

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 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.

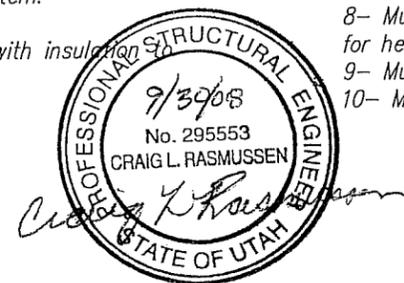
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Membrane Requirements

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**  
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 Logan, UT 84321  
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DFCM PROJECT NO. 08293520

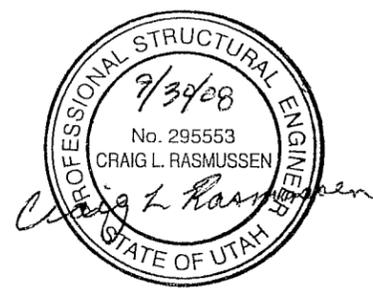
Utah Div. of Facilities Const. & Manag.  
 Mantua Fish Hatchery Re-Roof  
 Mantua, Utah  
 SPECIFICATIONS

Designed by:	
Checked by:	
Proj. Drafter:	MCD
Drafter:	MCD
Issue Date:	
Project Ref.:	
Client Ref.:	
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SHEETS	

Final set 9/30/08

Plot: \_\_\_\_\_ Time: \_\_\_\_\_ Last Detailer: \_\_\_\_\_  
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Plot: . Time: . Last Detailer: . Layout: Site Control Plan Drawing: G:\Projects 08\008132 DFCM Mantua Fish Hatchery Building\ Mantua Fish Hatchery.dwg



DFCM PROJECT NO. 08293520

Utah Div. of Facilities Const. & Manag.  
Mantua Fish Hatchery Re-Roof  
Mantua, Utah  
PROPOSED SITE CONTROL PLAN

Designed by: .  
Checked by: .  
Proj. Drafter: MCD  
Drafter: MCD  
Issue Date: .  
Project Ref.: .  
Client Ref.: .

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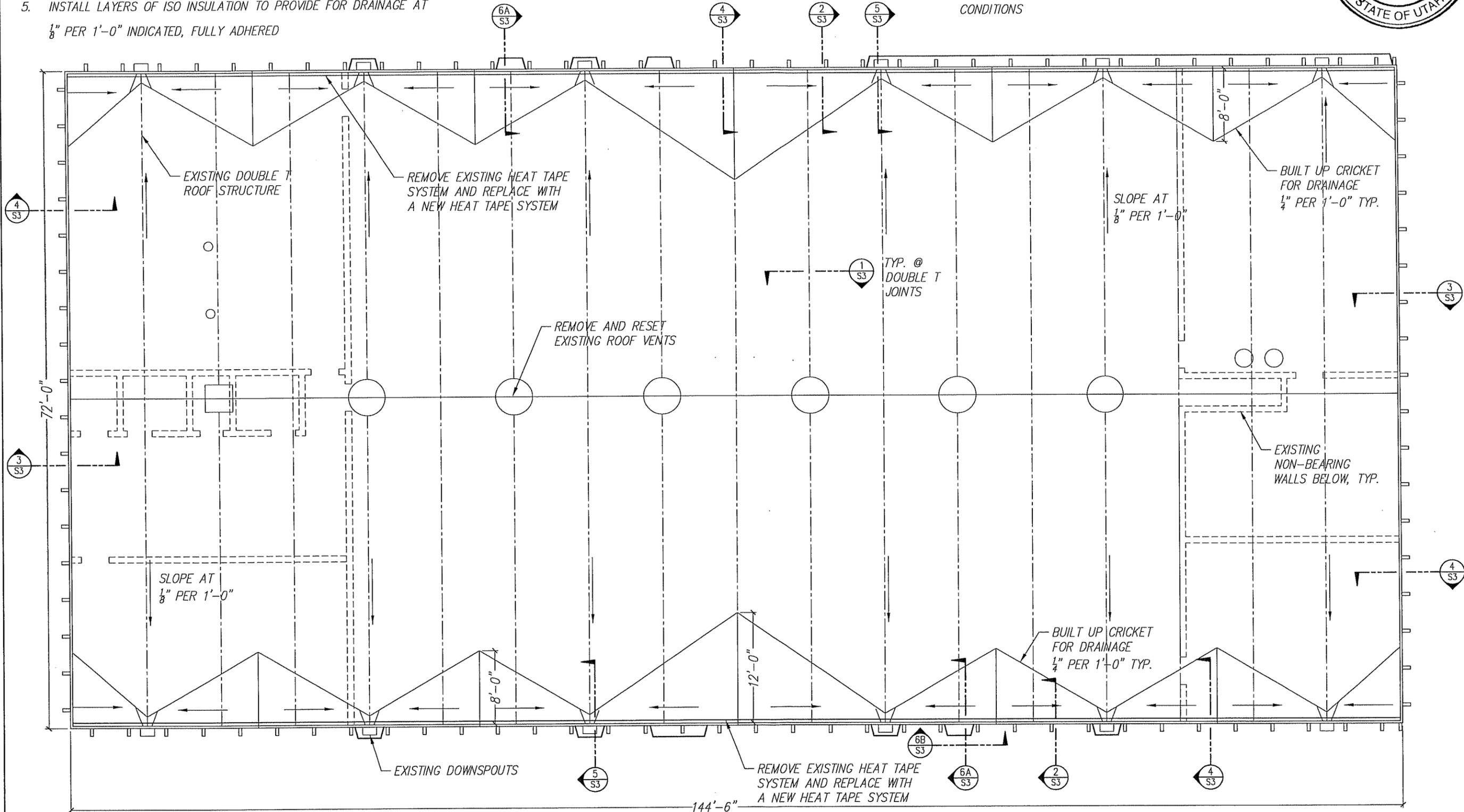
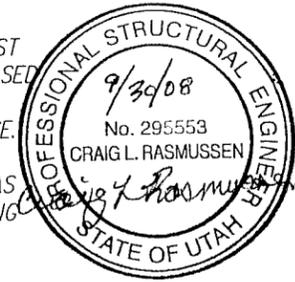
GENERAL DESCRIPTION OF WORK

1. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS
2. REMOVE EXISTING BUILT UP GRAVEL ROOF TO DECK REMOVE EXISTING FLASHING AT TOP OF WALL
3. INSTALL ADHERED VAPOR BARRIER AT EXISTING ROOF, HOT ASPHALT IS AN ACCEPTABLE SYSTEM
4. INSTALL 1 LAYER OF 2" ISO, FULLY ADHERED
5. INSTALL LAYERS OF ISO INSULATION TO PROVIDE FOR DRAINAGE AT  $\frac{1}{8}$ " PER 1'-0" INDICATED, FULLY ADHERED
6. INSTALL CRICKETS BETWEEN DRAINS FOR POSITIVE DRAINAGE @  $\frac{1}{4}$ " PER 1'-0"
7. INSTALL NEW 60 MIL FULLY ADHERED PVC MEMBRANE
8. REPAIR DAMAGED AND UNCONNECTED DOWNSPOUTS AFTER RE-ROOF
9. POWER WASH, CLEAN AND SEAL TOP OF DOUBLE T WEB SECTIONS WITH POLYMER BASED CONCRETE SEALANT. SUBMIT PRODUCT TO ENGINEER AND DFCM FOR APPROVAL BEFORE USE.

APPROXIMATE EXTENT OF DAMAGED CONCRETE. THE AMOUNT OF DETERIORATION TO WALL VARIES AT THE BUILDING LOCATIONS SHOWN IN PLAN.

POWER WASH & REMOVE LOOSE CONCRETE CLEAN SCALE & RUST FROM REINFORCING. PATCH PARAPET WALL WITH A POLYMER BASED CONCRETE REPAIR PRODUCT. SUBMIT REPAIR PRODUCT AND PROCESS TO ENGINEER AND DFCM FOR APPROVAL PRIOR TO USE.

NOTIFY ENGINEER WHEN PARAPET CAP & ROOFING MATERIAL HAS BEEN REMOVED FOR OBSERVATION AND VERIFICATION OF EXISTING CONDITIONS



ROOF PLAN  
Scale: 3/32" = 1'-0"

Plot: Time: Last Detailer: Layout: Roof Plan Drawing: G:\Projects 08\08132 DFCM Mantua Fish Hatchery\08132.dwg

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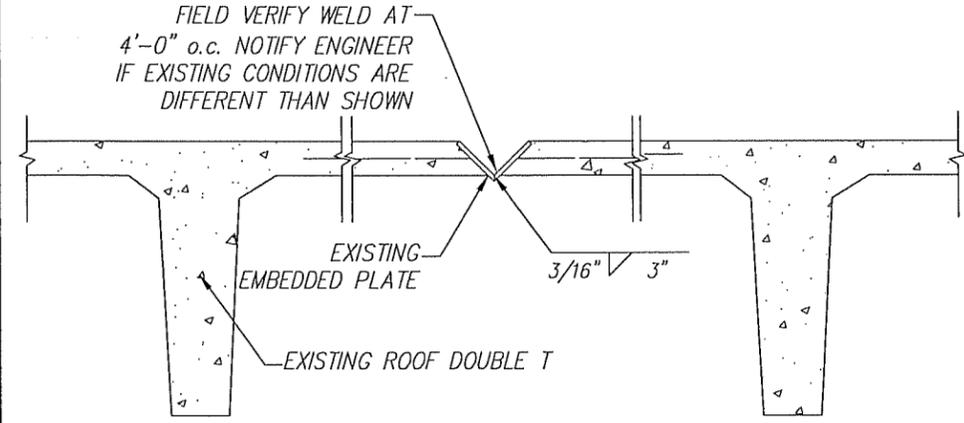
Utah Div. of Facilities Const. & Manag.  
Mantua Fish Hatchery Re-Roof  
Mantua, Utah  
ROOF PLAN

Designed by:	
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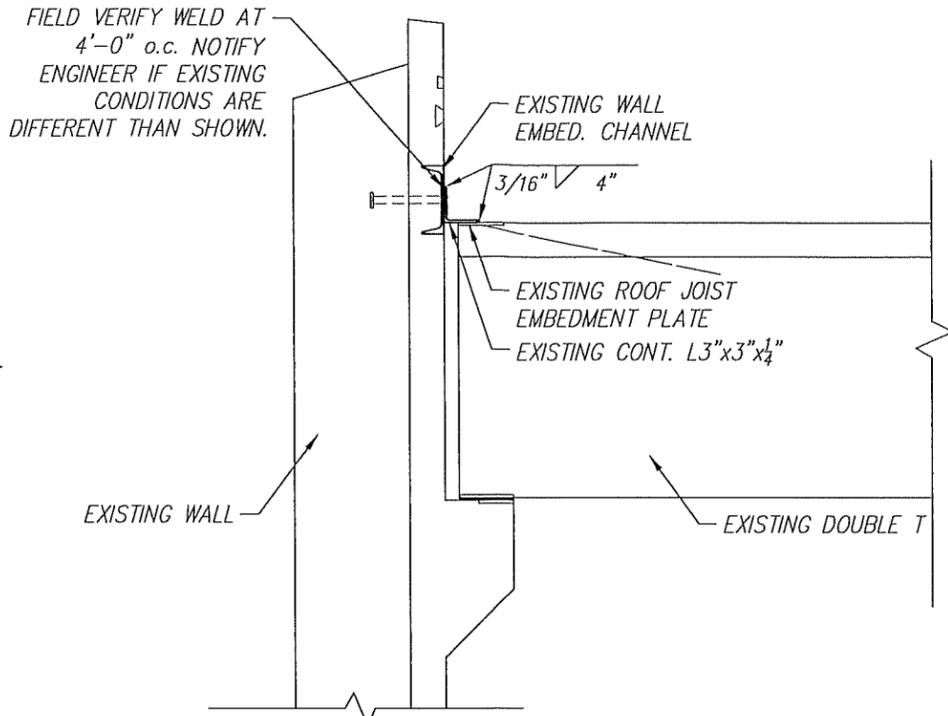
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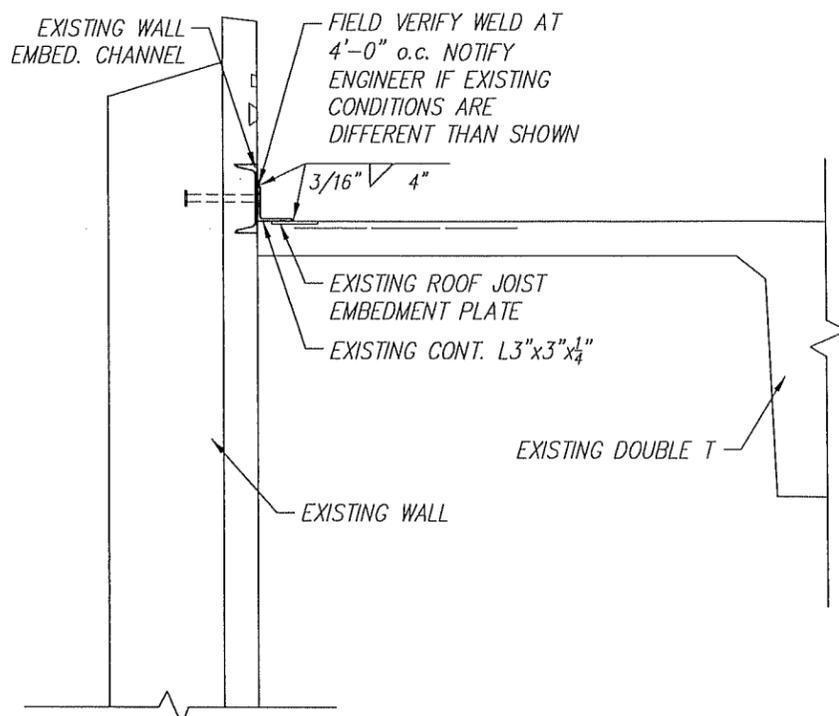
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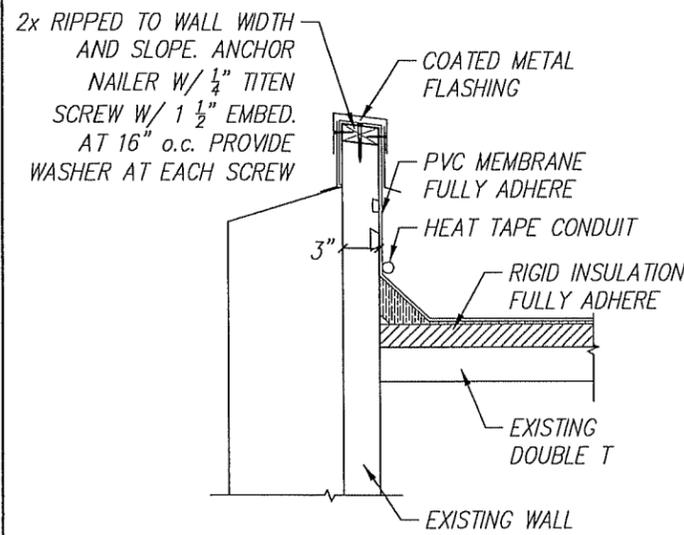
**DOUBLE T CONNECTION**  
Scale: 3/4" = 1'-0"  
① S3



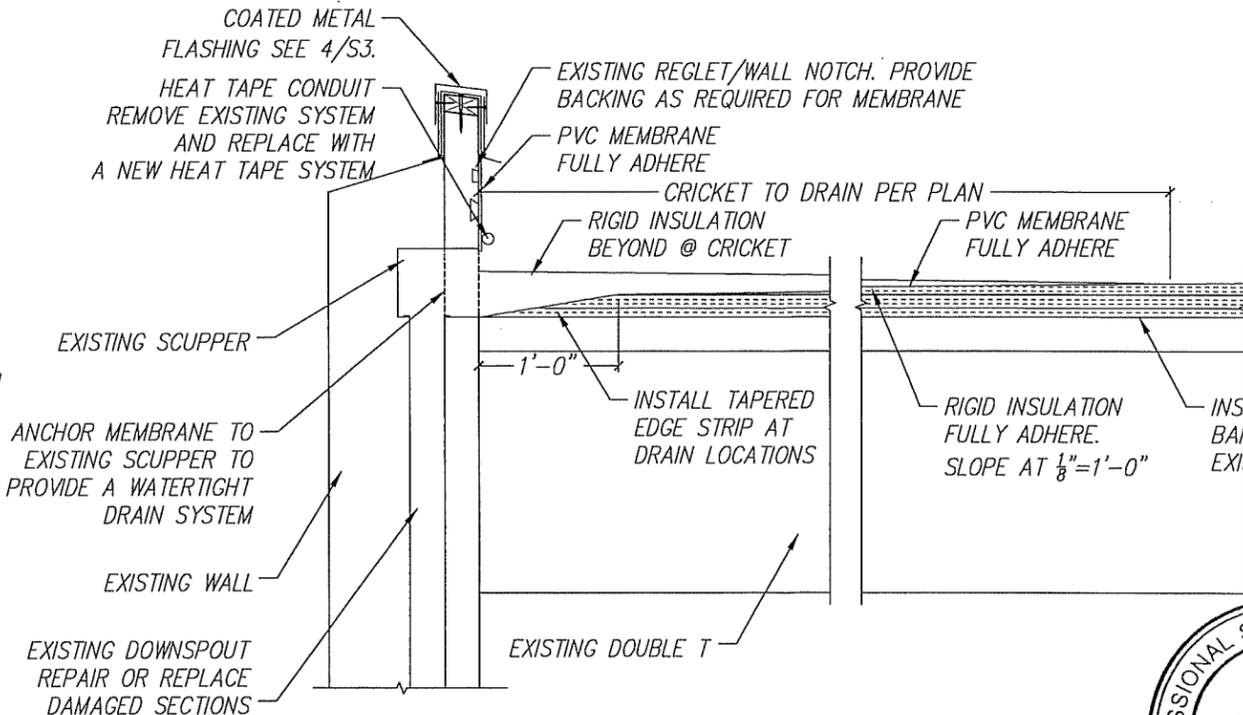
**ROOF TO WALL**  
Scale: 3/4" = 1'-0"  
② S3



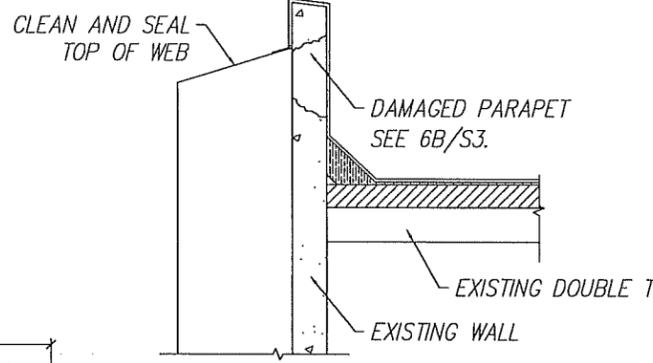
**ROOF TO WALL**  
Scale: 3/4" = 1'-0"  
③ S3



**FLASHING DETAIL**  
Scale: 3/4" = 1'-0"  
④ S3

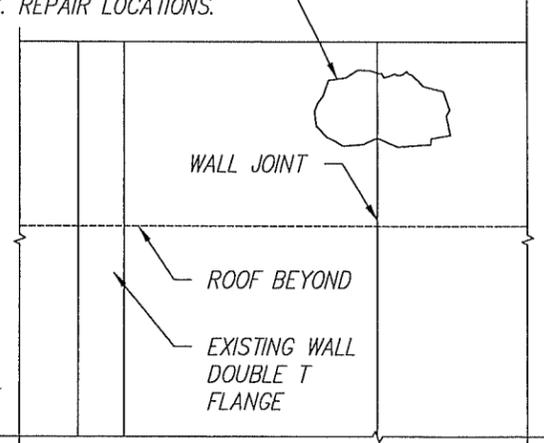


**DRAIN DETAIL**  
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⑤ S3

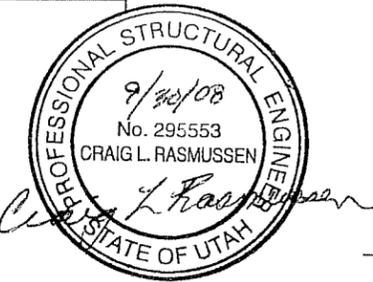


**CONCRETE REPAIR**  
Scale: 3/4" = 1'-0"  
⑥A S3

POWER WASH AND REMOVE LOOSE CONCRETE, CLEAN SCALE AND RUST FROM REINFORCING SEE S2 FOR APPROX. REPAIR LOCATIONS.



**CONCRETE REPAIR ELEVATION**  
Scale: 3/4" = 1'-0"  
⑥B S3



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