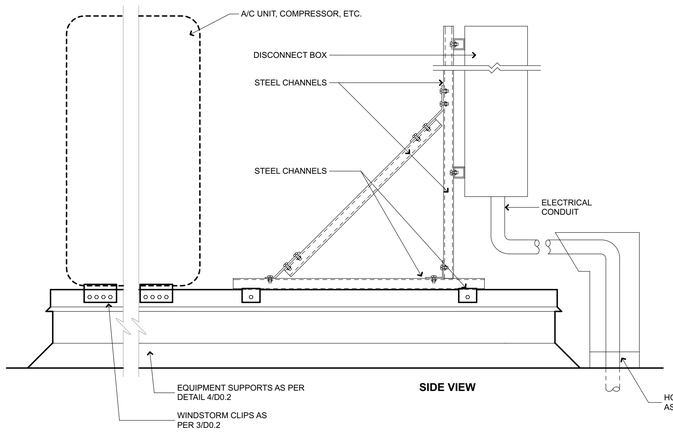
9 COVER PLATE OVER HOLES IN UNIT RAILS
3" = 1' - 0"



5 REINFORCED RAISED CURB w/ADAPTER @ METAL DECK w/LWC
3" = 1' - 0"

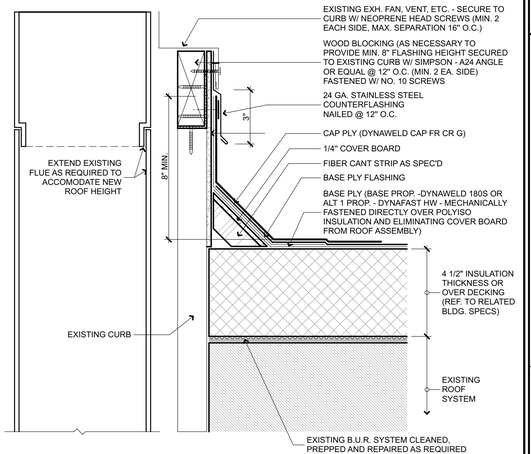


6 EXISTING EQUIPMENT SUPPORT
3" = 1' - 0"



7 ELECTRICAL BOX SUPPORT
NOT TO SCALE

NOTE: DO NOT CUT CORNERS ON EXISTING UNIT. IF CORNERS ARE CUT CONTRACTOR SHALL REPLACE UNIT (EXH. FAN, VENT, ETC.) W/ NEW UNIT TO MATCH EXISTING



8 MECHANICAL CURB
3" = 1' - 0"

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINS 23739 STATE OF TEXAS
3/20/19

TEXAS SOUTHMOST COLLEGE
ROOF REPLACEMENT AND REPAIRS
2017

AMTECH SOLUTIONS
1600 N. JACKSON RD. STE #3
PHARR, TEXAS 78577
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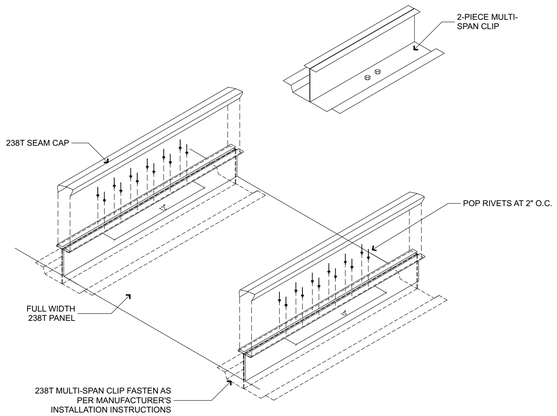
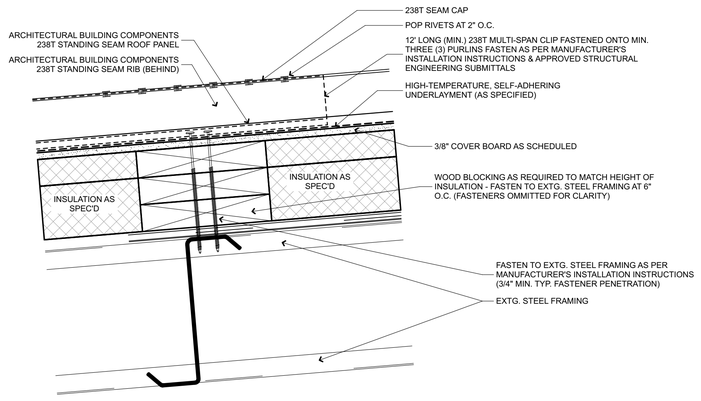
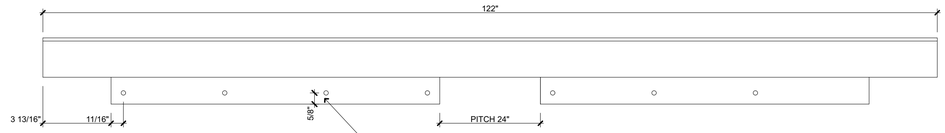
GENERAL DETAILS (MOD. BIT.)	
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
14 OF 29	SHEET: D0.2

NOTE (ALL DETAILS):
1. INSTALL ALL FASTENERS AS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS (REFER TO APPROVED SHOP DRAWINGS/SUBMITTALS). FASTENERS SHOWN ARE A REPRESENTATION OF WHAT MAY BE REQUIRED.
2. FASTENERS REQUIRED TO SECURE WOOD BLOCKING HAVE BEEN OMITTED FOR CLARITY.

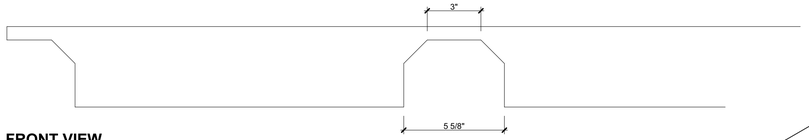




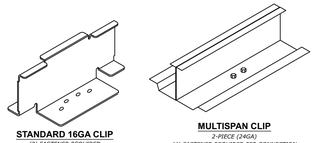
1 PANEL FIXITY
N.T.S.



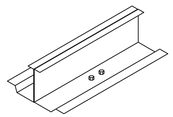
PLAN VIEW



FRONT VIEW



STANDARD 16GA CLIP
(1) FASTENER REQUIRED PER CONNECTION MIN.



MULTISPAN CLIP
2-PIECE (24GA)
(4) FASTENER REQUIRED PER CONNECTION (2 PER SIDE)

NOTE (ALL DETAILS):
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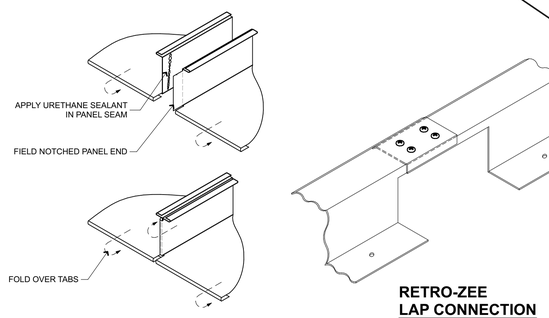
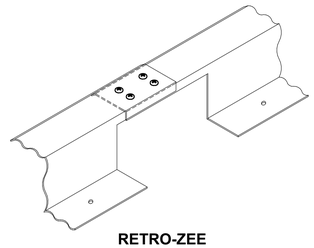
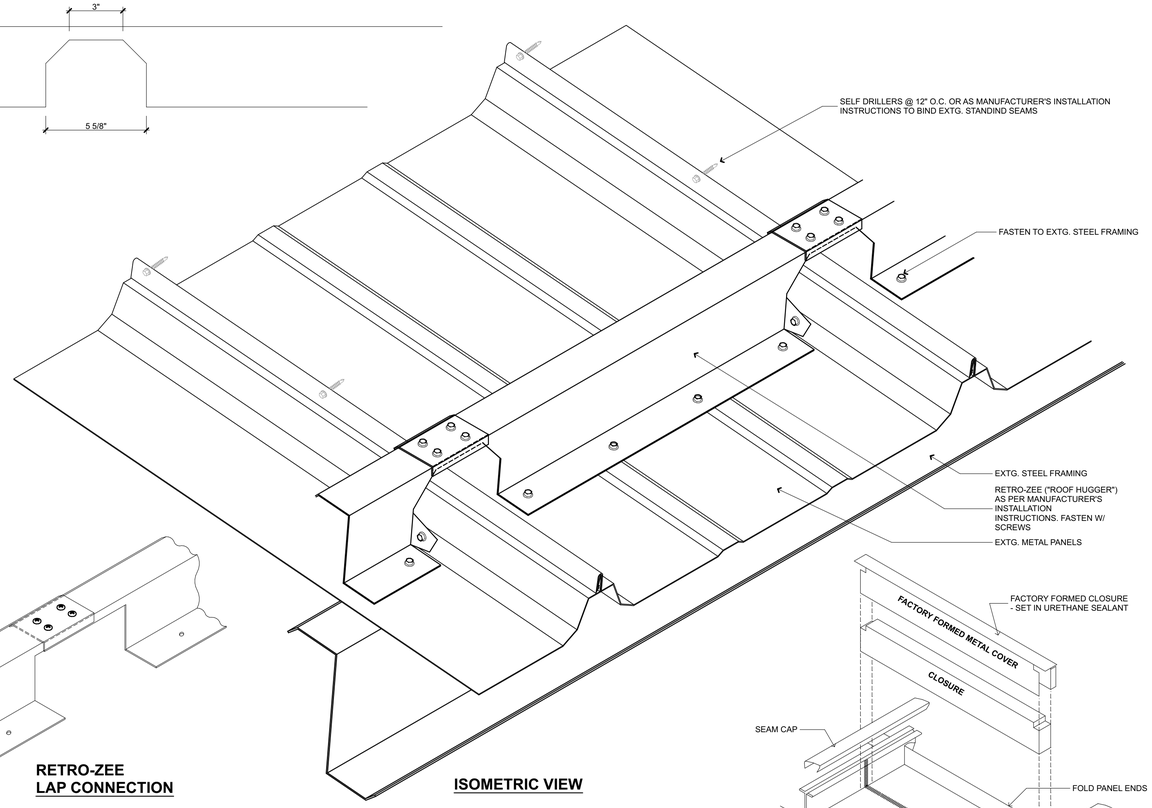
2. SOME FASTENERS REQUIRED TO SECURE WOOD BLOCKING HAVE BEEN OMITTED FOR CLARITY.



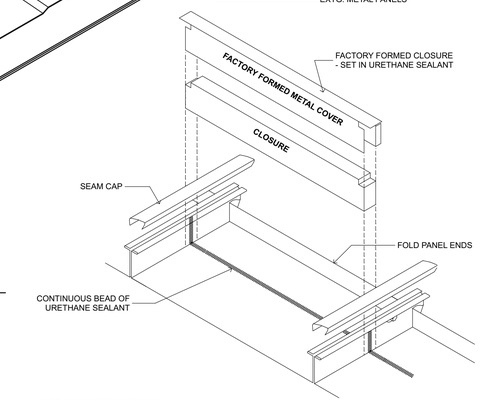
RETRO-ZEE LAP CONNECTION

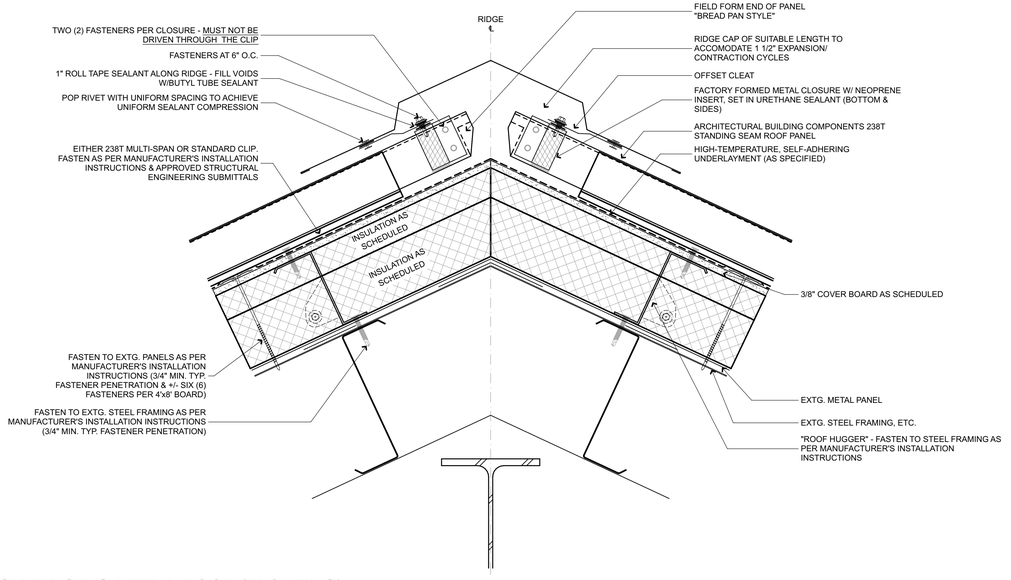




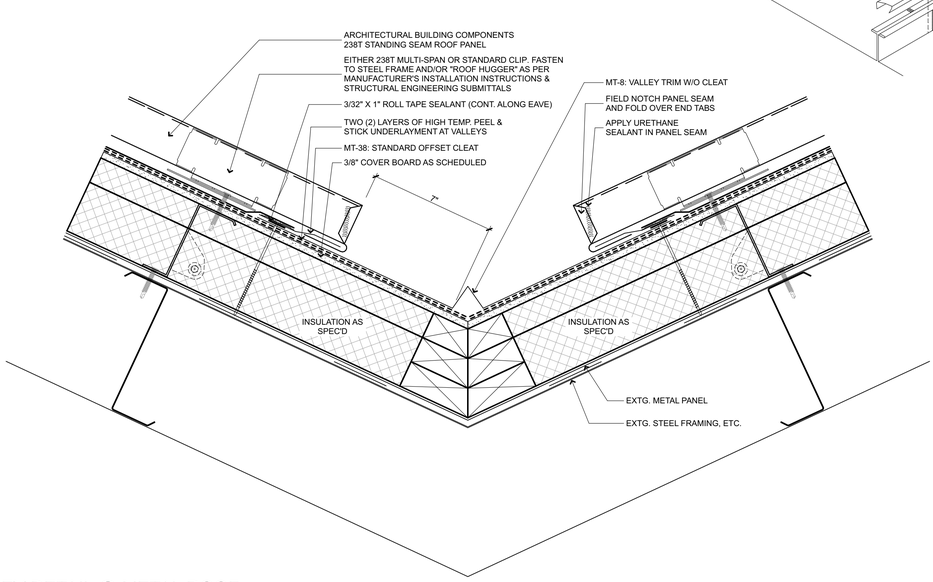
ISOMETRIC VIEW

2 RETRO-ZEE ("ROOF HUGGER") PURLIN ATTACHMENT
N.T.S.





3 HIGH RIDGE @ METAL ROOF (FLOATING)
3" = 1' - 0"



4 VALLEY DETAIL @ METAL ROOF
3" = 1' - 0"

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINS 23139 STATE OF TEXAS
3/20/19

TEXAS SOUTHMOST COLLEGE
ROOF REPLACEMENT AND REPAIRS
2017

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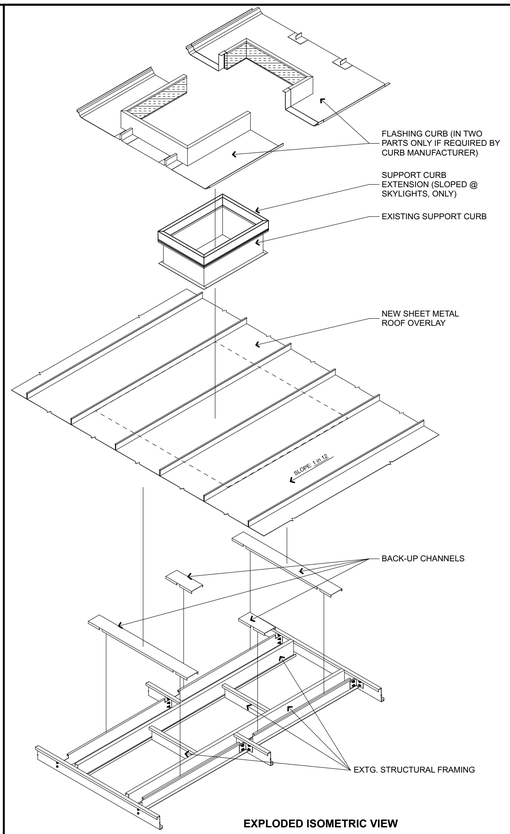
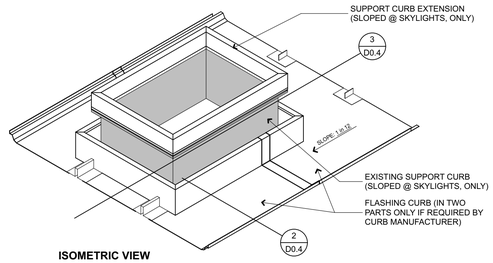
GENERAL DETAILS (METAL)

DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE:	3/20/19
SCALE:	SEE DRAWING
SHEET:	15 OF 29
	D0.3

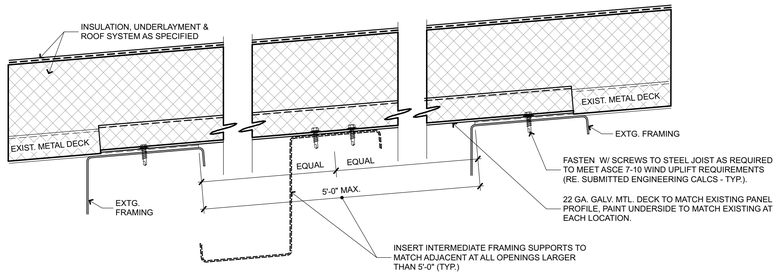


EXPLODED ISOMETRIC VIEW



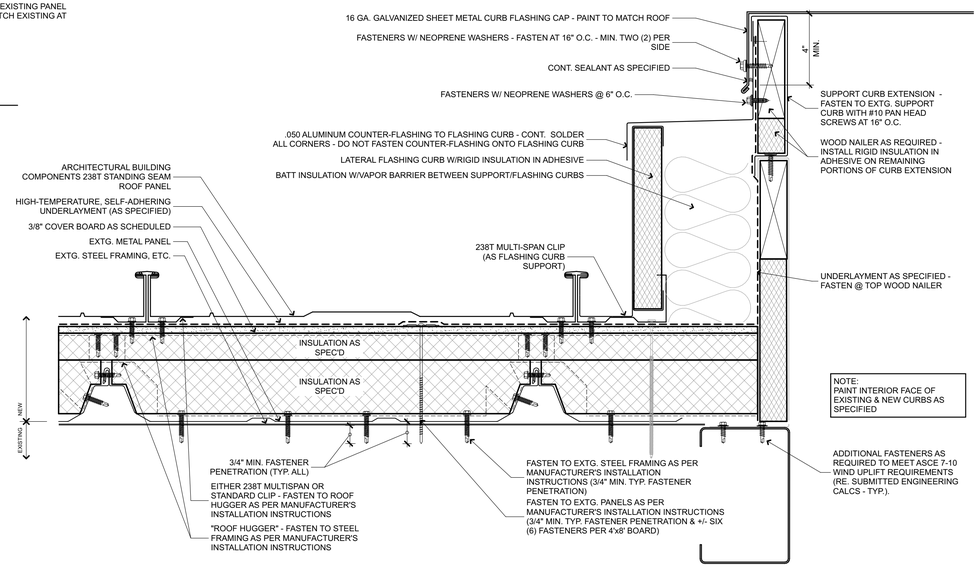
ISOMETRIC VIEW

1 FLASHING CURB @ METAL ROOF
N.T.S.



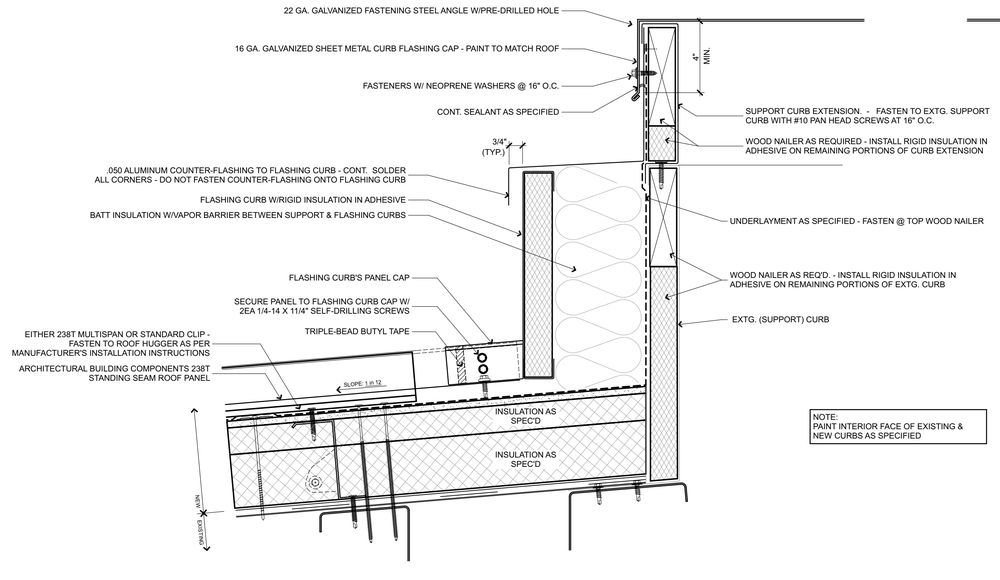
1A DECK REPAIR
3" = 1' - 0"

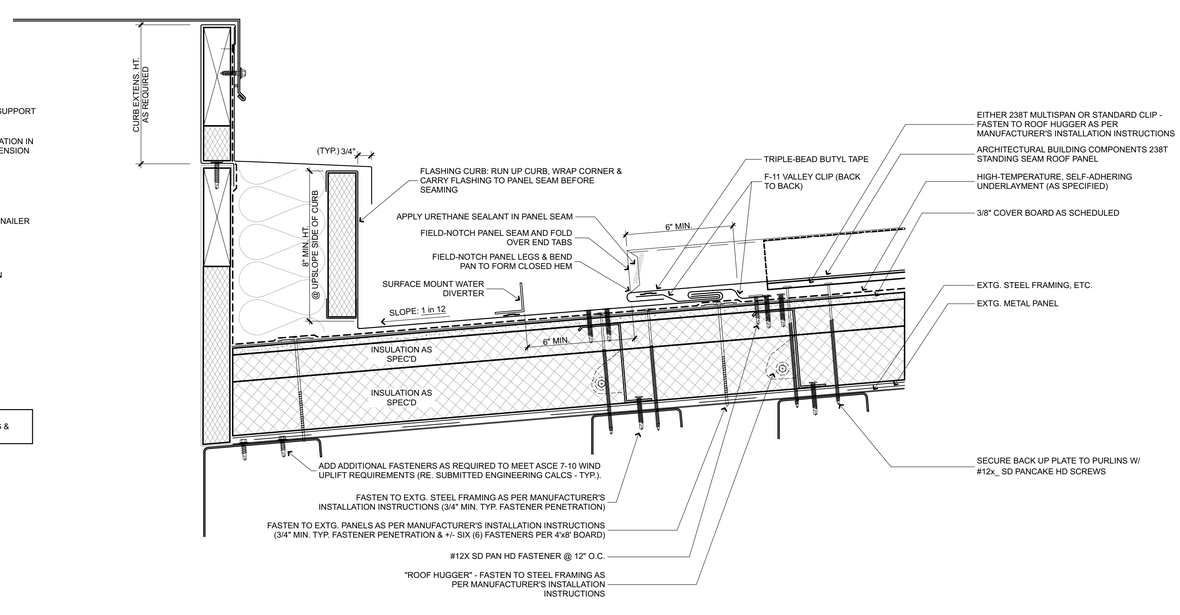
NOTE (ALL DETAILS):
1. INSTALL ALL FASTENERS AS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS (REFER TO APPROVED SHOP DRAWINGS/SUBMITTALS). FASTENERS SHOWN ARE A REPRESENTATION OF WHAT MAY BE REQUIRED.
2. FASTENERS REQUIRED TO SECURE WOOD BLOCKING HAVE BEEN OMITTED FOR CLARITY.



2 MECHANICAL FLASHING CURB @ METAL ROOF (SIDE)
3" = 1' - 0"

NOTE:
1. INSTALL ALL FASTENERS AS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS (REFER TO APPROVED SHOP DRAWINGS/SUBMITTALS). FASTENERS SHOWN ARE A REPRESENTATION OF WHAT MAY BE REQUIRED.
2. SOME FASTENERS REQUIRED TO SECURE WOOD BLOCKING HAVE BEEN OMITTED FOR CLARITY.





3 MECHANICAL FLASHING CURB @ METAL ROOF (UP & DOWN SLOPE)
3" = 1' - 0"

ISSUED FOR:	
SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINS 23139 STATE OF TEXAS
3/20/19

TEXAS SOUTHMOST COLLEGE
ROOF REPLACEMENT AND REPAIRS
2017

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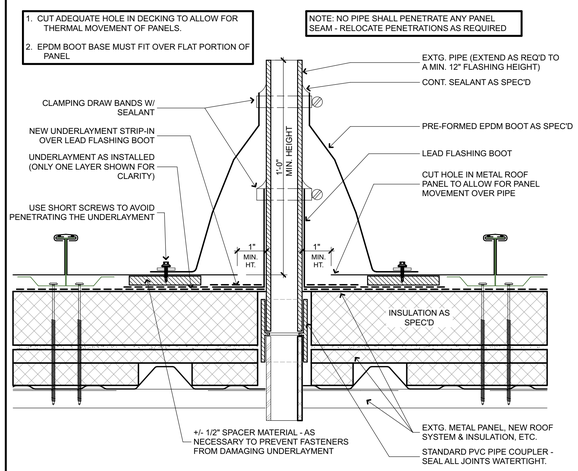
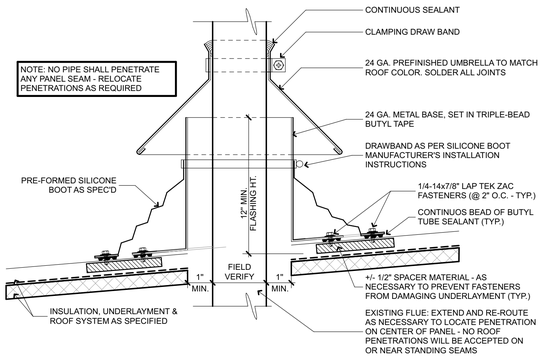
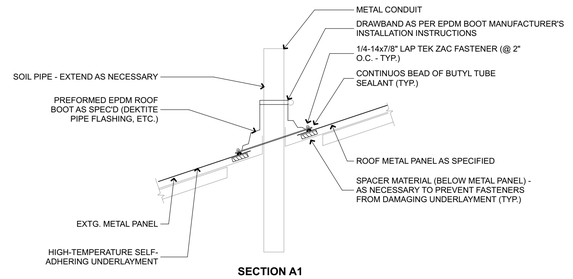
GENERAL DETAILS (METAL)	
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE:	3/20/19
SCALE:	SEE DRAWING
SHEET:	16 OF 29 — D0.4



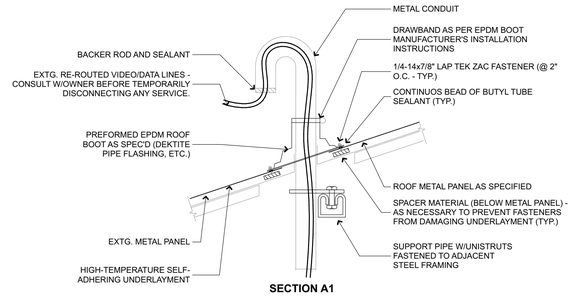
1 PIPE PENETRATION @ METAL ROOF
3" = 1' - 0"



2 HOT STACK @ METAL ROOF
3" = 1' - 0"



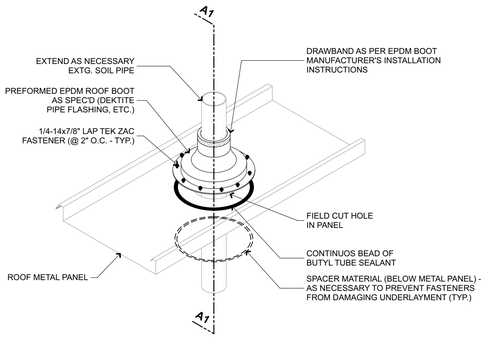
SECTION A1

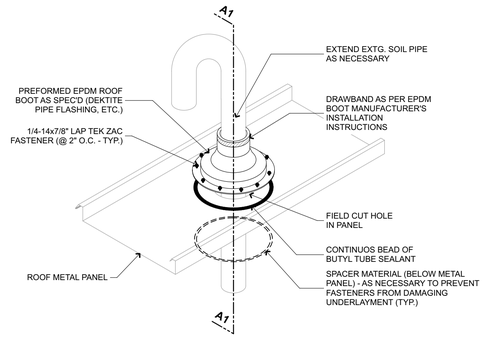


SECTION A1

3 PIPE PENETRATION @ METAL ROOF
N.T.S.

1. CUT ADEQUATE HOLE IN DECKING TO ALLOW FOR THERMAL MOVEMENT OF PANELS.
2. EPDM BOOT BASE MUST FIT OVER FLAT PORTION OF PANEL





4 WIRING PENETRATION @ METAL ROOF
N.T.S.

ISSUED FOR:	
SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
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REGISTERED ARCHITECT ALLEN L. HIGGINS 23139 STATE OF TEXAS
3/20/19

TEXAS SOUTHMOST COLLEGE
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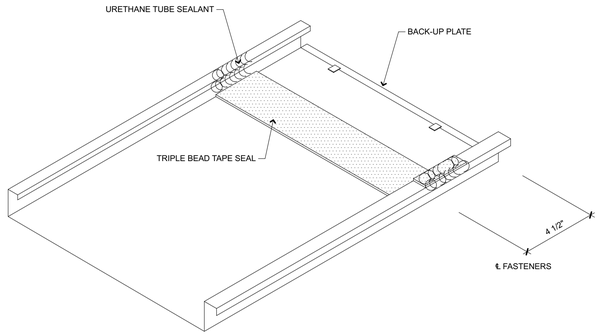
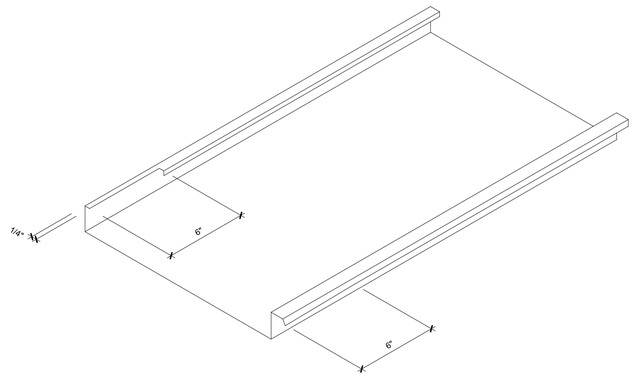
GENERAL DETAILS (METAL)	
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
17 OF 29	SHEET: D0.5



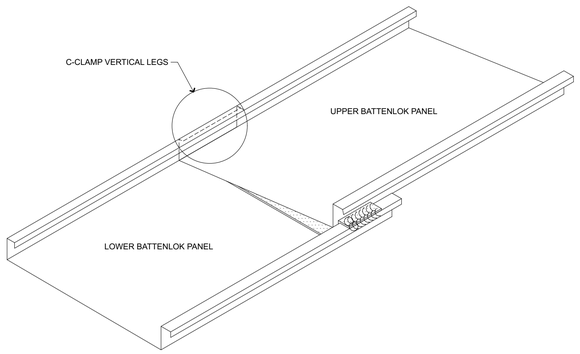
A. INSTALL BACK-UP PLATE ON LOWER PANEL
B. INSTALL TRIPLE BEAD TAPE AS SHOWN ON TO LOWER PANEL
C. INSTALL URETHANE SEALANT AS SHOWN

1 LOWER BATTENLOK PANEL
N.T.S.



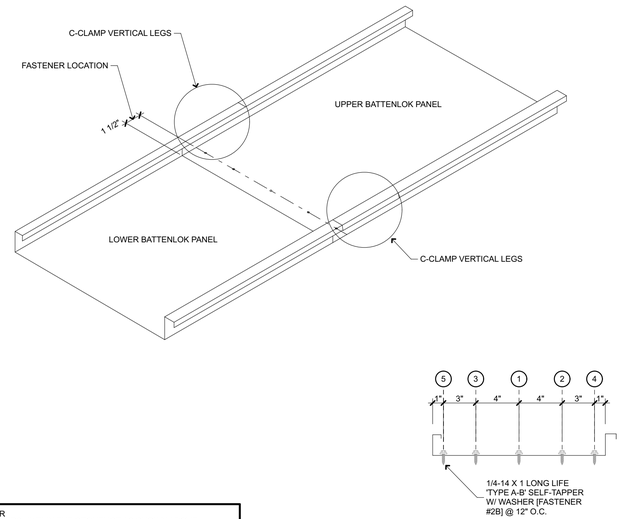
A. FIELD CUT MALE LEG 6"
B. FIELD OPEN FEMALE LEG 6" TO ALLOW PANEL LAP TO ENGAGE

2 UPPER BATTENLOK PANEL
N.T.S.



A. C-CLAMP BOTH VERTICAL MALE LEGS TOGETHER PRIOR TO ROTATING UPPER PANEL INTO PLACE

3 UPPER AND LOWER BATTENLOK PANEL
N.T.S.



A. C-CLAMP BOTH FEMALE LEGS TOGETHER
B. INSTALL 1/4-14 X 1 1/4" LONG LIFE FASTENERS (#1E) IN THE SEQUENCE AS SHOWN ABOVE

4 UPPER AND LOWER BATTENLOK PANEL
N.T.S.

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT
ALLEN L. HIGGINS
23139
STATE OF TEXAS
3/20/19

TEXAS SOUTHMOST COLLEGE
ROOF REPLACEMENT AND REPAIRS
2017

AMTECH SOLUTIONS
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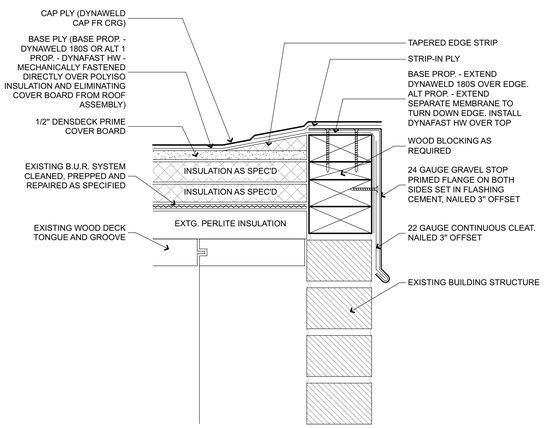
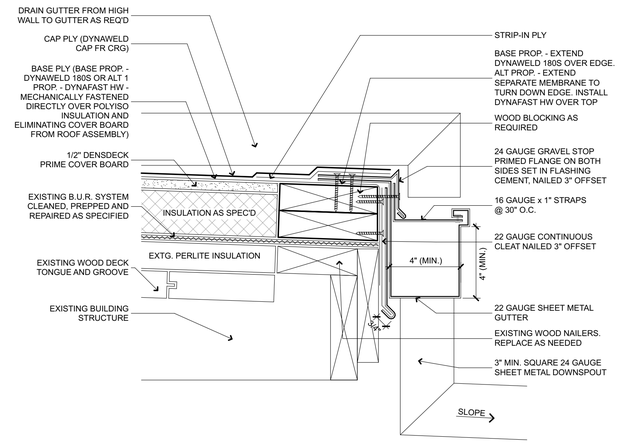
END LAP REPAIR

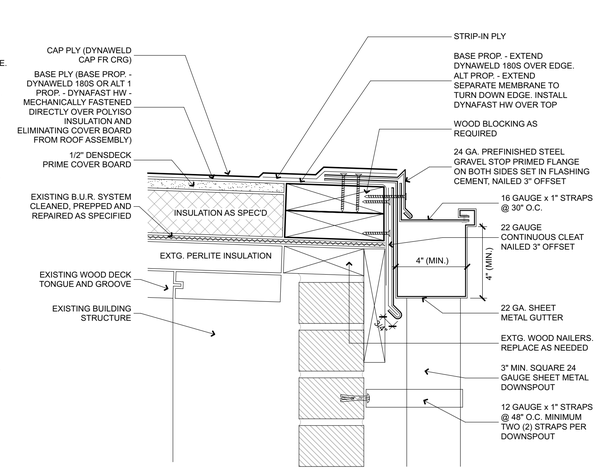
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE:	3/20/19
SCALE:	SEE DRAWING
	18 OF 29
SHEET:	D0.6



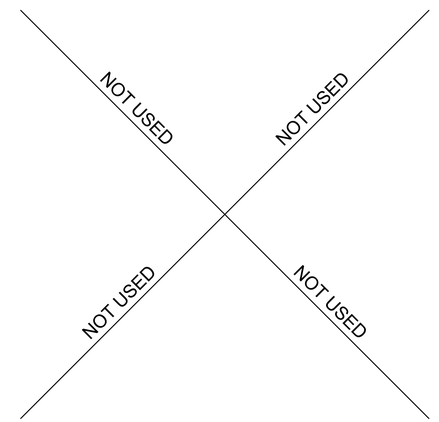
1 RAKE/GRAVEL STOP CONDITION
N.T.S.



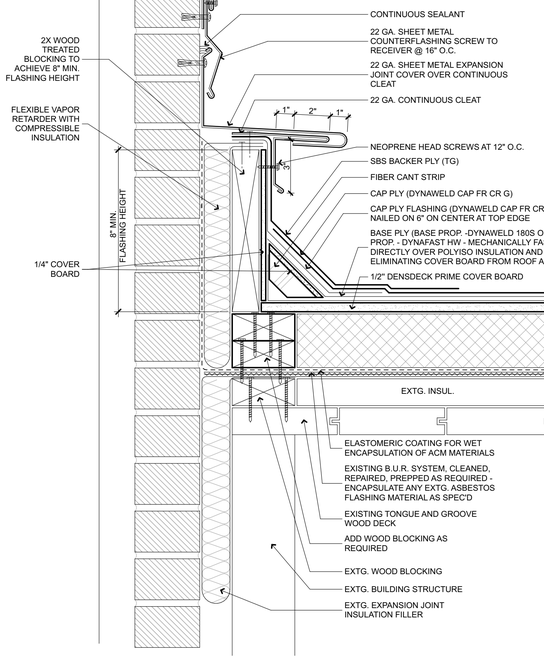
2 GUTTER EDGE CONDITION AT OVERHANG
N.T.S.



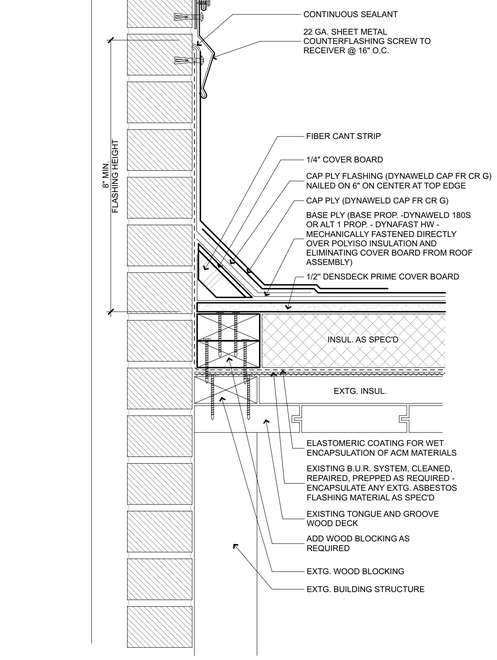
3 GUTTER EDGE CONDITION AT BRICK EXTERIOR
N.T.S.



4 NOT USED



5 EXPANSION JOINT (ROOF TO BRICK WALL)
N.T.S.



6 RISE WALL FLASHING
N.T.S.

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINS 23739 STATE OF TEXAS

3/20/19

TEXAS SOUTHMOST COLLEGE

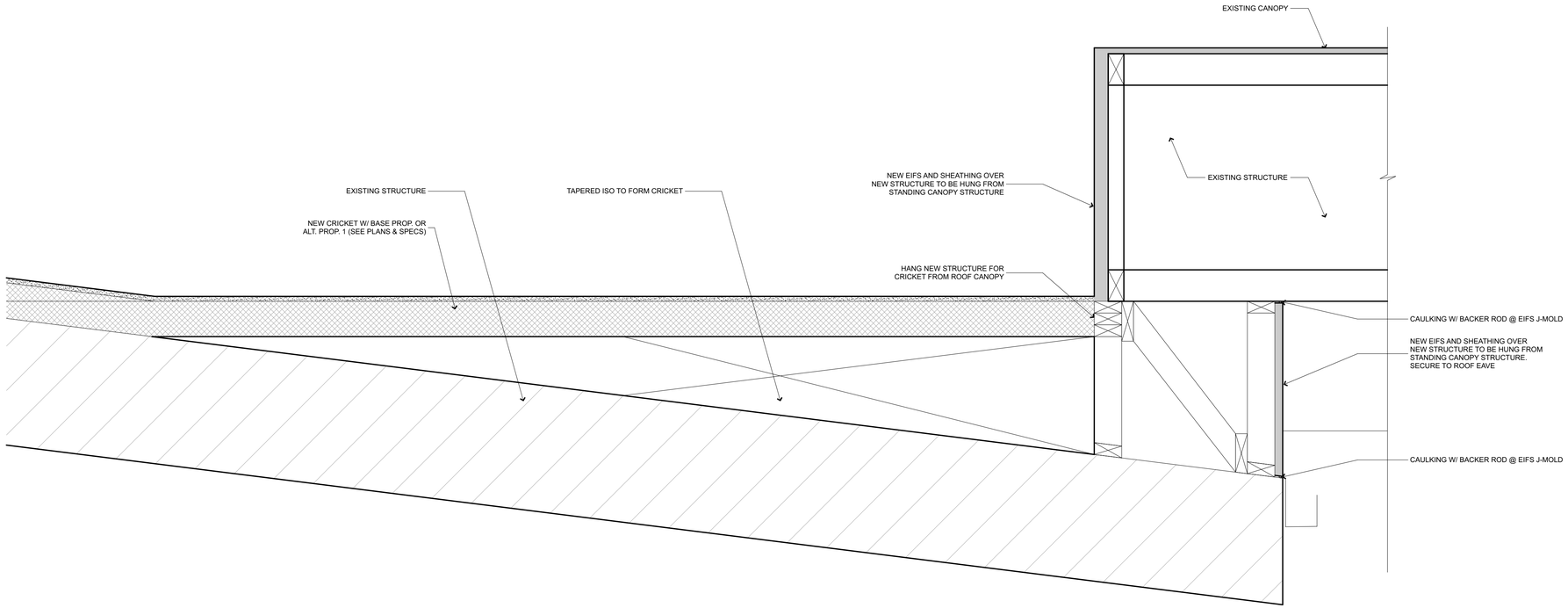
ROOF REPLACEMENT AND REPAIRS

2017

AMTECH SOLUTIONS
1600 N. JACKSON RD. STE #3
PHARR, TEXAS 78577
T 956.686.3095 F 956.686.2233

FORT BROWN

DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
19 OF 29	SHEET: D1.1



1 DETAIL @ ROOF AREA A5 & ROOF AREA F
1 1/2" = 1'-0"

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINBOTHAM 23739 STATE OF TEXAS

3/20/19

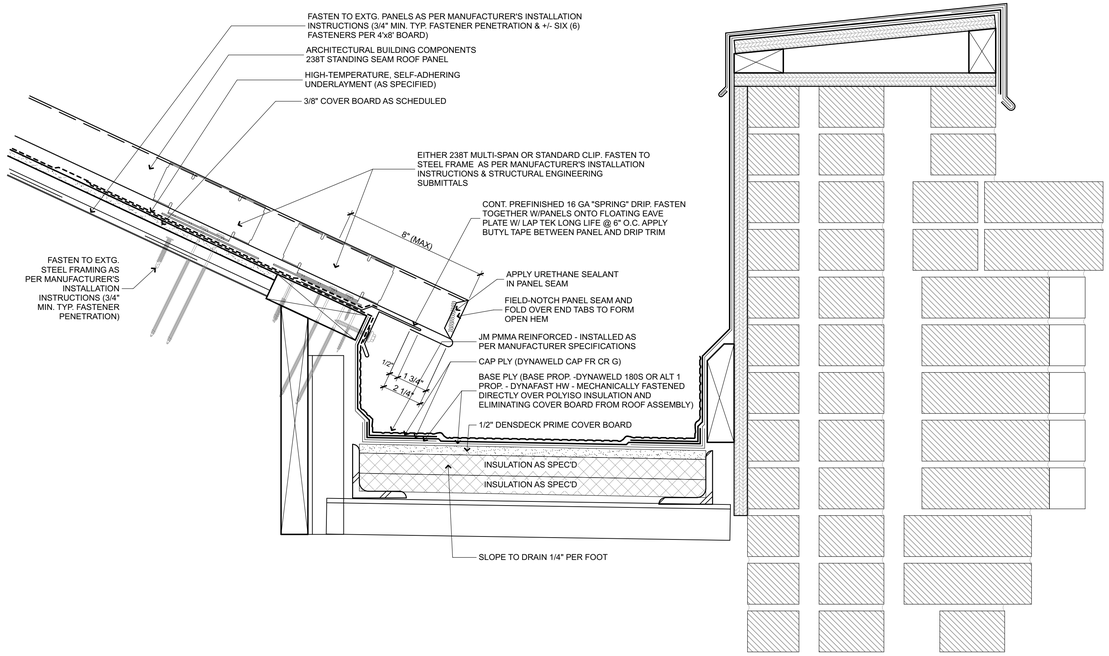
TEXAS SOUTHMOST COLLEGE

ROOF REPLACEMENT AND REPAIRS

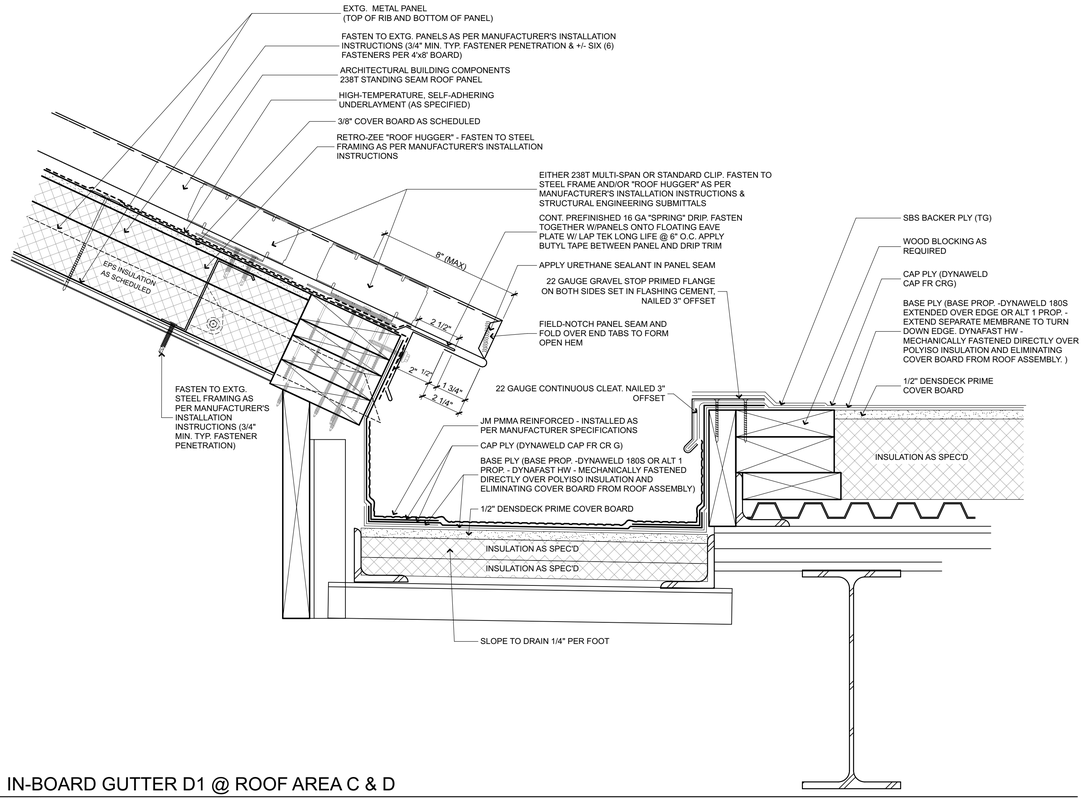
2017

AMTECH SOLUTIONS
1600 N. JACKSON RD. STE #3
PHARR, TEXAS 78577
T 956.686.3095 F 956.686.2233

FORT BROWN	
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
20 OF 29	SHEET: D1.2



1 IN-BOARD GUTTER A1 @ ROOF AREA A
3" = 1' - 0"



2 IN-BOARD GUTTER D1 @ ROOF AREA C & D
3" = 1' - 0"

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

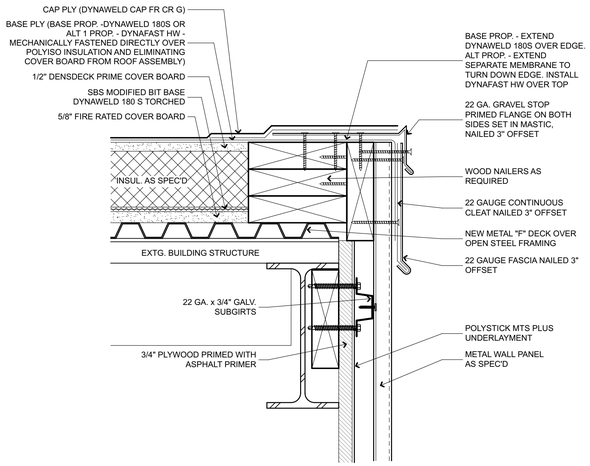
REGISTERED ARCHITECT ALLEN L. HIGGINS 23739 STATE OF TEXAS
3/20/19

TEXAS SOUTHMOST COLLEGE
ROOF REPLACEMENT AND REPAIRS
2017

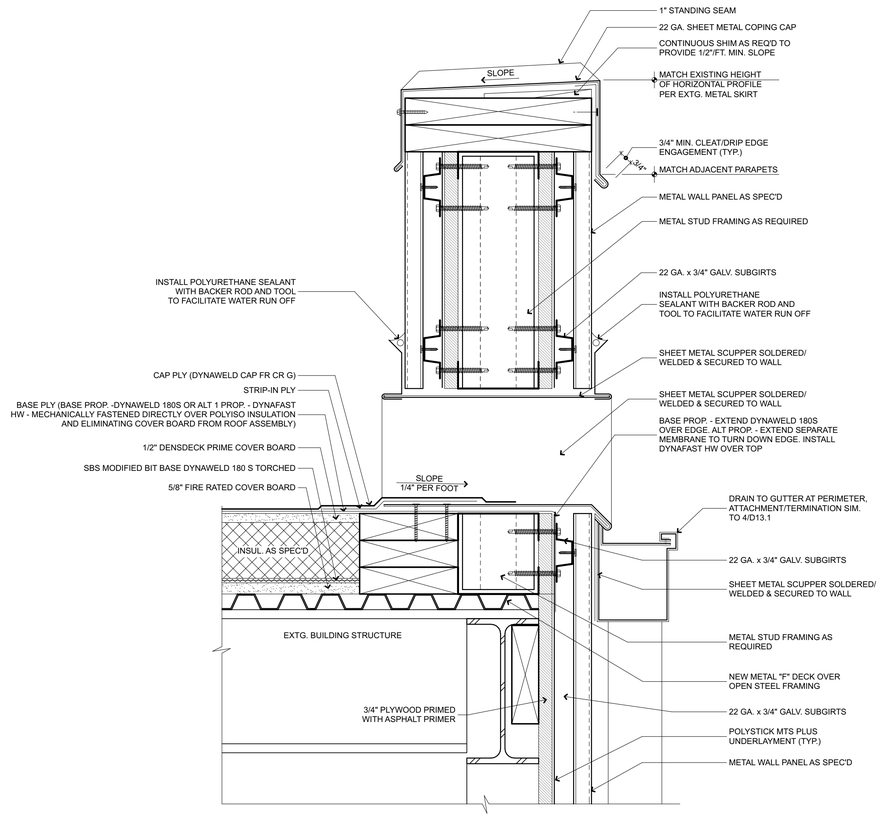
AMTECH SOLUTIONS
1600 N. JACKSON RD. STE #3
PHARR, TEXAS 78577
T 956.686.3095 F 956.686.2233

OLIVEIRA STUDENT SERVICES

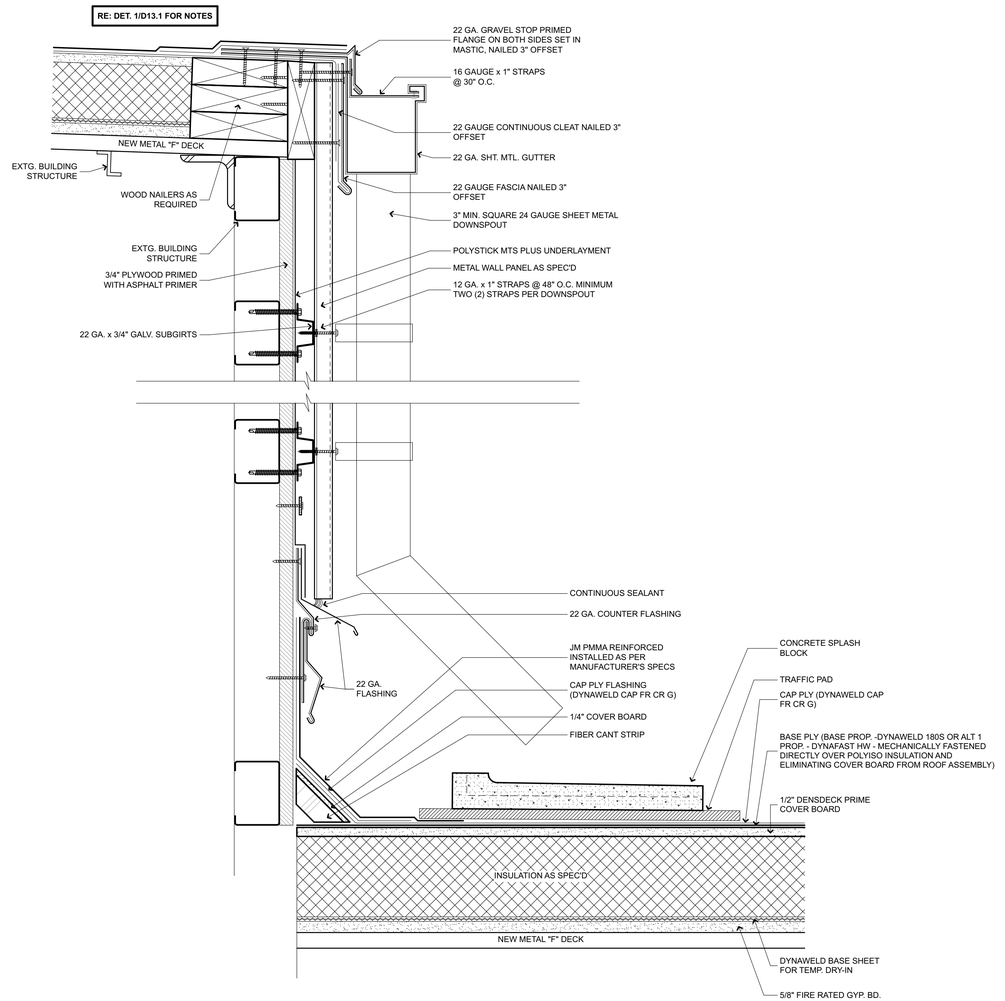
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
21 OF 29	SHEET: D10.1



1 EDGE CONDITION AT BRICK EXTERIOR (BASE PROP.)
N.T.S.



2 PARAPET/THROUGH WALL SCUPPER (ALT. 1 PROPOSAL)
N.T.S.



3 DOWNSPOUT FROM ROOF AREA "A" TO AREA "B" (BASE PROPOSAL)
N.T.S.

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINS 23739 STATE OF TEXAS

3/20/19

TEXAS SOUTHMOST COLLEGE

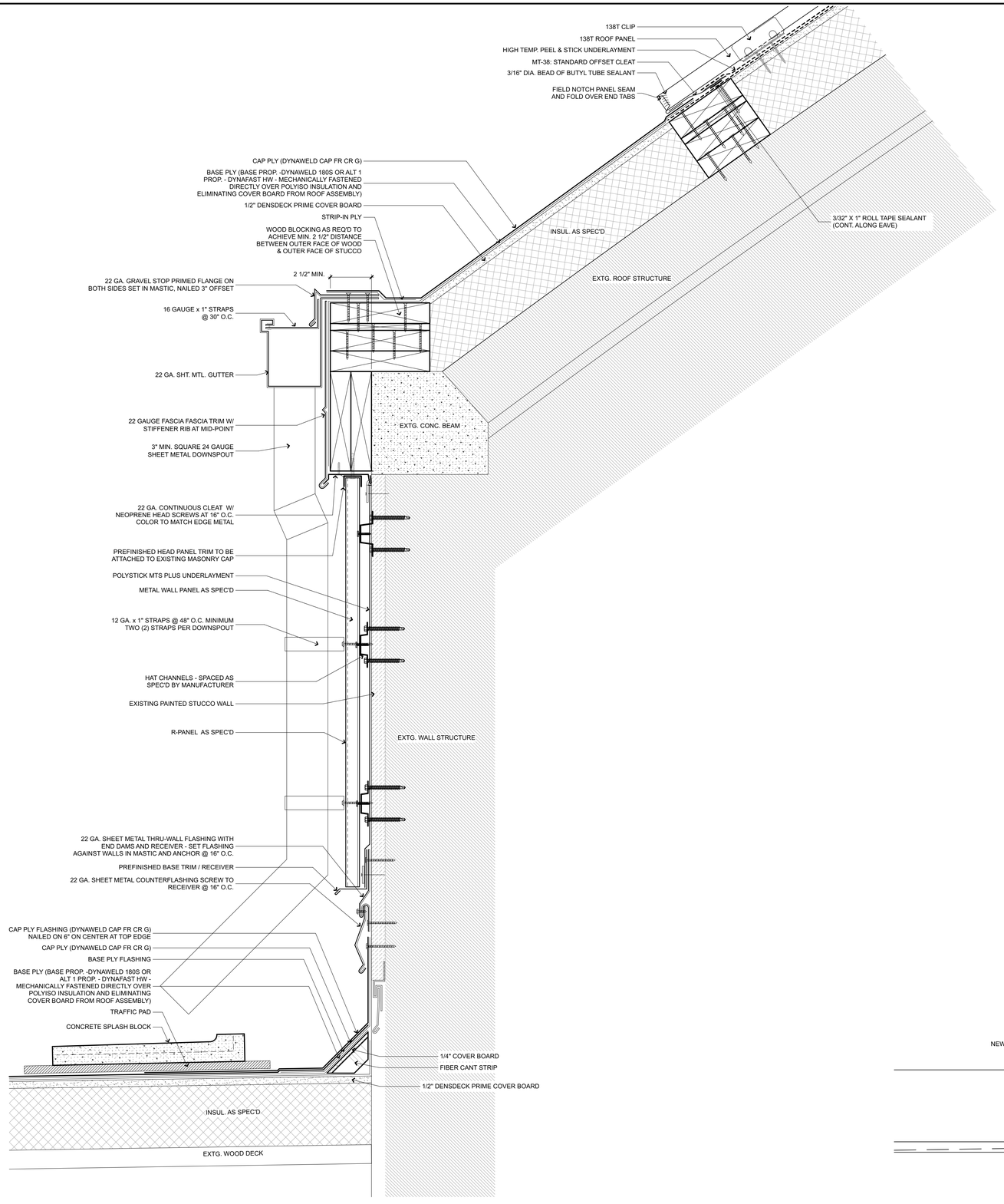
ROOF REPLACEMENT AND REPAIRS

2017

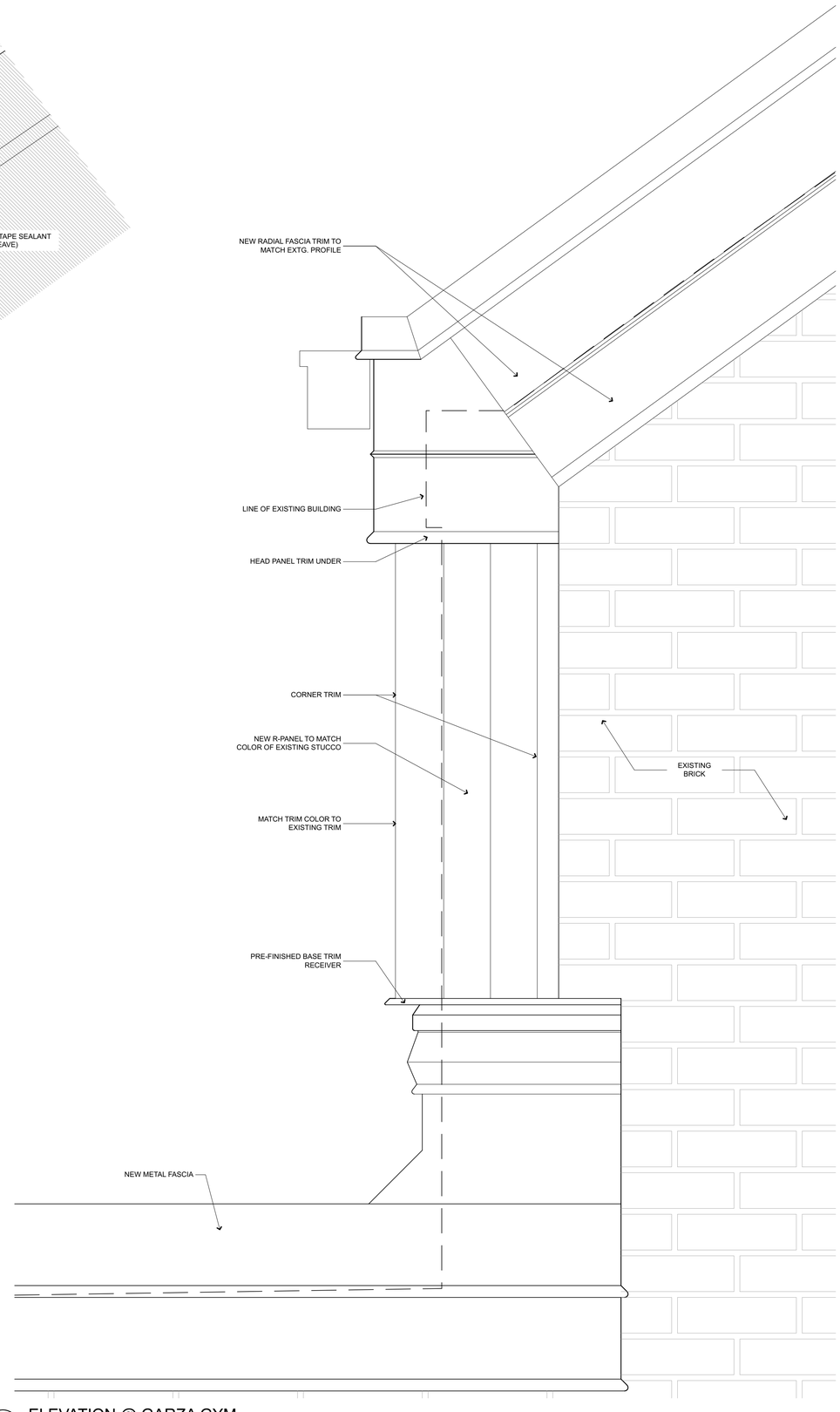
AMTECH SOLUTIONS
1600 N. JACKSON RD. STE #3
PHARR, TEXAS 78577
T: 956.686.3095 F: 956.686.2233

MUSIC BUILDING

DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
22 OF 29	SHEET: D13.1



1 DOWNSPOUT FROM ROOF AREA "B" TO LOWER ROOF AREAS
N.T.S.



2 ELEVATION @ GARZA GYM
N.T.S.

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINS 23139 STATE OF TEXAS
3/20/19

TEXAS SOUTHMOST COLLEGE
ROOF REPLACEMENT AND REPAIRS
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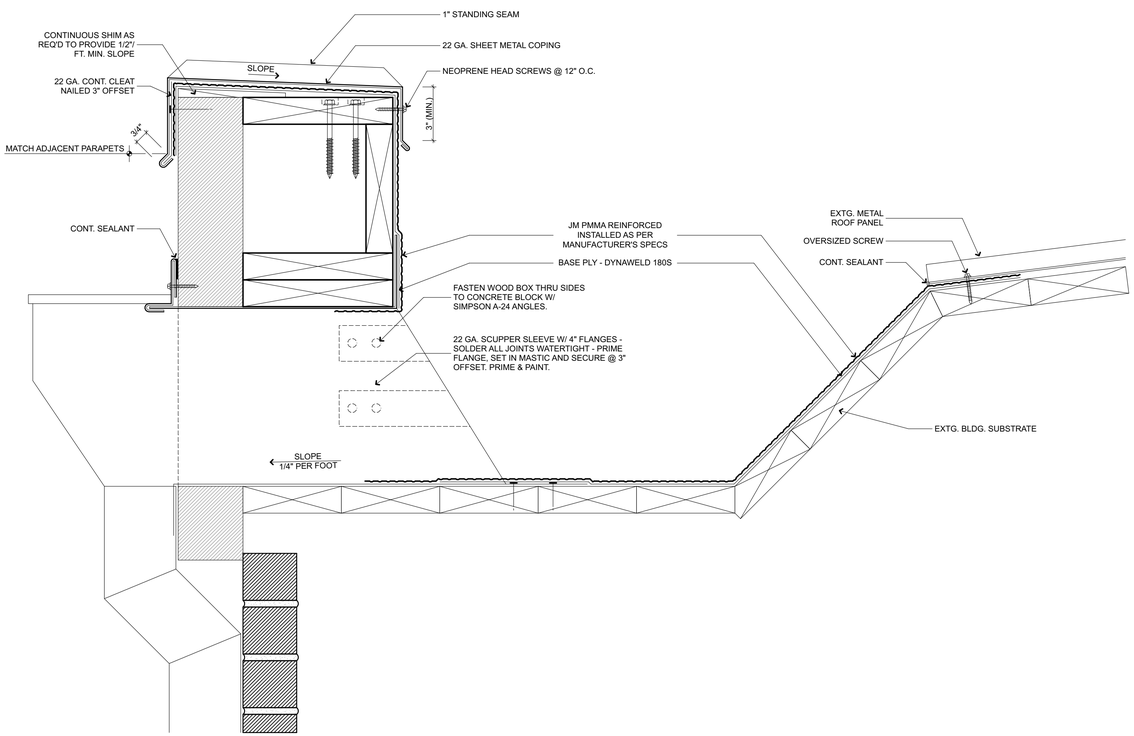
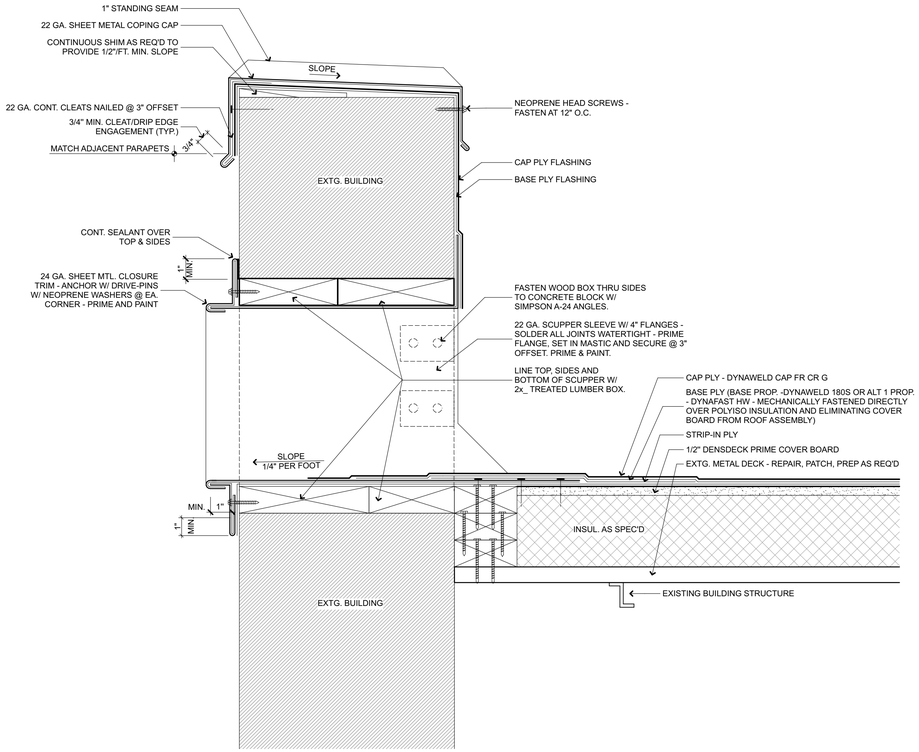
GARZA GYM

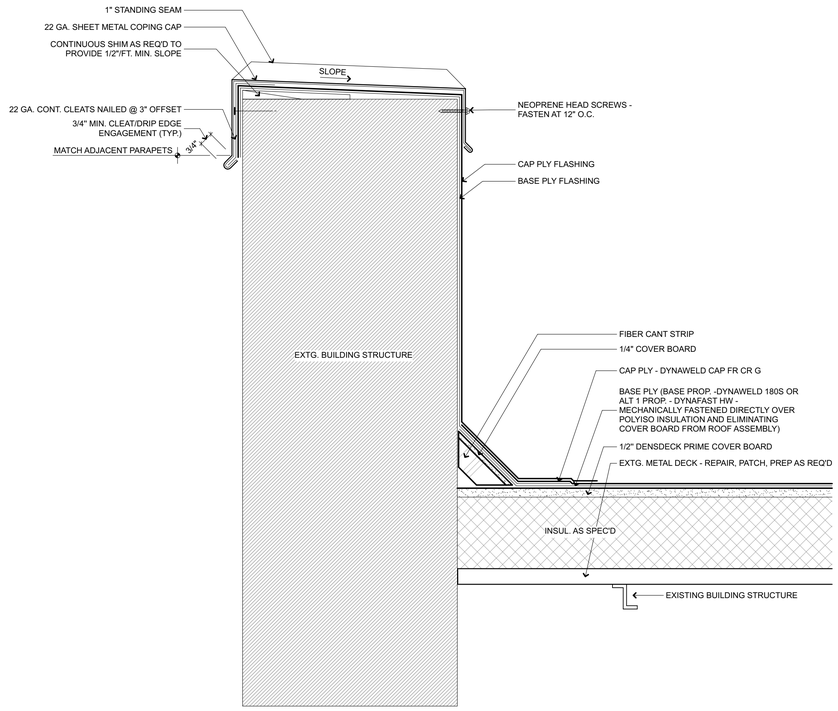
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE:	3/20/19
SCALE:	SEE DRAWING
	23 OF 29
SHEET:	D17.1



1 SCUPPER @ ROOF AREA "A1"
N.T.S.



2 SCUPPER @ ROOF AREA "B"
N.T.S.



3 PARAPET WALL @ ROOF AREA "B"
N.T.S.

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINS 23739 STATE OF TEXAS

3/20/19

TEXAS SOUTHMOST COLLEGE

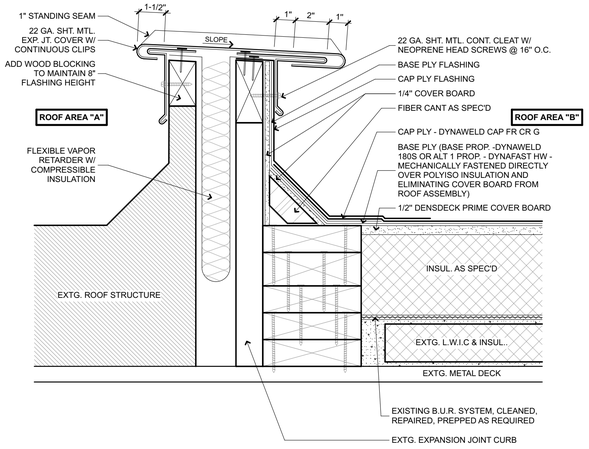
ROOF REPLACEMENT AND REPAIRS

2017

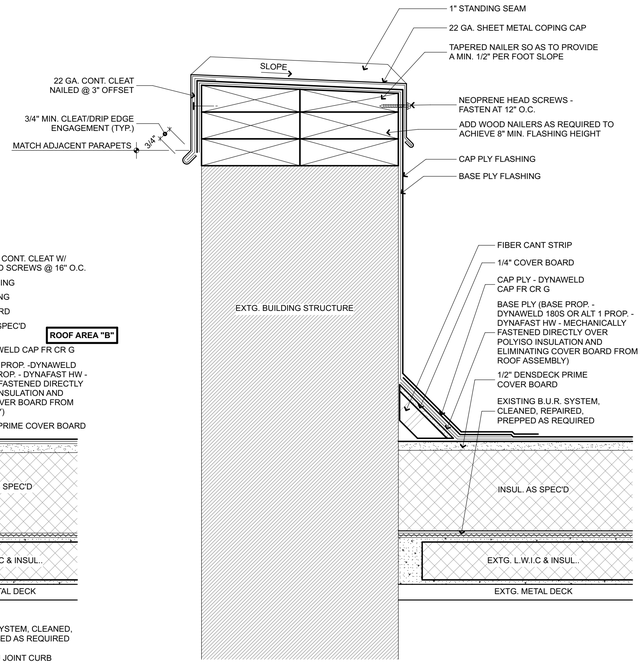
AMTECH SOLUTIONS
1600 N. JACKSON RD. STE #3
PHARR, TEXAS 78577
T 956.686.3095 F 956.686.2233

GUERRA EARLY CHILDHOOD CENTER

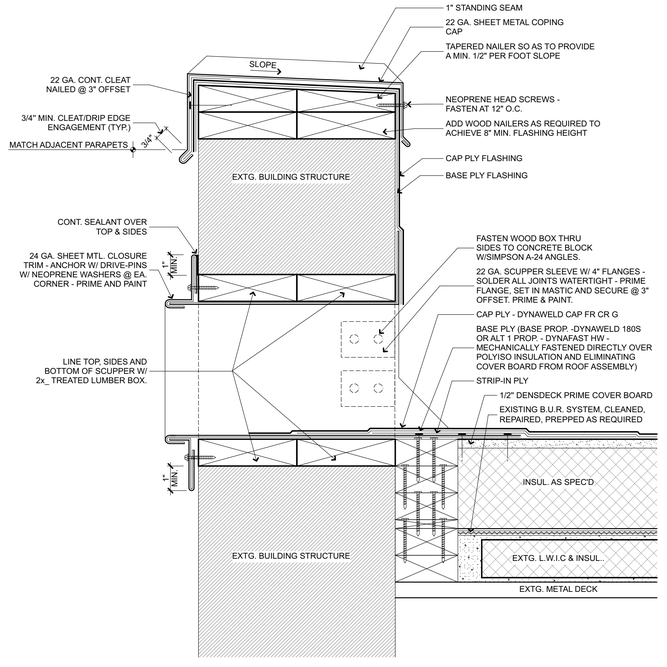
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE:	3/20/19
SCALE:	SEE DRAWING
SHEET:	D21.1



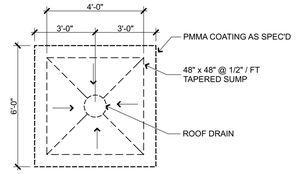
1 EXPANSION JOINT
N.T.S.



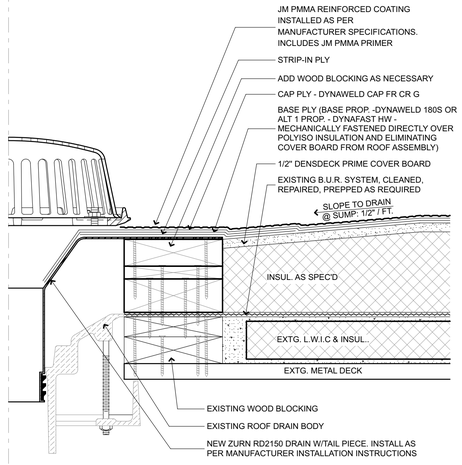
2 PARAPET WALL @ ROOF AREA "B"
N.T.S.



3 SCUPPER @ ROOF AREA "B"
N.T.S.



TYP. ROOF SUMP PLAN
NOT TO SCALE



4 RETROFIT ROOF DRAIN
SCALE: 3" = 1' - 0"

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALEX L. HINOJOSA 23139 STATE OF TEXAS
3/20/19

TEXAS SOUTHMOST COLLEGE
ROOF REPLACEMENT AND REPAIRS
2017

AMTECH SOLUTIONS
1600 N. JACKSON RD. STE #3
PHARR, TEXAS 78577
T 956.686.3095 F 956.686.2233

CORTEZ HALL	
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
25 OF 29	SHEET: D24.1

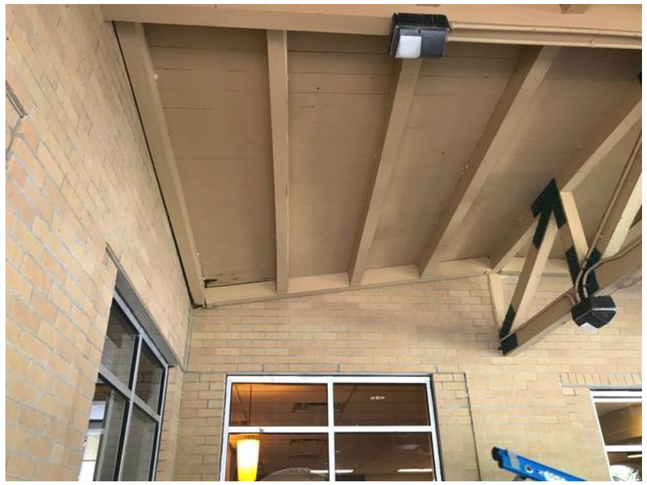
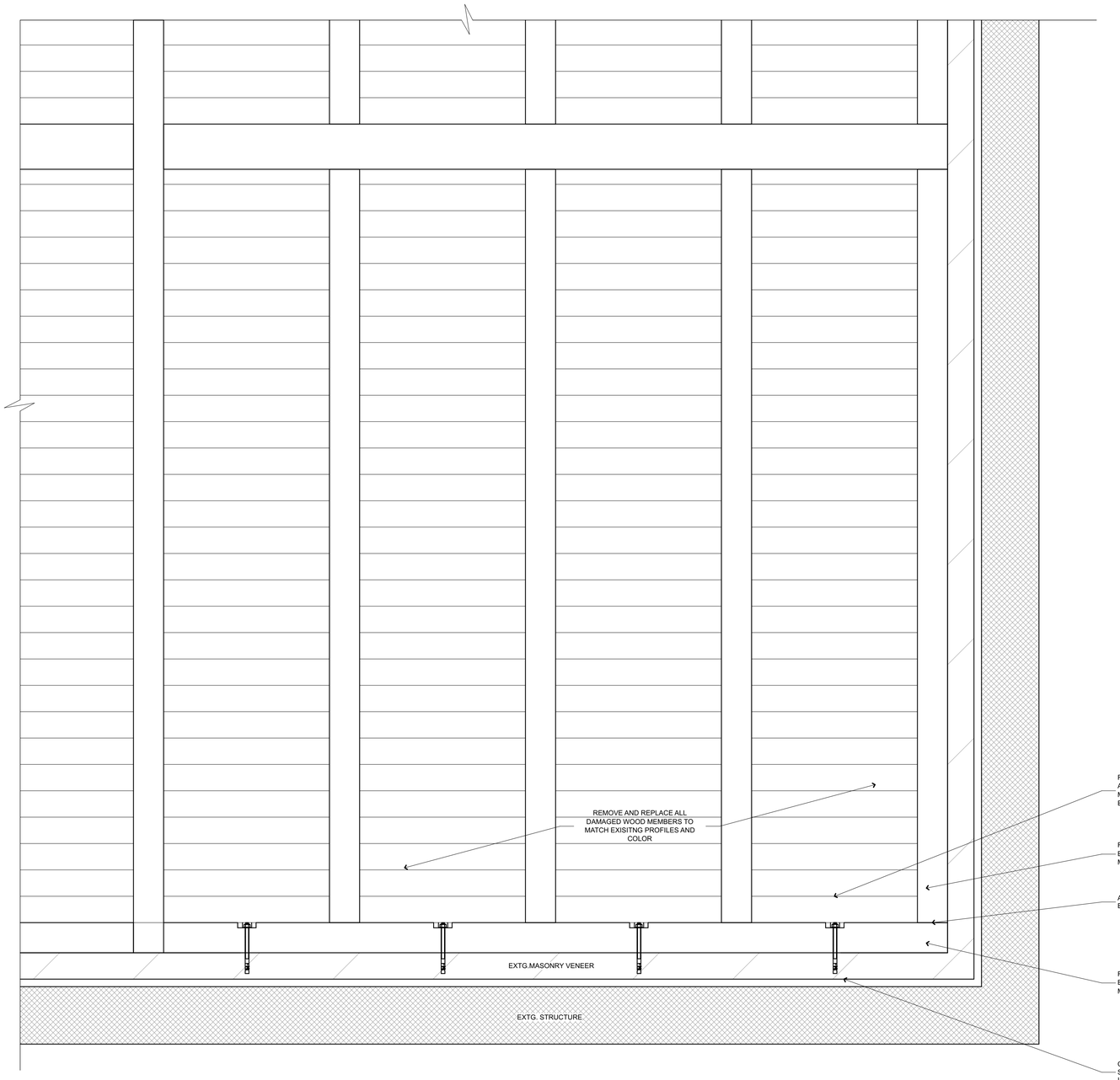


PHOTO OF EXISTING CONDITION

NOTE:
1. CONTRACTOR TO PROVIDE ARCHITECT WITH PHOTOS OF DEMOLITION AREAS BEFORE RE-SECURING PERIMETER BEAM.
2. CONTRACTOR TO VERIFY STRUCTURAL INTEGRITY WITH OF ROOF DECK WITH ENGINEER, AND MEDIATE DEFICIENCIES BEFORE REPLACEMENT WORK BEGINS.



1 RCP / DETAIL FOR DAMAGED CEILING BELOW ROOF AT CORNER OF BOOKSTORE EXTERIOR WALKWAY
N.T.S.

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINS 23739 STATE OF TEXAS

3/20/19

TEXAS SOUTHMOST COLLEGE

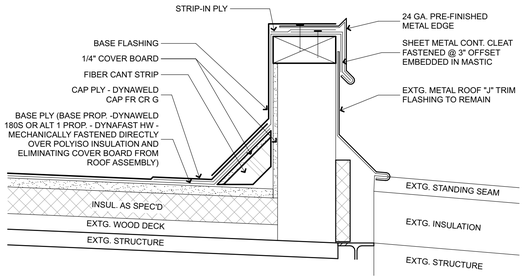
ROOF REPLACEMENT AND REPAIRS

2017

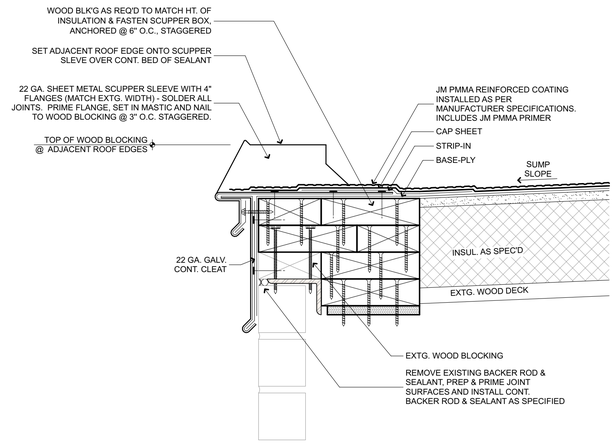
AMTECH SOLUTIONS
1600 N. JACKSON RD. STE #3
PHARR, TEXAS 78577
T 956.686.3095 F 956.686.2233

BOOKSTORE RCP

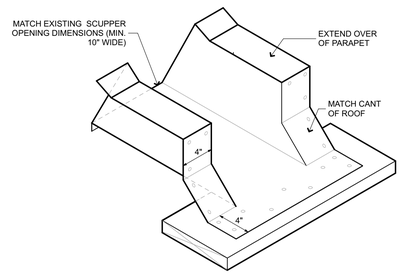
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE:	3/20/19
SCALE:	SEE DRAWING
SHEET:	26 OF 29
	D27.1

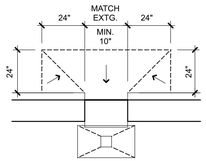


1 ROOF EDGE @ ROOF AREA "B"
3" = 1' - 0"

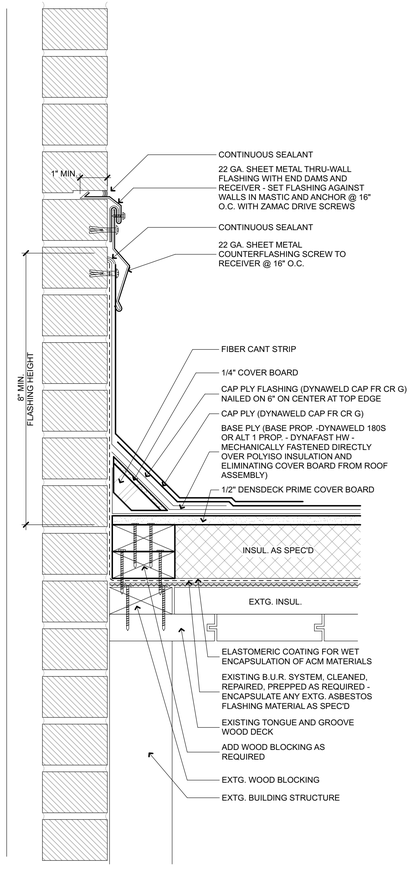


2 TYPICAL ROOF EDGE W/ SCUPPER & EXISTING DOWNSPOUT
3" = 1' - 0"





PLAN @ SUMP
N.T.S.



3 RISE WALL FLASHING
N.T.S.

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT ALLEN L. HIGGINS 23739 STATE OF TEXAS

3/20/19

TEXAS SOUTHMOST COLLEGE

ROOF REPLACEMENT AND REPAIRS

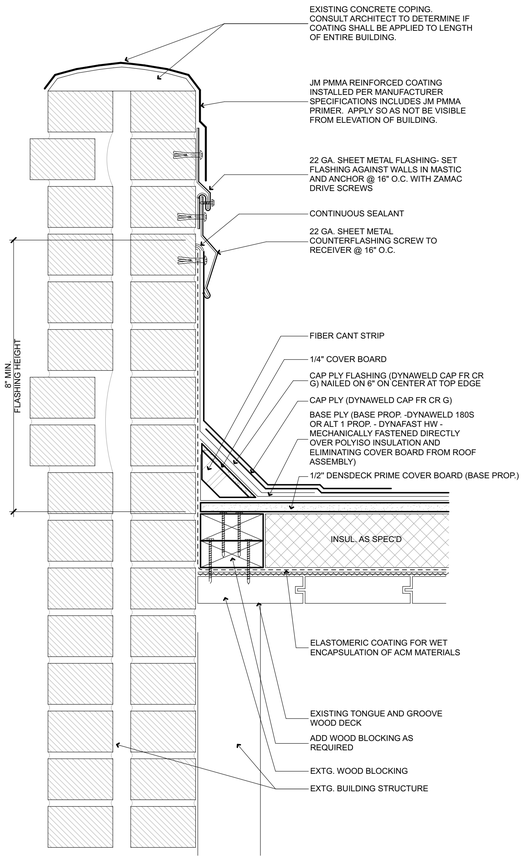
2017

AMTECH SOLUTIONS
1600 N. JACKSON RD. STE #3
PHARR, TEXAS 78577
T 956.686.3095 F 956.686.2233

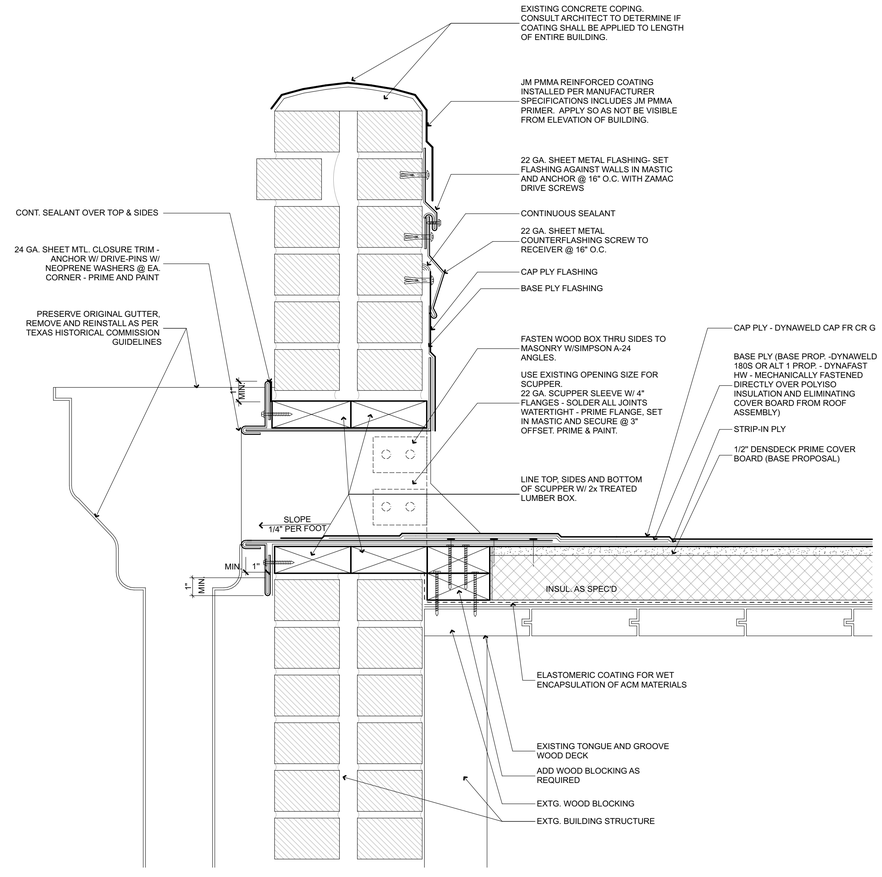
BOOKSTORE

DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE:	3/20/19
SCALE:	SEE DRAWING
	27 OF 29
SHEET:	D27.2

NOTE: DO NOT BREAK THROUGH WALLS OR DRAINS FOR REINSTALL OF ROOFING COMPONENTS. MODIFICATIONS TO ROOF AND BUILDING SHALL FOLLOW GUIDLINES OF TEXAS HISTORICAL COMMISSION. BEFORE COMMENCING WORK, PLANS AND SPECIFICTIONS SHALL BE APPROVED BY TEXAS HISTORICAL COMMISSION. PLANS PROVIDED SHALL SERVE AS GUIDE FOR PRICING PUROSES UNTIL APPROVALS ARE MET.



1 PARAPET WALL FLASHING
N.T.S.



2 SCUPPER @ ROOF AREA "B"
N.T.S.

ISSUED FOR:

SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

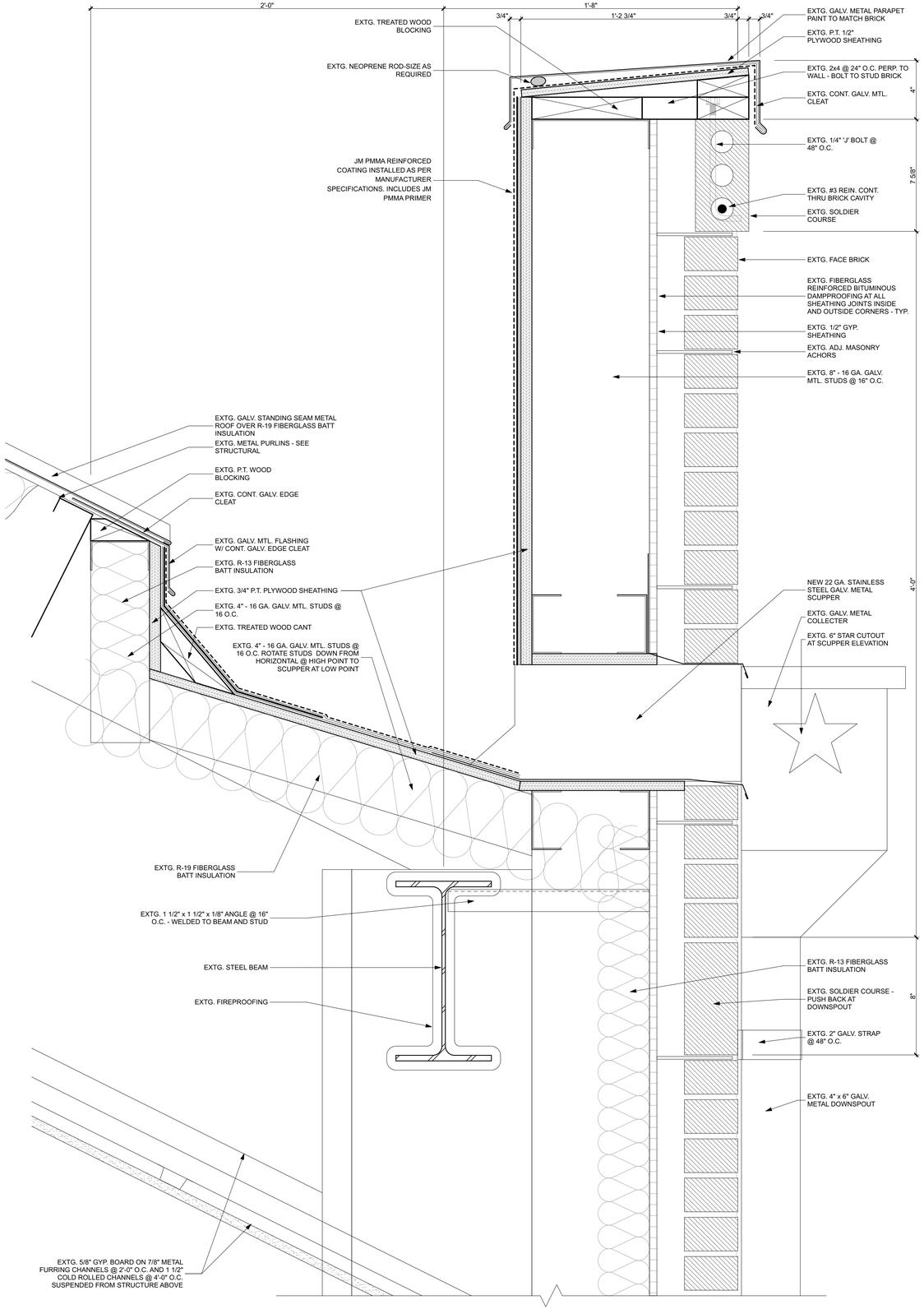
REGISTERED ARCHITECT ALLEN L. HIGGINS 23739 STATE OF TEXAS
3/20/19

TEXAS SOUTHMOST COLLEGE
ROOF REPLACEMENT AND REPAIRS
2017

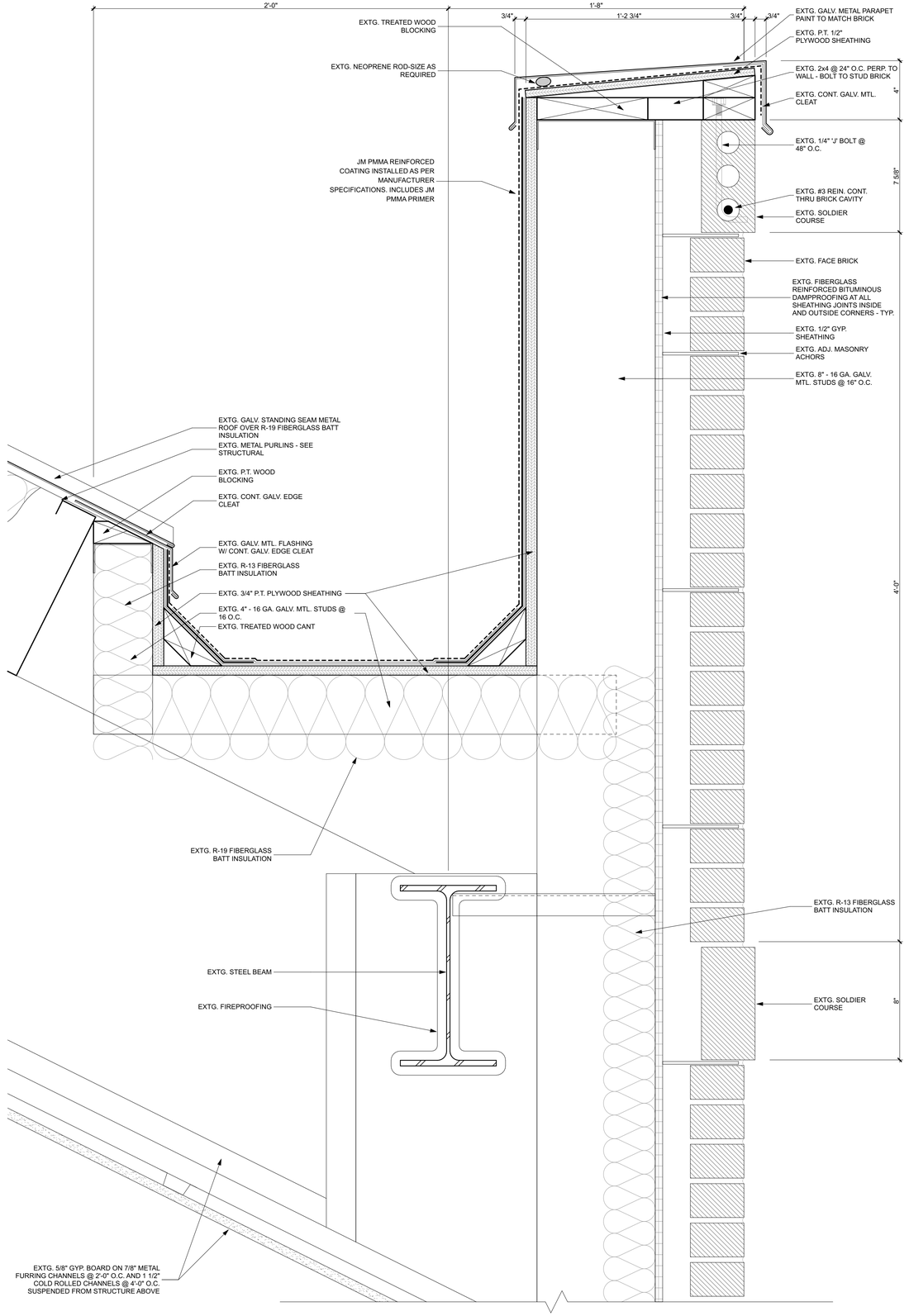
AMTECH SOLUTIONS
1600 N. JACKSON RD. STE #3
PHARR, TEXAS 78577
T 956.686.3095 F 956.686.2233

CAVALRY HALL

DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE:	3/20/19
SCALE:	SEE DRAWING
	28 OF 29
SHEET:	D28.1



1 IN-BOARD GUTTER W/ SCUPPER/DOWNSPOUT @ SETB
3" = 1' - 0"



2 IN-BOARD GUTTER @ SETB
3" = 1' - 0"

ISSUED FOR:	
SCHEMATIC DESIGN	09/30/18
ASBESTOS TESTING	11/21/18
DESIGN DEVELOPMENT	02/22/19
50% CONSTRUCTION DOCUMENTS	03/05/19
FOR CONSTRUCTION	03/20/19

REGISTERED ARCHITECT
ALLEN L. HIGGINS
83739
STATE OF TEXAS
3/20/19

TEXAS SOUTHMOST COLLEGE
ROOF REPLACEMENT AND REPAIRS
2017

AMTECH SOLUTIONS
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SET BUILDING	
DRAWN BY:	J.G. / S.E.
CHECKED BY:	C.G. / D.V. / J.R.
PROJECT NO.:	RGV.2017.001004
DATE: 3/20/19	SCALE: SEE DRAWING
29 OF 29	SHEET: D29.1