DFCM Roofing Design Requirements

Contractor Requirements:

1- Contractor must have Five (5) years experience as a roofing contractor.
2- Contractor must have Five (5) years experience with the specified product.
3- Contractor must be a Manufacture certified installer of roofing system to be installed.
4- Contractor must document continuing education for the foreman that will daily oversee the work on the roofing system. A minimum of 12 hours per year is required.
5- On site foreman must be able to clearly communicate with building owner/occupants.
6- Contractor will provide a 24 hour emergency phone number to project manager and agency contact person.
7- Contractor must be legally licensed to perform roofing work in the State of Utah and carry liability insurance as required by State of Utah law.
8- Contractor must be willing to sign and agree to the terms of the DFCM 5-year contractor roofing warranty.

Low Slope Manufacture Requirements:

1- Manufacture must be listed in NRCA's low slope roofing materials guide.
2- Manufacture must have a 10-year successful history as a roofing manufacture.
3- Manufacture must show documented proof of how they plan to meet warranty obligations. Must be provided in contractor's submittal package.
4- Manufactures must agree to and be willing to sign the appropriate State of Utah (DFCM) manufactures warranty for the roof system. The DFCM warranty not the manufactures standard warranty will be required at project completion.
5- Manufacture must have a certified installer/contractor program. This program must include continuing education for the contractor.
6- Contractor must submit a pre-installation noticed from manufacture prior to start of any work. This will include confirmation that the membrane and all accessories being used meet requirements of specification. This will also include confirmation that the scope of work is in accordance with published technical data as per manufacture. This also includes confirmation that a warranty has been requested and will be issued on the DFCM manufacture warranty form at the completion of roofing. This document must be included in contractor's submittal package.
7- Manufacturer will provide at no additional cost to owner, start up meeting, progress inspections and a final warranty inspection at project completion by a full time technical representative. Manufacture required inspections should be listed in specifications. All inspections will be scheduled by project architect.
8- Any portion of specification that does not meet manufacture requirements will be installed per manufacture requirements at no additional cost to owner. Any portion of the specification that exceeds the manufacture minimum requirements will be installed according to specifications not manufacture minimum requirements
9- Manufacture must have a history of meeting Warranty obligations.
10- Manufacture is required to release all inspection reports concerning warranted roof system to the contractor to submit to project architect.

Low Slope Roof:

General Requirements for all low slope roofing systems (New and Replacement)

1- Energy efficient roof design using energy star rated products should be used on roofs. Exception can be taken when Built Up Roofing or EPDM is requested and justified, energy efficient design should still be considered when using these systems.
2- Minimum Manufactures Warranty period should be 20 years on appropriate DFCM roofing Warranty.
3- Minimum Contractor workmanship Warranty period should be 5 years on DFCM contractor Warranty.
4- A DFCM history record is required on all roofing systems (Contractors responsibility).
5- Minimum flashing height requirements are 8" for all mechanical, skylights, wall flashings or any other item that extends above the roof line. This is a minimum flashing height, windows or other such items should be well above 8"above the roof line.
6- All mechanical equipment is required to be set on a roof curb attached to the roof deck. No equipment should sit on insulation.
7- All metal associated with the roof should be 24 gauge, color clad, using standing seam joints where possible. Follow SMACNA guidelines for all metal work. All cap and edge metal should utilize a continuous clip on the outside edge.
8- Only Mechanically fastened or fully adhered systems should be used. No ballasted systems will be allowed on single ply roof systems.
9- No concrete walkway pads are allowed on roof system.
10- Pre-manufactured accessories are required for all pipe flashings, inside and outside corners and any other location pre-manufactured accessories are available.
11- Guidelines of the NRCA, SMACNA, UL and SPRI should be followed when designing roof system and specific details.
12- Where manufacturer's standards show one or more possible approach for compliance to the standard, provide the most stringent approach.
13- Eliminate conflict between roof penetrations, Provide 18" access for installing roofing components. Minimize penetrations (i.e. pipe penetrations) as much as possible.
14- Provide reasonable access to all roof levels for maintenance personnel. Reasonable access is considered to be roof hatches, mounted ladders or door access. Portable ladder access is only considered reasonable on single story roof levels.
15- Determine the need for vapor retarder based on dew point calculations, and facility use.
16- Design for 90 m.p.h. minimum wind speed. Refer to local wind speed maps for other wind speed design requirements. I-90 or IA-90 does not provide the necessary wind speed requirements.
17- The DFCM roofing program manager should review roofing specifications prior to bid.
18- The DFCM roofing program manager should be included in roofing pre-construction meeting and final inspection of roof system.
19- The DFCM Roofing program manager should review and approve any variance from that listed above.
20- If there are any discrepancies between or within the bidding documents, the the more stringent document or specification will be enforced.
21- No Asbestos Containing Material is to be used during repairs of installation of new roofing system under any circumstances.

Roof Replacements

1- Evaluate the feasibility of using existing insulation, sheet metal and other existing roof system components if they are in like new condition and will not have an adverse effect on the new roof system.
2- Existing roof membrane should be removed.
3- Existing slope should be evaluated and slope added with insulation to improve drainage as conditions allow.
4- Roof diaphragm should be evaluated to determine whether the diaphragm needs to be upgraded to meet current seismic requirements.
5- Roof deck structure should be evaluated to determine the existing dead and live load capacity.
6- Existing roof top equipment should be evaluated and abandoned roof top equipment removed.

Insulation Requirements

1- All insulation in the roofing system must be covered under the appropriate DFCM manufacture warranty for low slope roofing.
2- All insulation incorporated into roofing system must be approved and documented as a UL rated assembly that meets code requirements of the building roofing system is installed on.
3- Long Term Thermal Resistance (LTTR) should meet current code and the requirements of the building.
4- Insulation should always be installed in a minimum of two layers with joints staggered in both directions. The only exception is when all that is required is a cover board.
5- All insulation stored on project site should be covered to protect from UV and water. The factory wrap is not an acceptable cover material.
6- All insulation stored on project site should be elevated off the ground or the roof deck to protect from moisture.

Membrane Requirements

PVC - Polyvinyl Chloride

1- Must meet or exceed ASTM D 4434
2- Membrane must be Energy Star Rated.
3- Only sheets with stable or low-migrating plasticizers will be acceptable.
4- 10-year minimum performance history on membrane. Minor formulation changes are acceptable as long as the membrane has a successful history.
5- Membrane must be manufactured with low-wicking scrim.
6- Only balanced sheets will be acceptable. Scrim must be near center of membrane with no less than 20 mils polymer above scrim.
7- Thickness: 60 mil (57mil minimum) polymer thickness not over all thickness. Polymer should be measured between scrim.
8- Must meet or exceed ASTM D 4434 for linear dimensional change and for heat aging.
9- Must meet or exceed ASTM D 5635 for dynamic impact resistance.
10- Must meet or exceed ASTM D 2136 for low temperature flexibility.
11- Membrane rolls / sheets are not to be wider than eight feet on a mechanically fastened system.

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8/30/10
No. 295553
CRAIG L. RASMUSSEN
STATE OF UTAH

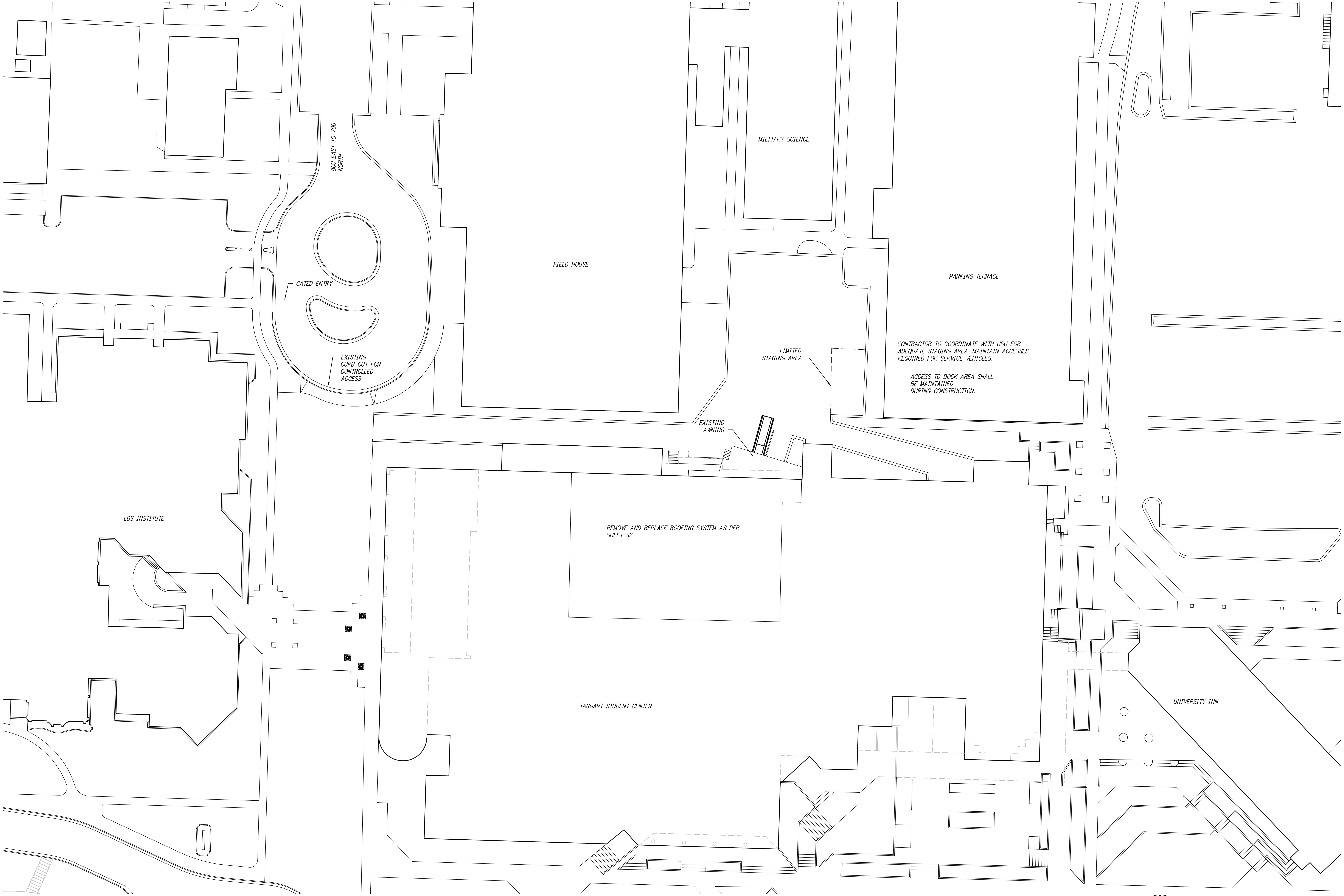
DFCM PROJECT NO. 10236770

TAGGART STUDENT CENTER REROOF
UTAH STATE UNIVERSITY
Logan, UT 84322

Specifications

Designed by:	KRD
Checked by:	.
Prj. Drafter:	KRD
Drafter:	.
Issue Date:	.
Project Ref.:	C10117.00
Client Ref.:	.

SHEET NO. S0 OF . SHEETS



SITE CONTROL PLAN

Scale: NTS

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Site Control Plan

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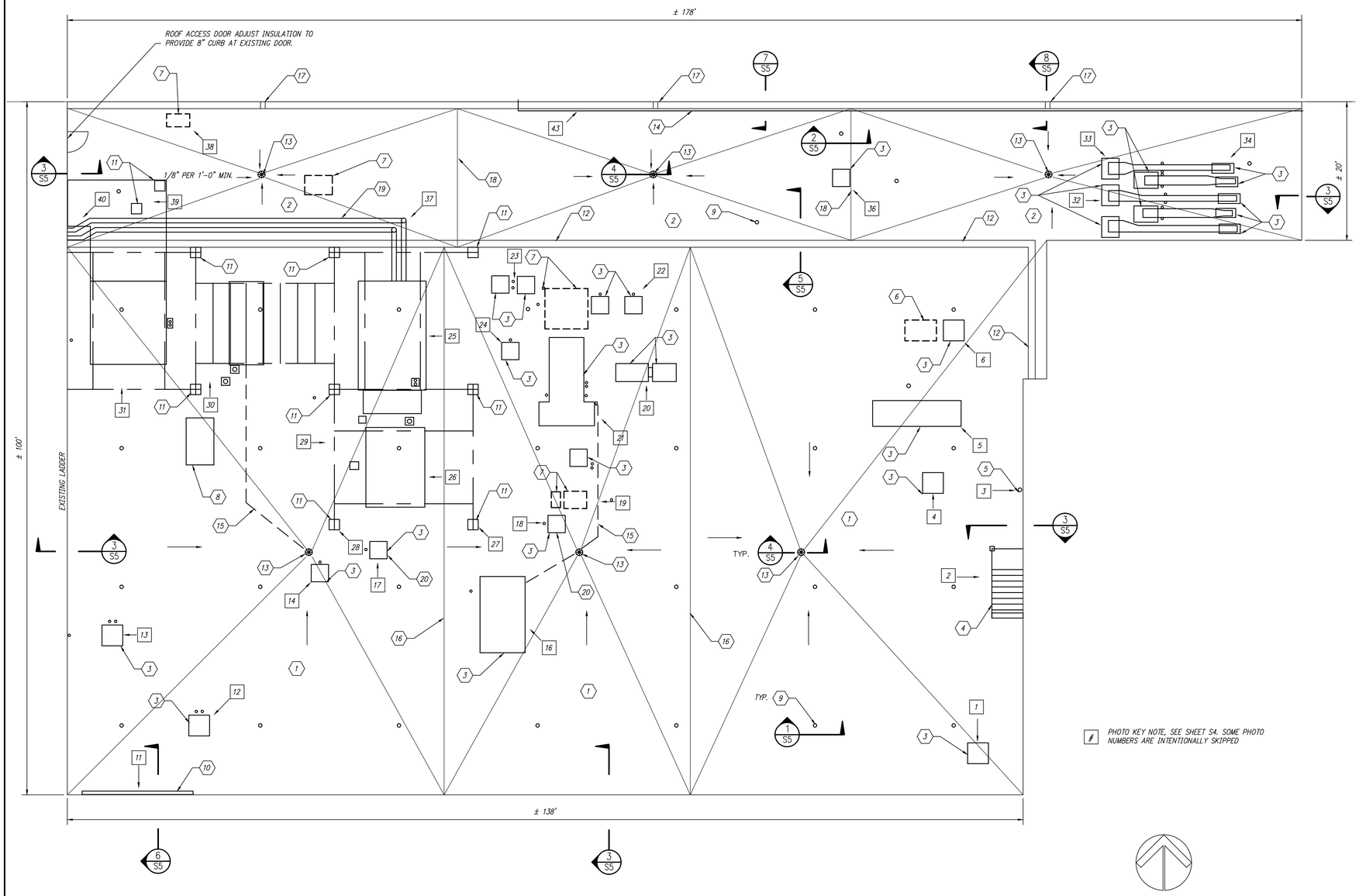

ROOF PLAN

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

PHOTO KEY NOTE, SEE SHEET S4. SOME PHOTO NUMBERS ARE INTENTIONALLY SKIPPED

GENERAL NOTES

A. *CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS.*

B. *PROVIDE ALL MISCELLANEOUS FLASHING AND ACCESSORIES FOR A COMPLETE JOB. FLASH ALL ROOF PENETRATIONS. REMOVE AND REINSTALL ALL MISCELLANEOUS EQUIPMENT.*

C. *ALL MISCELLANEOUS VENTS, FLUES, CURBS, ETC. TO MEET MINIMUM CODE CLEARANCE ABOVE ROOF LINE.*

D. *FIELD VERIFY EXACT SIZES AND DIMENSIONS.*

E. *FLASH ALL EXISTING V.T.R. AND FLUES*

F. *PROVIDE POSITIVE DRAINAGE EVERYWHERE ON ROOF.*

G. *CONTRACTOR TO COORDINATE ALL WORK WITH USU TAGGART STUDENT CENTER FACILITIES STAFF. THE CONTRACTOR IS REQUIRED TO PREVENT OR MITIGATE DEBRIS ENTERING THE BUILDING FROM THE ROOFING WORK.*

H. *CONTRACTOR IS REQUIRED TO TAKE NECESSARY ACTION TO MITIGATE THE POTENTIAL OF CHEMICAL VAPORS ENTERING THE TAGGART STUDENT CENTER DURING THE PROJECT. THIS MAY REQUIRE TEMPORARY RE-ROUTING OF AIR INTAKES, ETC. CONTRACTOR IS RESPONSIBLE TO COORDINATE ALL WORK WITH THE TAGGART STUDENT FACILITIES STAFF.*

I. *TESTING OF EXISTING ROOFING MATERIALS HAS INDICATED THE PRESENCE OF CHRYSOTILE ASBESTOS IN BLACK TAR SEALANT. CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF THE MATERIAL IN ACCORDANCE WITH STATE AND FEDERAL LAWS. REFER TO PROJECT DOCUMENTS FOR THE COMPLETE ASBESTOS REPORT.*

J. *CONTRACTOR IS REQUIRED TO CONFORM TO OSHA SAFETY REGULATIONS, MAINTAIN, ACCESS FOR DELIVERY SERVICES AT THE TAGGART STUDENT CENTER, AND COORDINATE FINAL STAGING AREAS WITH TAGGERT STUDENT CENTER STAFF.*

K. *PROVIDE TRACK PADS PER ROOF MANUFACTURER AND DFCM REQUIREMENTS TO MECHANICAL EQUIPMENT AND ACCESS POINTS. SEE SHEET S3 FOR PROPOSED LOCATIONS.*

L. *CONTRACTOR SHALL PROVIDE AND INSTALL 10"x14" 20ga. (MIN.) WARRANTY SIGN AT ROOF ACCESS POINT. THE SIGN SHALL HAVE ROUNDED CORNERS AND VINYL LETTERING.*

M. *CONTRACTOR SHALL COORDINATE ALL WORK IN THE STAGING AREA AND ROOF ACCESS WITH USU TAGGART STUDENT CENTER FACILITIES STAFF AND USU PARKING. DELIVERY TIMES TO THE BUILDING WILL BE LIMITED TO MORNINGS UNTIL 10:00 AM. CONTRACTOR IS REQUIRED TO COORDINATE WORK SCHEDULES WITH TAGGART STUDENT CENTER FACILITIES STAFF TO AVOID CONFLICT WITH DELIVERIES AND BUILDING ACCESS. PARKING IS AVAILABLE FOR A CRANE OR ROOF ACCESS EQUIPMENT OUTSIDE OF THE STAGING AREA IN THE PARKING LOT EAST OF THE PARKING TERRACE.. A PARKING PERMIT WILL BE REQUIRED FROM USU PARKING. A REMOTE DEVICE FOR GAITED ENTRY IS AVAILABLE TO THE CONTRACTOR DURING CONSTRUCTION. CONTRACTOR WILL BE REQUIRED TO PAY A DEPOSIT FOR THE DEVICE. THE DEPOSIT WILL BE REFUNDABLE AFTER CONSTRUCTION IS COMPLETE AND THE DEVICE IS RETURNED.*

KEYED NOTES

1. *REMOVE EXISTING B.U.R. ROOFING DOWN TO EXISTING LIGHT WEIGHT CONCRETE DECK. SLOPE OF EXISTING LIGHT WEIGHT CONCRETE DECK IS APPROXIMATELY ¼" PER 1'-0". INSTALL 1 LAYER OF 2" ISO INSULATION FULLY ADHERED. INSTALL LAYERS OF ISO INSULATION FULLY ADHERED AT ¼" PER 1'-0" TO PROVIDE FINAL ROOF DRAINAGE OF ¼" PER 1'-0". INSTALL NEW 60 MIL FULLY ADHERED PVC SINGLE-PLY MEMBRANE.*
2. *REMOVE EXISTING B.U.R. ROOFING DOWN TO EXISTING METAL DECK. INSTALL 1 LAYER OF 2" ISO INSULATION FULLY ADHERED. INSTALL LAYERS OF ISO INSULATION FULLY ADHERED TO PROVIDE FINAL ROOF DRAINAGE OF ¼" PER 1'-0" EXCEPT AS NOTED PER PLAN. INSTALL NEW 60 MIL FULLY ADHERED PVC SINGLE-PLY MEMBRANE.*
3. *EXISTING MECHANICAL UNIT, ADJUST PIPING, DUCTWORK, AND WIRING AS REQUIRED TO CONSTRUCT 8" MINIMUM CURB AT SUPPORTS. PROVIDE FLASHING AND WEATHERPROOFING PER DFCM STANDARDS. INSTALL CRICKET ON UPSLOPE SIDE OF UNIT TO FACILITATE DRAINAGE.*
4. *REMOVE EXISTING STEEL FRAME STAIRS AND CURB SUPPORTS FROM ROOF.*
5. *RE-CONSTRUCT FLASHING TO FIT NEW ROOF GRADE, TYP. AT CONDUIT PENETRATIONS.*
6. *REMOVE EXISTING ROOF EQUIPMENT PENETRATION. BLOCK WITH ¾" APA RATED SHEATHING PRIOR TO INSTALLATION OF INSULATION.*
7. *REMOVE EXISTING ROOF PENETRATION. PROVIDE ¾" APA RATED SHEATHING PRIOR TO INSTALLATION OF INSULATION.*
8. *NEW 8" CURB REQUIRED. VERIFY DIMENSIONS WITH USU TAGGART CENTER FACILITIES MAINTENANCE*
9. *REMOVE AND REPLACE EXISTING ONE WAY VENT. EXISTING VENTS ARE SPACED AT APPROXIMATELY 20'x20' GRID. MATCH SPACING FOR REPLACEMENT VENTS.*
10. *PROVIDE AIROLITE 6776 LOUVER. OPENING FOR NEW LOUVER IS 16'-0" x 6'-0". INSTALL IN (3) SECTIONS OF 5'-0" x 6'-0" WITH INVISIBLE VERTICAL MULLION BETWEEN EACH SECTION.*
11. *PROVIDE FLASHING AT CONCRETE PEDESTAL. TO CONFORM TO DFCM STANDARDS.*
12. *REMOVE EXISTING PARAPET, PROVIDE STRUCTURAL CONNECTION OF ROOF SYSTEM AND SLOPE WITH BUILT UP INSULATION FROM HIGHER TO LOWER ROOF.*
13. *REMOVE AND REPLACE EXISTING ROOF DRAIN.*
14. *REMOVE EXISTING CAP AND FLASHING AND INSTALL NEW CAP AND FLASHING AT TOP OF WALL. PROVIDE ADDITIONAL ATTACHMENT FOR GAS LINE TO MEET MIN. ATTACHMENT OF 10' O.C.*
15. *PROVIDE ROOF TOP BLOX PIPING SUPPORT OR APPROVED EQUIVALENT. INSTALL PER MANUFACTURERS RECOMMENDATIONS.*
16. *APPROXIMATE EXISTING ROOF HIGH POINT*
17. *INSTALL 8x8 SCUPPER IN EXISTING PARAPET WALL.*
18. *PROPOSED ROOF HIGH POINT*
19. *MODIFY CHILLER PIPING TO ACCOMMODATE RE-ROOF PROJECT TO DFCM STANDARDS.. COORDINATE ALL WORK WITH TAGGART STUDENT CENTER FACILITIES STAFF.*
20. *PROVIDE GREASE DRIP PAN OVER WALK PAD AT VENT SPILL LOCATIONS.*

DFCM PROJECT NO. 10236770

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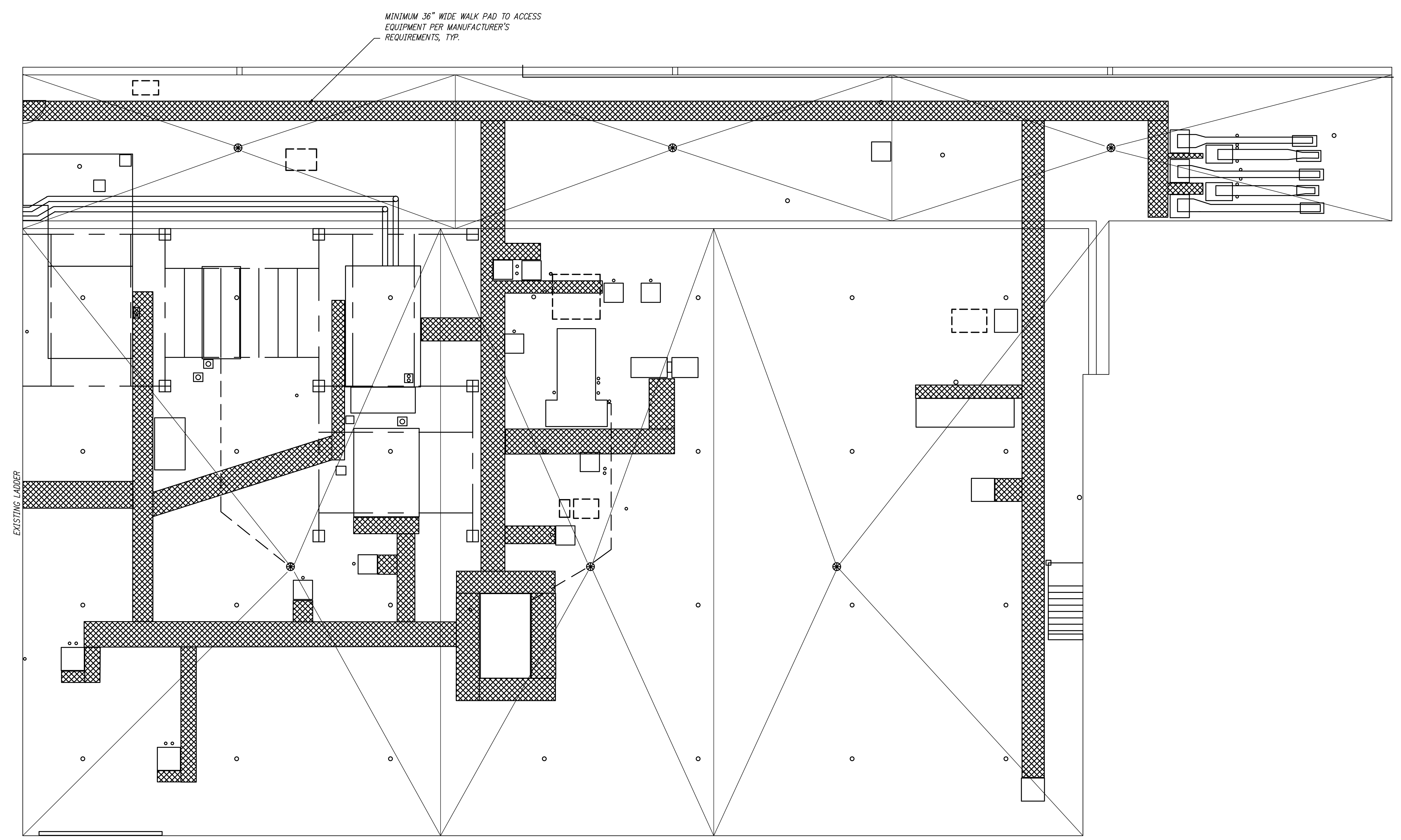
Roof Layout Plan

Designed by:	KRD
Checked by:	.
Prj. Drafter:	KRD
Drafter:	.
Issue Date:	.
Project Ref.:	C10117.00
Client Ref.:	.

SHEET NO. S2 OF . SHEETS

Layout: S2 Drawing: G:\Projects 10\C10117 USU Taggart Student Center\ BASE FILES.dwg



WALK PAD PLAN

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

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WALK PAD PLAN

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SHEET NO. S3 OF . SHEETS

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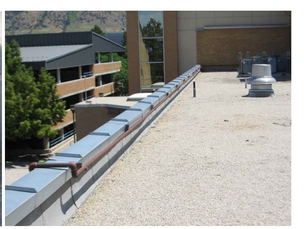

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Photo Details

DFCM PROJECT NO. 10236770

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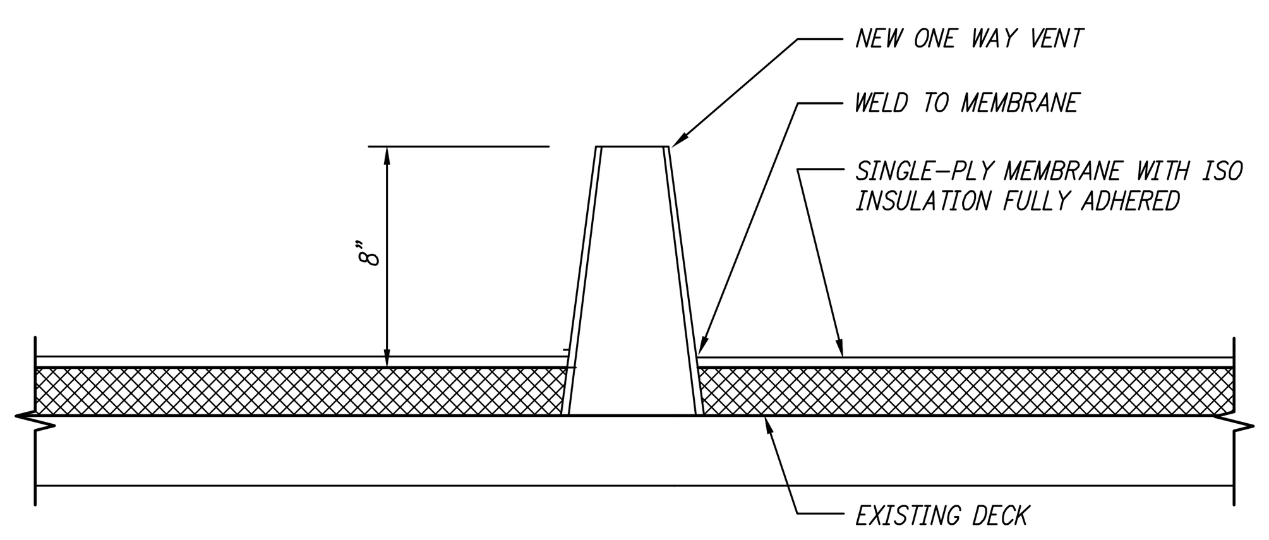
SHEET NO. S4 OF . SHEETS



DETAIL: CONCRETE DECK VENT (1/S5)
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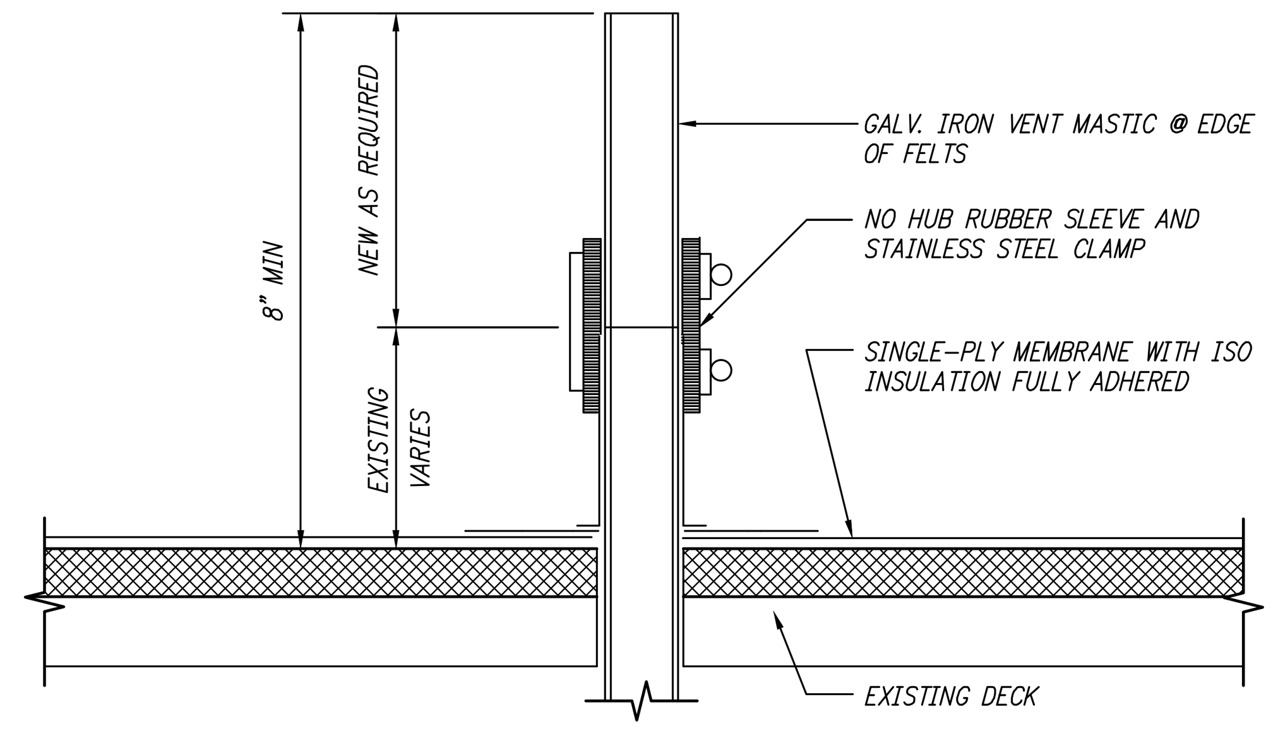

DETAIL: VENT (2/S5)
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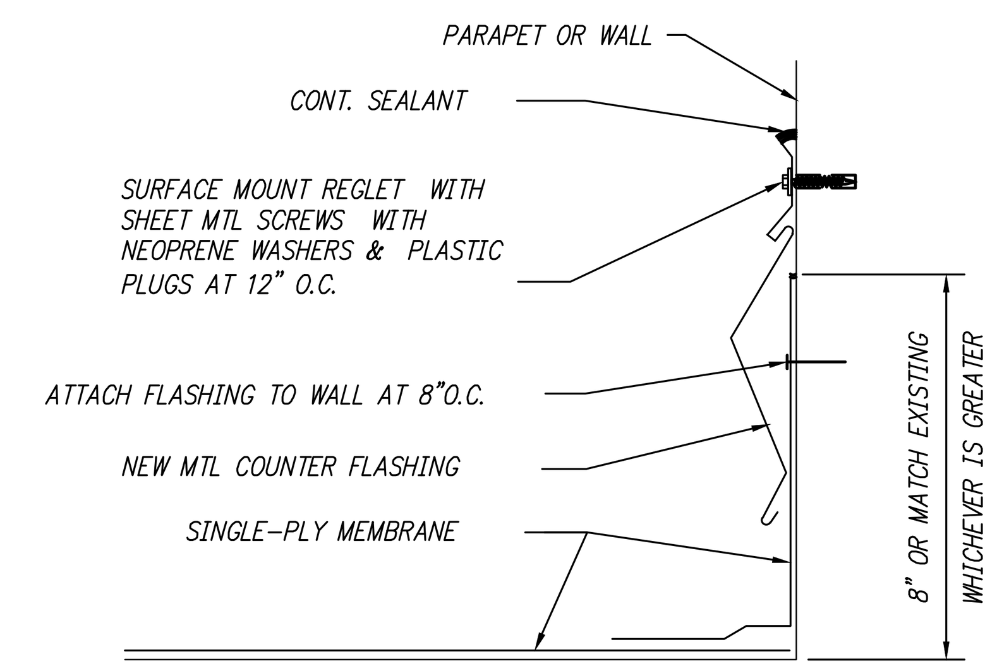

DETAIL: FLASHING (3/S5)
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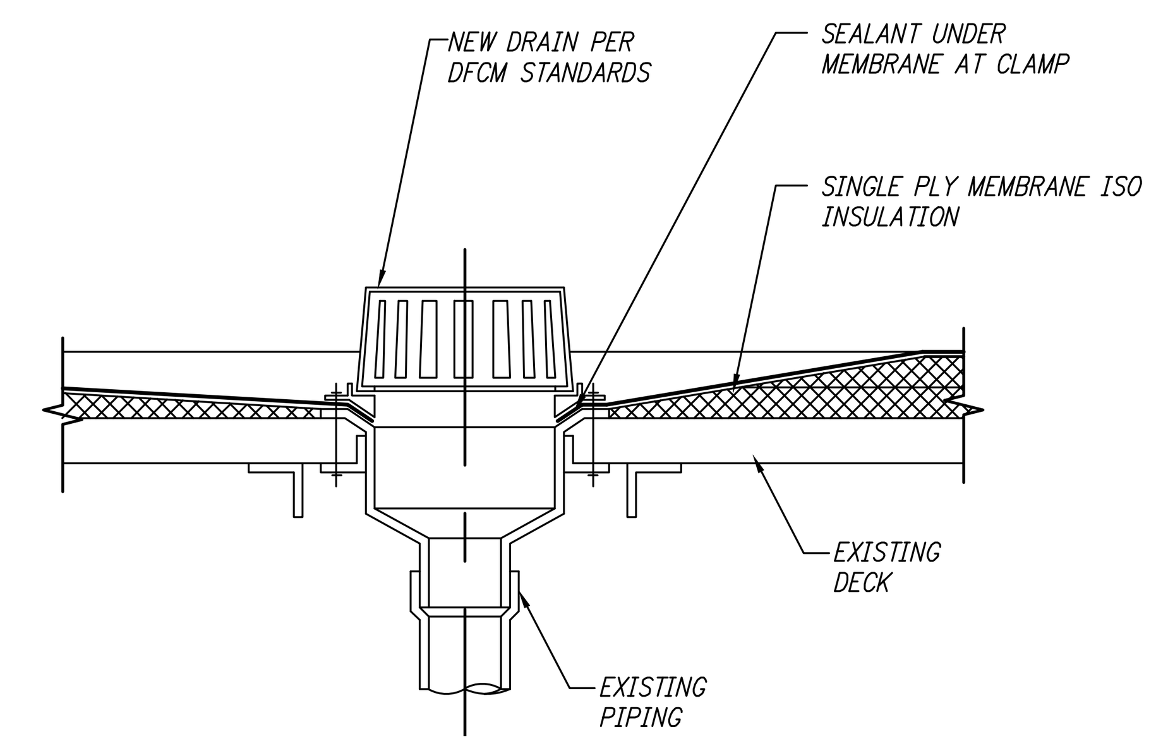
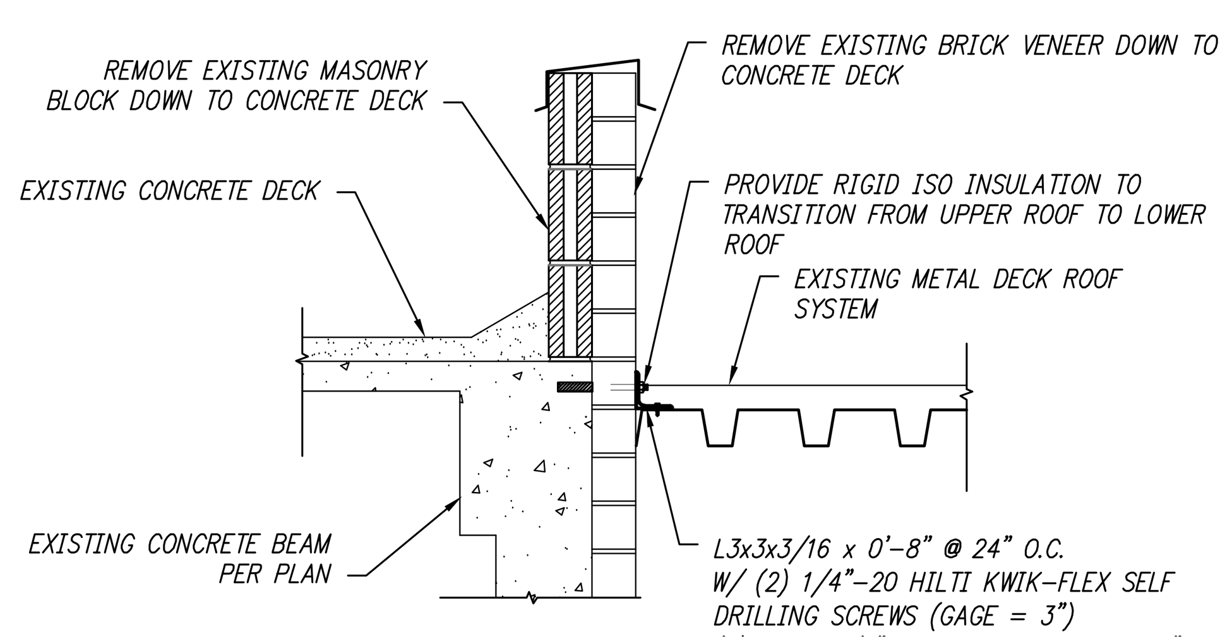
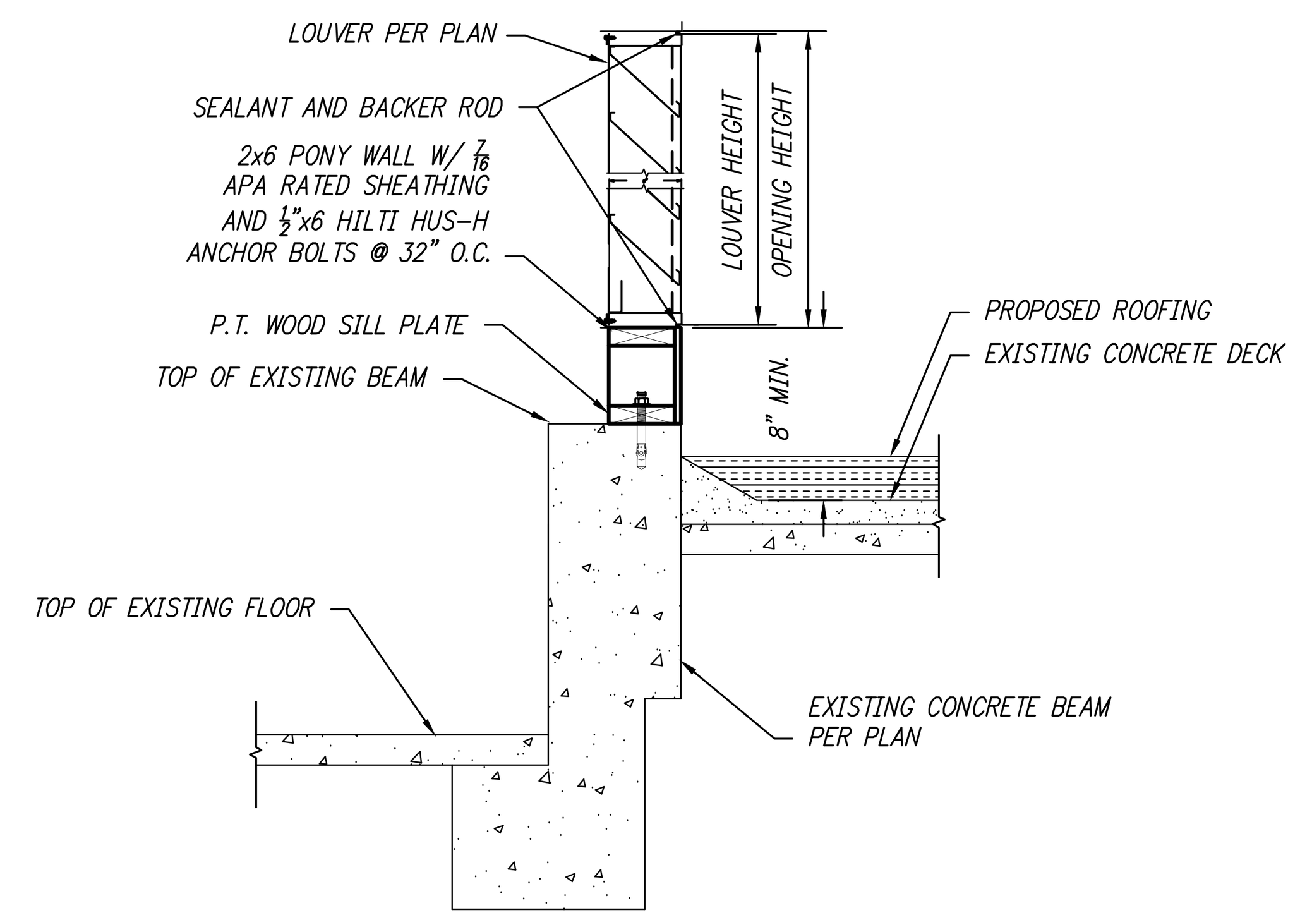


DETAIL: ROOF DRAIN (4/S5)
Scale: 3" = 1'-0"



DETAIL: PARAPET WALL (5/S5)
Scale: 3/4" = 1'-0"



DETAIL: PARAPET WALL (6/S5)
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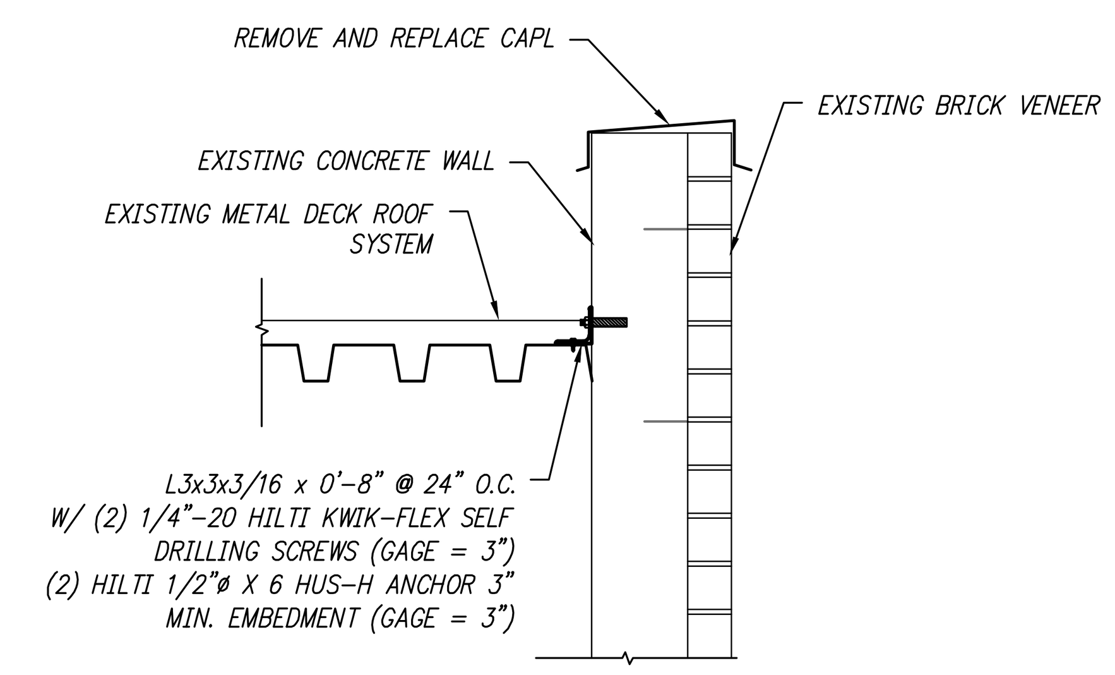

DETAIL: PARAPET WALL (7/S5)
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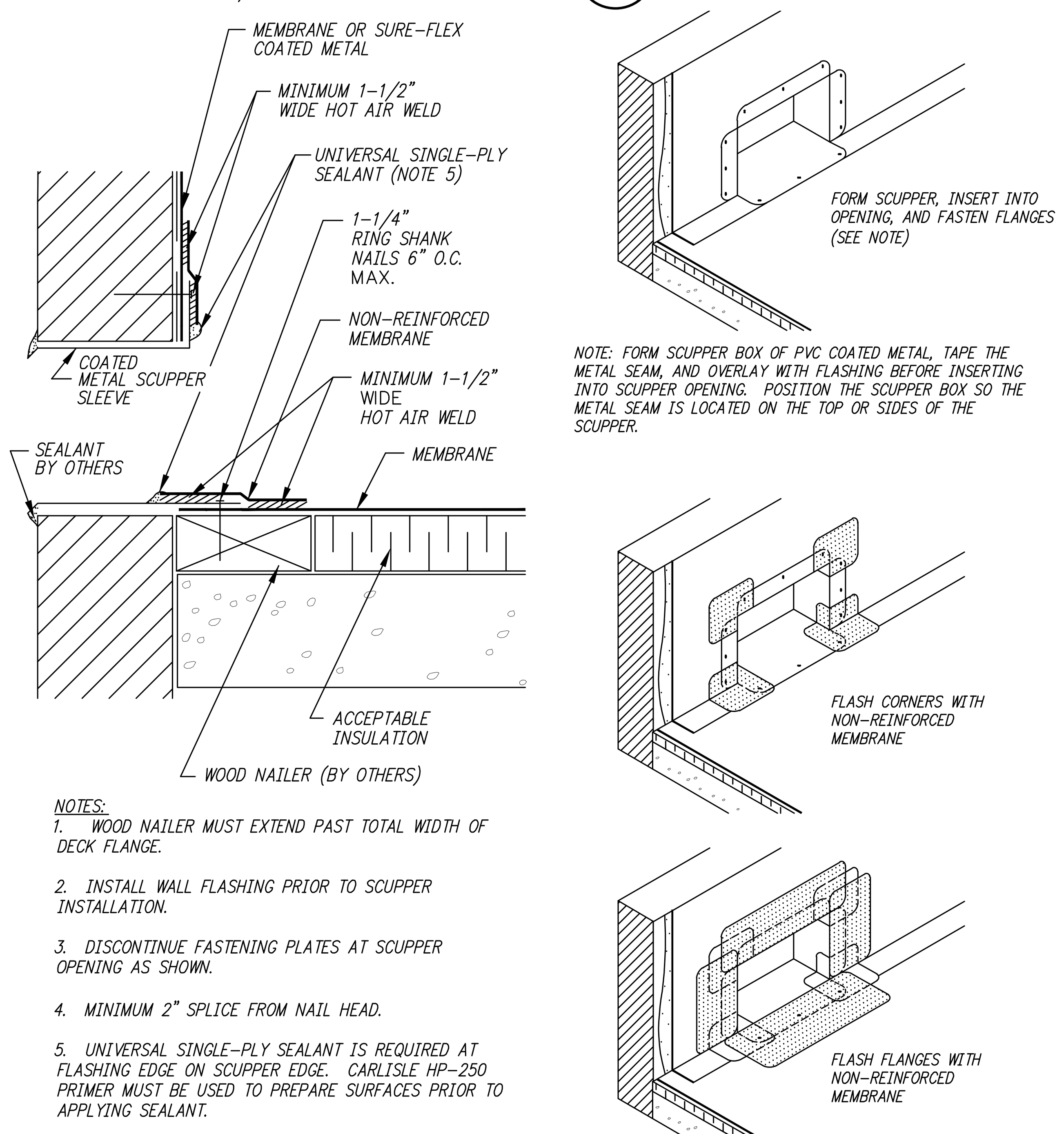

NOTES:
1. WOOD NAILER MUST EXTEND PAST TOTAL WIDTH OF DECK FLANGE.
2. INSTALL WALL FLASHING PRIOR TO SCUPPER INSTALLATION.
3. DISCONTINUE FASTENING PLATES AT SCUPPER OPENING AS SHOWN.
4. MINIMUM 2" SPLICE FROM NAIL HEAD.
5. UNIVERSAL SINGLE-PLY SEALANT IS REQUIRED AT FLASHING EDGE ON SCUPPER EDGE. CARLISLE HP-250 PRIMER MUST BE USED TO PREPARE SURFACES PRIOR TO APPLYING SEALANT.

DETAIL: SCUPPER (8/S5)
Scale: 3/4" = 1'-0"

Layout: S5 Drawing: G:\Projects 10\C10117 USU Taggart Student Center\ BASE_T.dwg

DFCM PROJECT NO. 10236770

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SHEET NO. S5 OF . SHEETS