

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- Manufacture 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 Roofing

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.
- 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.
- 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.

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 FCM manufacture warranty for low slope roofing.
- 2- All insulation incorporated into roofing system must be approved and documented as a UL rated assembly that meet 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.

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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.

Rev.	Date	By	Description

SARGENT
Sargent Engineers, Inc.
95 West 100 South, Suite 115
Logan, UT 84321
Tel. 435 753-7214 • Fax 435 753-7295

DFCM PROJECT NO. 08151770

RESERVE BUILDING RE-ROOF
UTAH STATE UNIVERSITY
Logan, UT 84322
Specifications



Designed by:	MCD
Checked by:	CLR
Prj. Drafter:	DGB
Drafter:	DGB
Issue Date:	9/08
Project Ref.:	C0812100
Client Ref.:	08151770

SHEET NO.	OF
50	4
SHEETS	

700 NORTH

1200 EAST

FORAGE & RANGE RESEARCH LAB

UNIVERSITY RESERVE BUILDING
REMOVE AND REPLACE
UPPER ROOF SYSTEM
PER PLAN SHEET S2

ACCESS TO BE
CLOSED (EXCEPT FOR
EMERGENCY EGRESS)
WHEN WORKING IN
VICINITY OF
DOORWAY

ART SCULPTURE LAB

CHASE FINE ARTS CENTER

MAIN ACCESS NOT TO
BE OBSTRUCTED
DURING
CONSTRUCTION

CONTRACTOR TO
COORDINATE W/ USU FOR
ADEQUATE STAGING AREA.
MAINTAIN BUILDING ACCESS AS
REQUIRED FOR SERVICE VEHICLES.

PRESERVE AND PROTECT
TREES AND SHRUBS.

PROVIDE CONSTRUCTION
FENCE AROUND WORK AREA.

APPROXIMATE LOCATION OF
DUMPSTER FOR ROOF REMOVAL

PROPOSED SITE CONTROL PLAN

Scale: NTS



DFCM PROJECT NO. 08151770

RESERVE BUILDING RE-ROOF

UTAH STATE UNIVERSITY

Logan, UT 84322

Proposed Site Control Plan

Designed by:	MCD
Checked by:	CLR
Prj. Drafter:	DGB
Drafter:	MCD
Issue Date:	9/08
Project Ref.:	C08121.00
Client Ref.:	08151770

SHEET NO.	OF
S1	4
SHEETS	

SARGENT

Sargent Engineers, Inc.

95 West 100 South, Suite 115

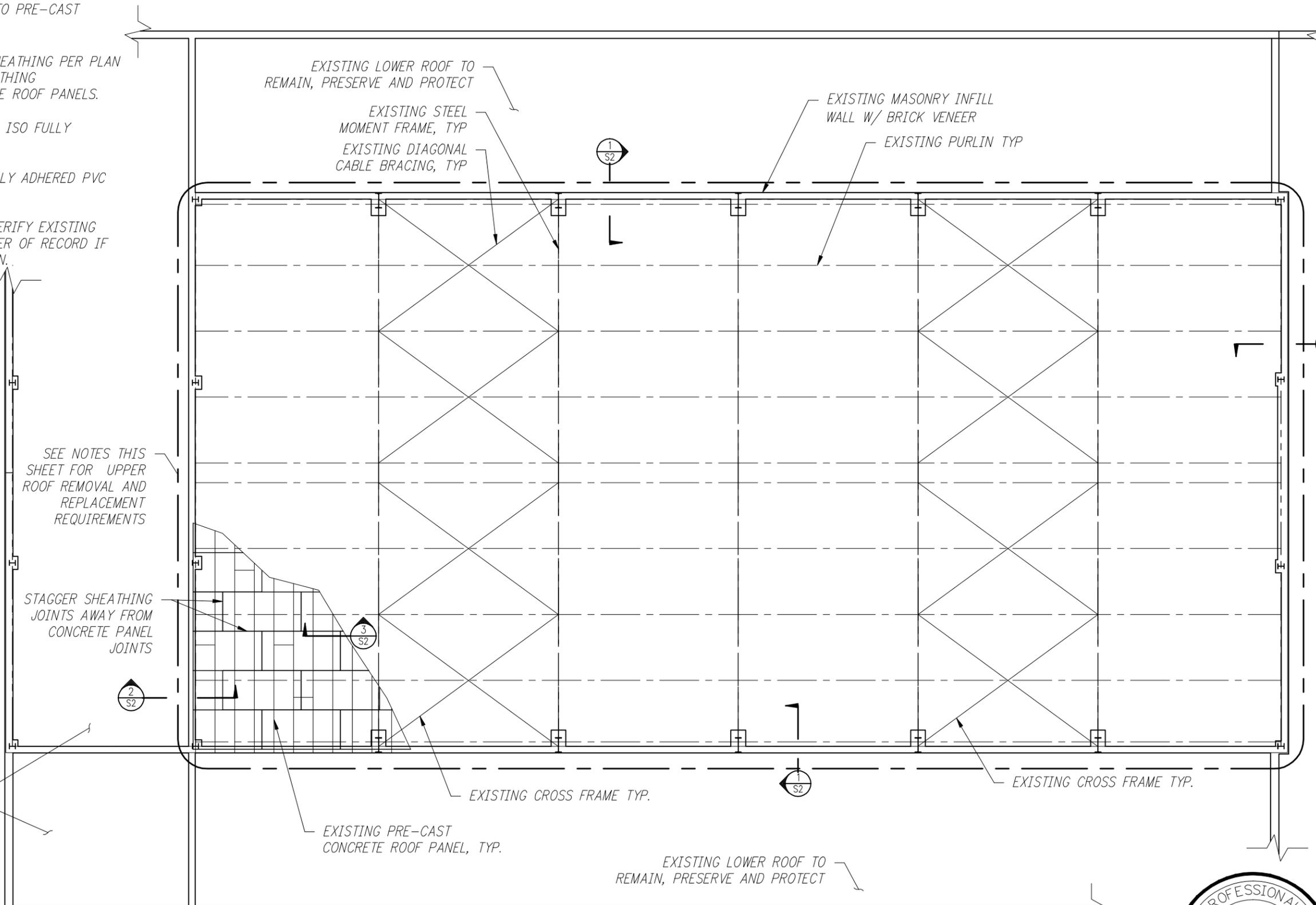
Logan, UT 84321

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Rev.	Date	By	Description

NOTES:

- 1- REMOVE EXISTING ROOF TO PRE-CAST CONCRETE ROOF PANELS.
- 2- PLACE $\frac{19}{32}$ " APA RATED SHEATHING PER PLAN AND DETAILS. ORIENT SHEATHING PERPENDICULAR TO CONCRETE ROOF PANELS.
- 3- INSTALL 2 LAYERS OF 2" ISO FULLY ADHERED
- 4- INSTALL NEW 60 MIL FULLY ADHERED PVC MEMBRANE
- 5- CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS. NOTIFY ENGINEER OF RECORD IF CONDITIONS VARY FROM PLAN.



UPPER ROOF REPLACEMENT PLAN

Scale: 3/32 = 1'-0"



DFCM PROJECT NO. 08151770

RESERVE BUILDING RE-ROOF
UTAH STATE UNIVERSITY
Logan, UT 84322

Upper Roof Replacement Plan

Designed by: MCD
Checked by: CLR
Prj. Drafter: DGB
Drafter: DGB
Issue Date: 9/08
Project Ref.: C08121.00
Client Ref.: 08151770

SHEET NO. S2 OF 4 SHEETS

SARGENT
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Rev.	Date	By	Description

INSTALL 5/8"Ø THREADED ROD @ 48" O/C W/
HILTI HIT HY-150 EPOXY W/ 5" MIN EMBEDMENT.
ALTERNATE NEW ANCHORS BETWEEN EXISTING
ANCHORS FOR 24" O/C. NET SPACING

16d NAILS AT 12" O/C. MIN.

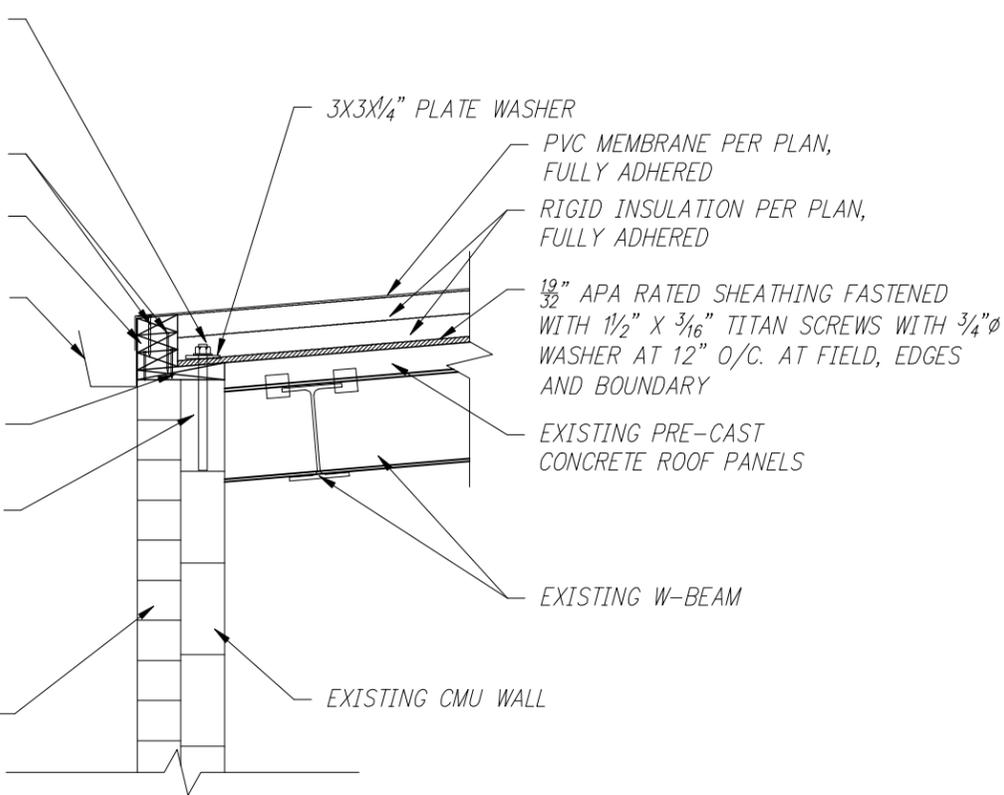
CONTINUOUS BUILT UP 2x6
WOOD NAILER

INSTALL RAIN GUTTER AND
FLASHING TO DFCM STANDARD,
SUBMIT FOR APPROVAL

PRESSURE TREATED
BEVELED BLOCKING

FIELD VERIFY EXISTENCE OF
BOND BEAM. NOTIFY
ENGINEER OF RECORD IF
CONDITIONS ARE DIFFERENT
THAN SHOWN

EXISTING BRICK VENEER



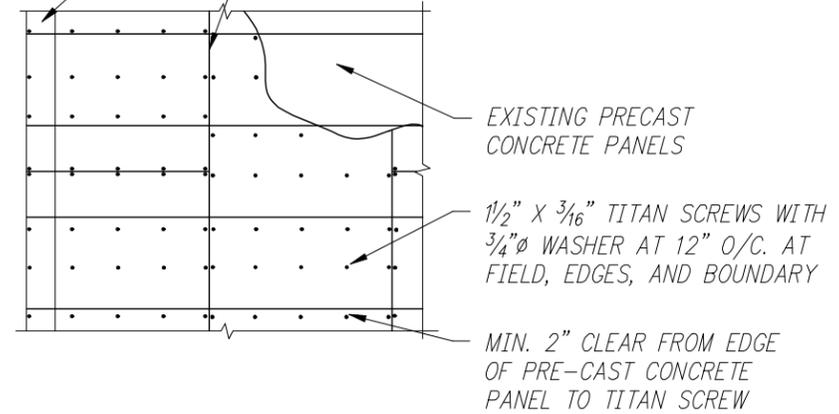
EAVE DETAIL

Scale: 3/4" = 1'-0"

1
S2

EXISTING MASONRY WALL AT EAVE

19/32" APA RATED SHEATHING STAGGER
SHEATHING JOINTS AWAY FROM PRE-CAST
PANEL JOINTS. ORIENT SHEATHING WITH
LONG DIMENSION PERPENDICULAR TO
CONCRETE PANEL ORIENTATION



TYP ROOF DIAPHRAGM

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

3
S2

INSTALL 5/8"Ø THREADED ROD @ 24"
O/C W/ HILTI HIT-HY 150 EPOXY.
PROVIDE 5" MIN EMBEDMENT

16d NAILS AT 12" O/C.
MIN. SPACING, TYP.

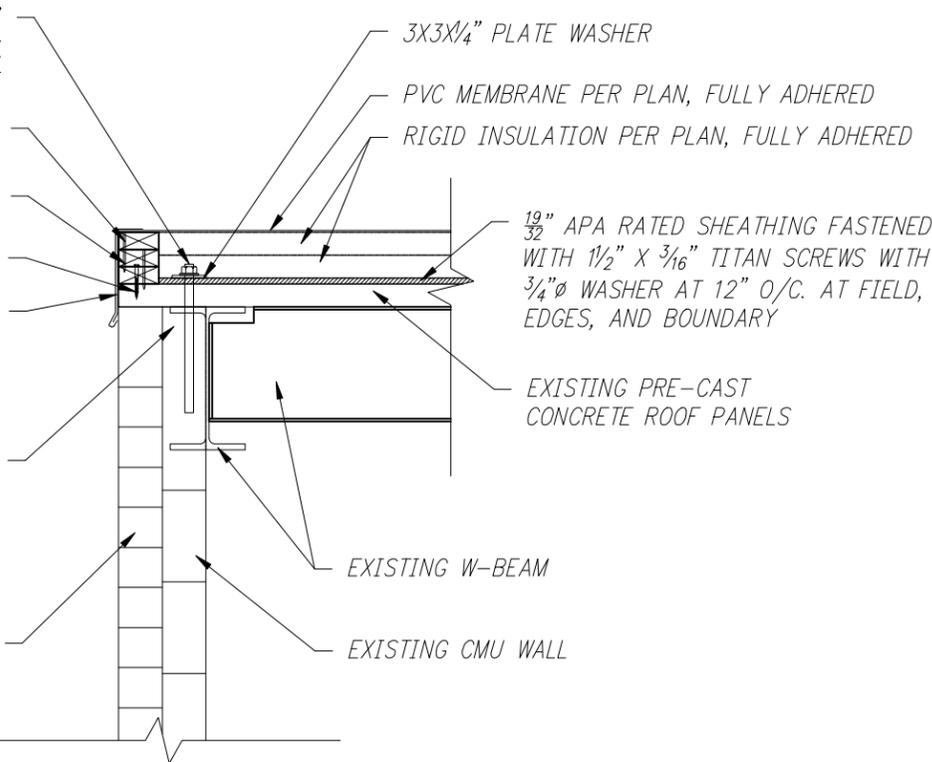
CONTINUOUS BUILT UP 2x6
WOOD NAILER

3" X 1/4" Ø TITAN SCREW @ 12" O/C.

INSTALL FLASHING AND DRIP
EDGE W/ HOLDOWN CLIP PER
DFCM STANDARD. SUBMIT FOR
APPROVAL

FIELD VERIFY EXISTENCE, AND
DIMENSIONS OF BONDBEAM. ALSO
VERIFY THAT PRE-CAST CONCRETE
PANELS EXTEND TO END OF WALL.
NOTIFY ENGINEER OF RECORD IF
CONDITIONS ARE OTHER THAN AS SHOWN.

EXISTING BRICK VENEER



ENDWALL DETAIL

Scale: 3/4" = 1'-0"

2
S2

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DFCM PROJECT NO. 08151770

RESERVE BUILDING RE-ROOF
UTAH STATE UNIVERSITY
Logan, UT 84322
ROOF CONNECTION DETAILS



Designed by:	MCD
Checked by:	CLR
Prj. Drafter:	DGB
Drafter:	DGB
Issue Date:	9/08
Project Ref.:	C08121.00
Client Ref.:	08151770

SHEET NO.	OF
S3	4
SHEETS	