Mandatory **Fundamental** BECx Tests ASTM E2813

- Air and Water testing of Opaque Walls
- Air and Water infiltration testing of Windows
- Infrared Roof Scan
- AAMA 501.2, ASTM E1105 Water Penetration Test of Installed Windows, Doors, Skylight & Curtain Walls
- Sealant Test

Mandatory **Enhanced** BECx Tests ASTM E2813

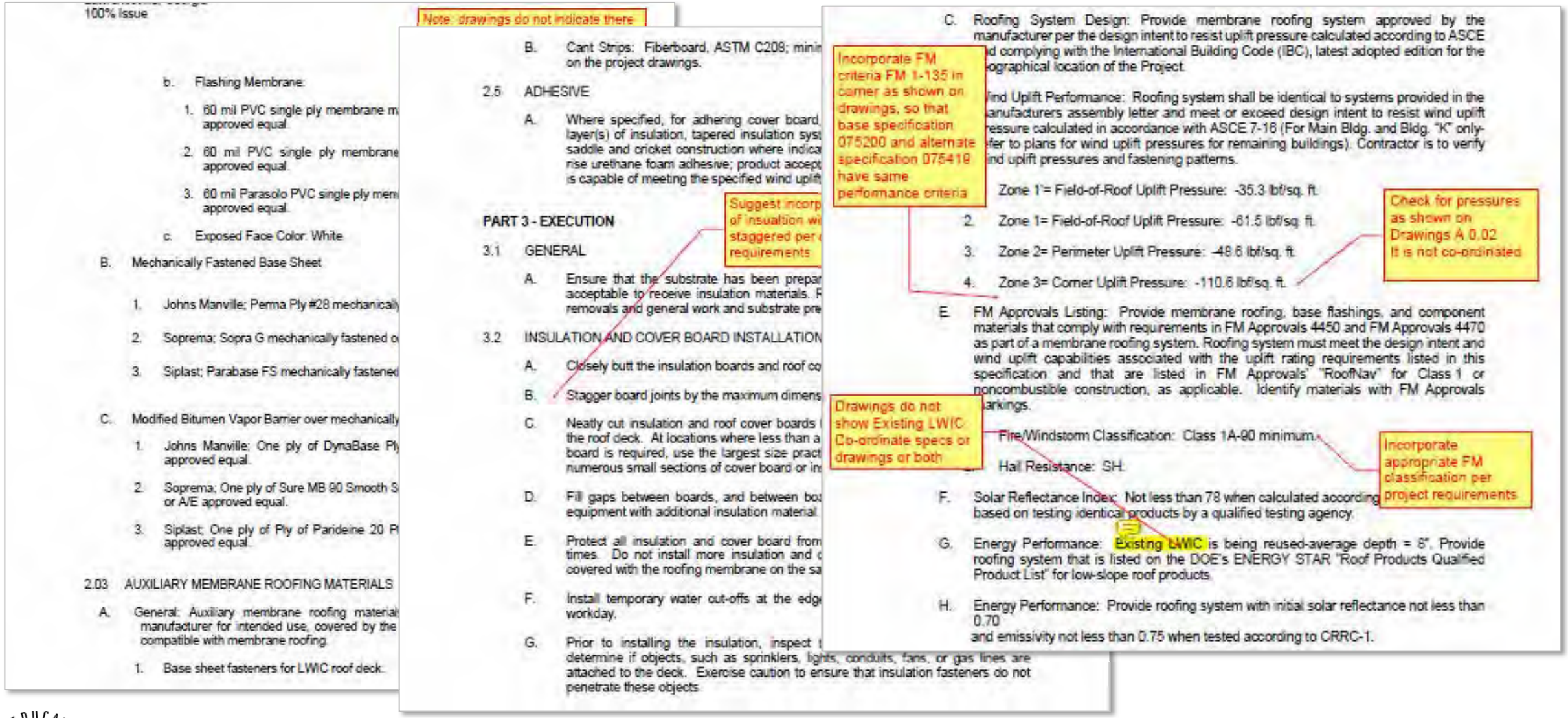
Whole Building Air Test (ASTM E1827) or Dynamic Fan testing (ASTM E779)

Dynamic Water Penetration test AAMA 501.1

Air Borne Sound Attenuation of Building Facades and Façade Elements (ASTM E966)

Field Tests Common to Enhanced and Fundamental Cx

		ENHANCED	FUNDAMENTAL
Air Leakage Testing of Opaque Walls	ASTM E783	Yes	Yes
Infrared Scan (Roof)	ASTM C1153	Yes	Yes
Horizontal Waterproofing- Water Test	(ASTM D5957)	Yes	Yes
Diagnostic Water Leakage Field Check of Installed Storefront, Curtain Wall, Sloped Glazing	AAMA 501.2	Yes	Yes
Static Water Penetration- Windows	ASTM E1105	Yes	Yes
Sealant Test	ASTM C1193	Yes	Yes



100% Issue

b. Flashing Membrane:

1. 60 mil PVC single ply membrane m
approved equal.
2. 60 mil PVC single ply membrane
approved equal.
3. 60 mil Parasolo PVC single ply mem
approved equal.

c. Exposed Face Color: White.

B. Mechanically Fastened Base Sheet

1. Johns Manville; Perma Ply #28 mechanically
2. Soprema; Sopra G mechanically fastened o
3. Siplast; Parabase FS mechanically fastened

C. Modified Bitumen Vapor Barrier over mechanically

1. Johns Manville; One ply of DynaBase Ply
approved equal.
2. Soprema; One ply of Sure MB 90 Smooth S
or A/E approved equal.
3. Siplast; One ply of Ply of Parideine 20 P
approved equal.

2.03 AUXILIARY MEMBRANE ROOFING MATERIALS

A. General: Auxiliary membrane roofing material
manufacturer for intended use, covered by the
compatible with membrane roofing.

1. Base sheet fasteners for LWIC roof deck.

Note: drawings do not indicate there

B. Cant Strips: Fiberboard, ASTM C208; minin
on the project drawings.

2.5 ADHESIVE

A. Where specified, for adhering cover board,
layer(s) of insulation, tapered insulation syst
saddle and cricket construction where indica
rise urethane foam adhesive; product accept
is capable of meeting the specified wind uplift

Suggest incorp
of insualtion wi
staggered per
requirements

PART 3 - EXECUTION

3.1 GENERAL

A. Ensure that the substrate has been prepar
acceptable to receive insulation materials. F
removals and general work and substrate pre

3.2 INSULATION AND COVER BOARD INSTALLATION

A. Closely butt the insulation boards and roof co

B. Stagger board joints by the maximum dimens

C. Neatly cut insulation and roof cover boards
the roof deck. At locations where less than a
board is required, use the largest size pract
numerous small sections of cover board or in

D. Fill gaps between boards, and between bo
equipment with additional insulation material

E. Protect all insulation and cover board from
times. Do not install more insulation and c
covered with the roofing membrane on the sa

F. Install temporary water cut-offs at the edg
workday.

G. Prior to installing the insulation, inspect t
determine if objects, such as sprinklers, lights, conduits, fans, or gas lines are
attached to the deck. Exercise caution to ensure that insulation fasteners do not
penetrate these objects.

C. Roofing System Design: Provide membrane roofing system approved by the manufacturer per the design intent to resist uplift pressure calculated according to ASCE
d complying with the International Building Code (IBC), latest adopted edition for the
ographical location of the Project.

Incorporate FM criteria FM 1-135 in corner as shown on drawings, so that base specification 075200 and alternate specification 075419 have same performance criteria

ind Uplift Performance: Roofing system shall be identical to systems provided in the
anufacturers assembly letter and meet or exceed design intent to resist wind uplift
ressure calculated in accordance with ASCE 7-16 (For Main Bldg. and Bldg. "K" only-
fer to plans for wind uplift pressures for remaining buildings). Contractor is to verify
ind uplift pressures and fastening patterns.

1. Zone 1'= Field-of-Roof Uplift Pressure: -35.3 lbf/sq. ft.
2. Zone 1= Field-of-Roof Uplift Pressure: -61.5 lbf/sq. ft.
3. Zone 2= Perimeter Uplift Pressure: -48.6 lbf/sq. ft.
4. Zone 3= Corner Uplift Pressure: -110.6 lbf/sq. ft.

Check for pressures as shown on Drawings A 0.02 It is not co-ordinated

E. FM Approvals Listing: Provide membrane roofing, base flashings, and component materials that comply with requirements in FM Approvals 4450 and FM Approvals 4470 as part of a membrane roofing system. Roofing system must meet the design intent and wind uplift capabilities associated with the uplift rating requirements listed in this specification and that are listed in FM Approvals' "RoofNav" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals
arkings.

Drawings do not show Existing LWIC Co-ordinate specs or drawings or both

Fire/Windstorm Classification: Class 1A-90 minimum.

Hail Resistance: SH.

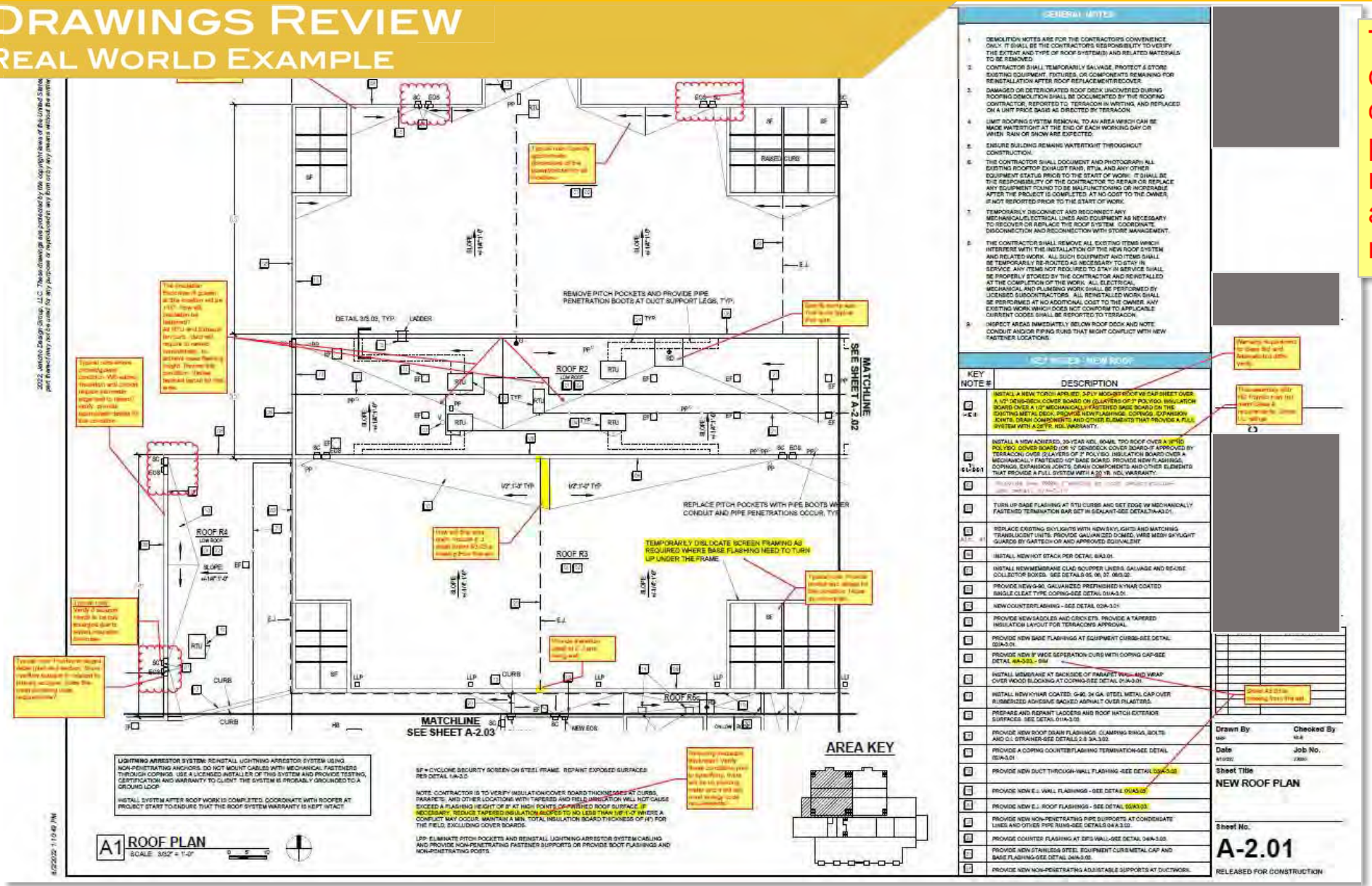
Incorporate appropriate FM classification per project requirements

F. Solar Reflectance Index: Not less than 78 when calculated according
based on testing identical products by a qualified testing agency.

G. Energy Performance: Existing LWIC is being reused-average depth = 8". Provide roofing system that is listed on the DOE's ENERGY STAR "Roof Products Qualified Product List" for low-slope roof products.

H. Energy Performance: Provide roofing system with initial solar reflectance not less than 0.70
and emissivity not less than 0.75 when tested according to CRRC-1.

Drawings Review
Real World Example

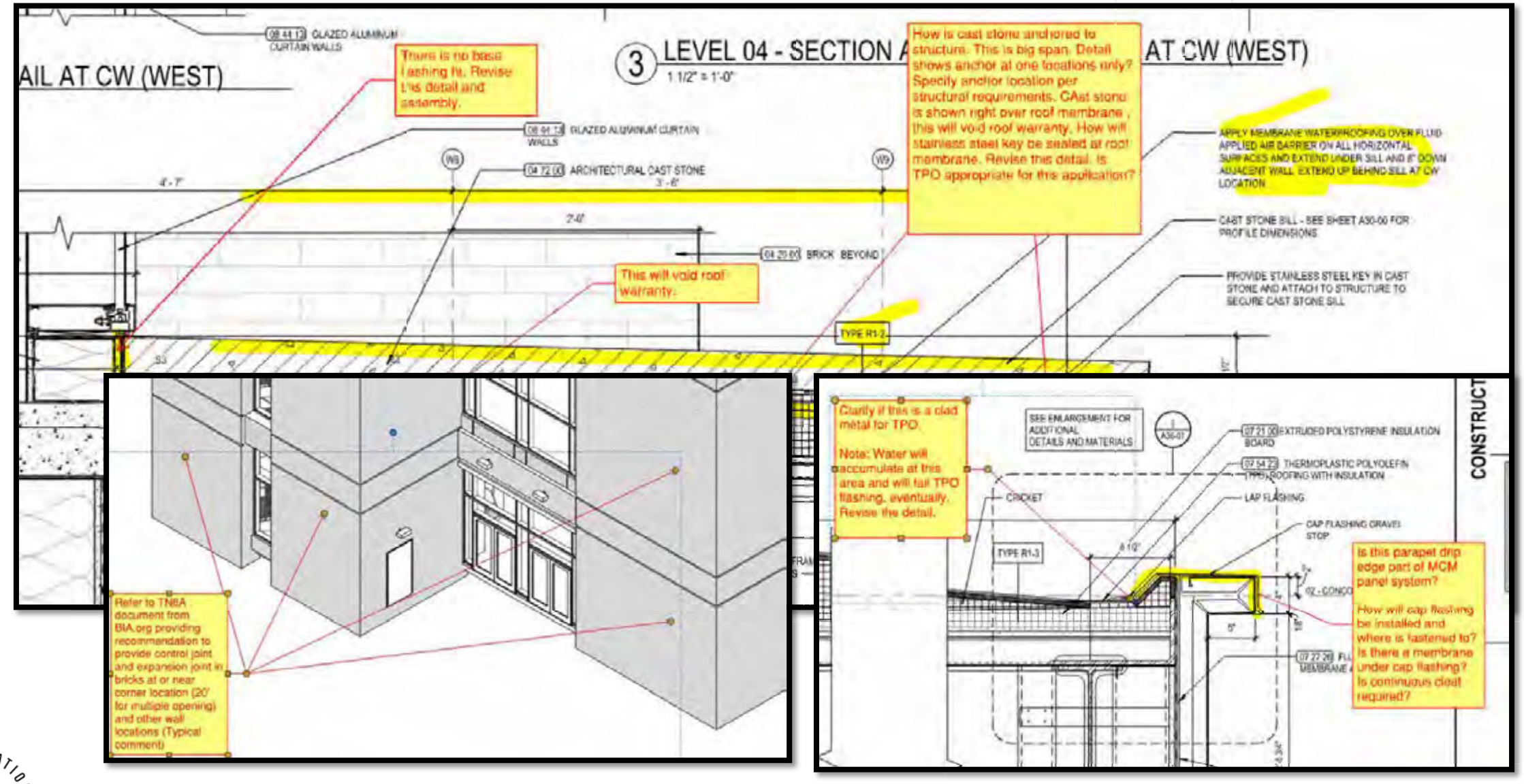


Typical note: Provide enlarged detail (plan and section. Show overflow scupper in relation to primary scupper. Does this meet Building code 1611.1 ar re

The insulation thickness of gusset at this location will be +15". How will insulation be fastened?
All RTU and Exhaust fan curb , duct will require to rais considerably achieve base height. Revie condition. Re tapered layou area.

Typical note where cricket/gusset condition. Will added insulation and cricket require perimeter edge wall to raised? verify. provide appropriate details for this condition

Typical note: Provide enlarged detail (plan and section. Show overflow scupper in relation to primary scupper. Does this meet plumbing code requirements?



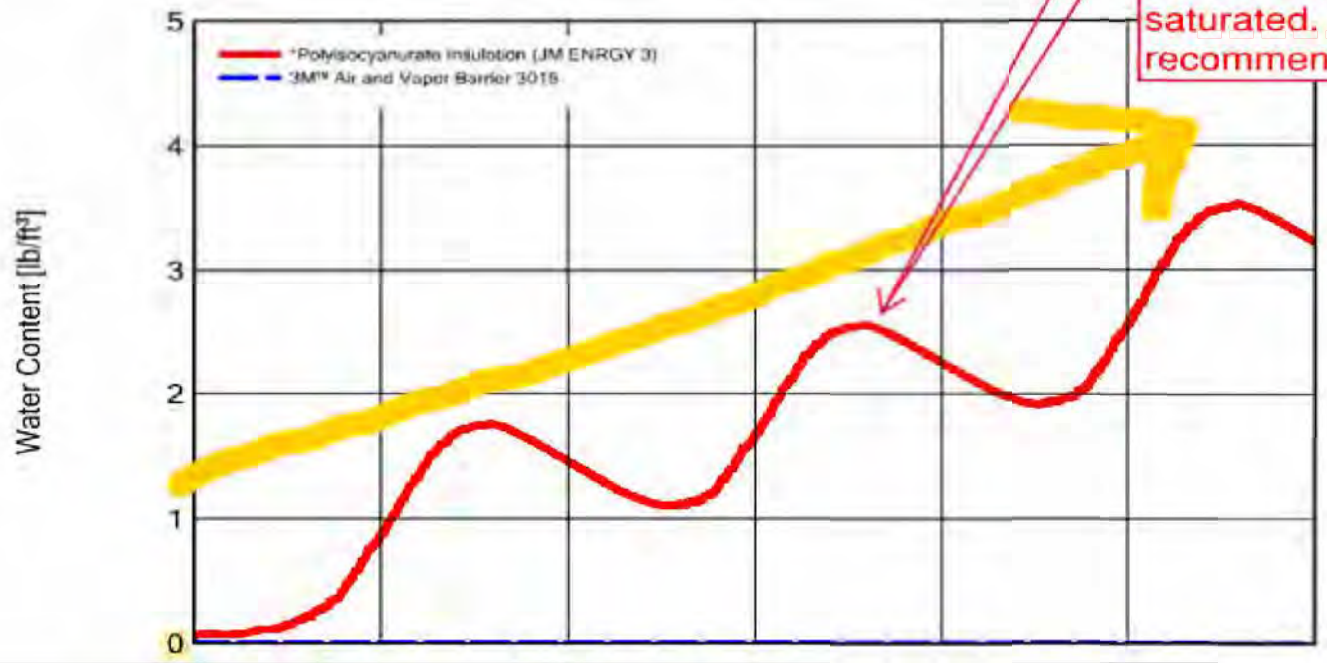
WUFI ANALYSIS

critical role due to the commence of material properties with external conditions.

WUFI Pro 6.6

model #2 with vapor barrier between layers of iso

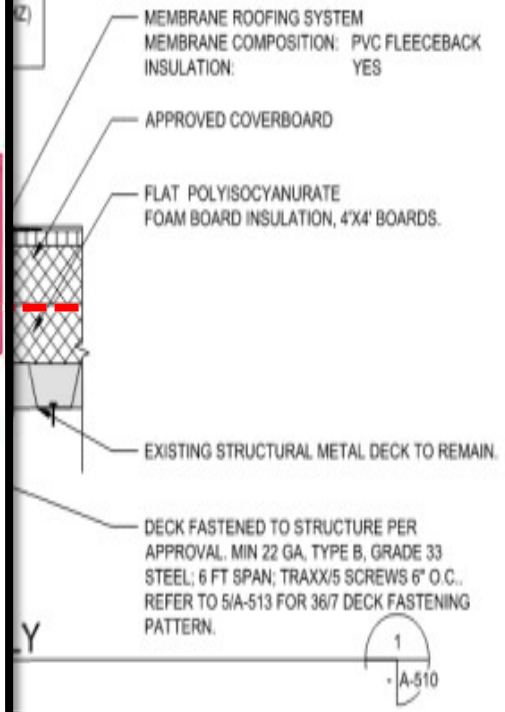
Water Content of Individual Materials



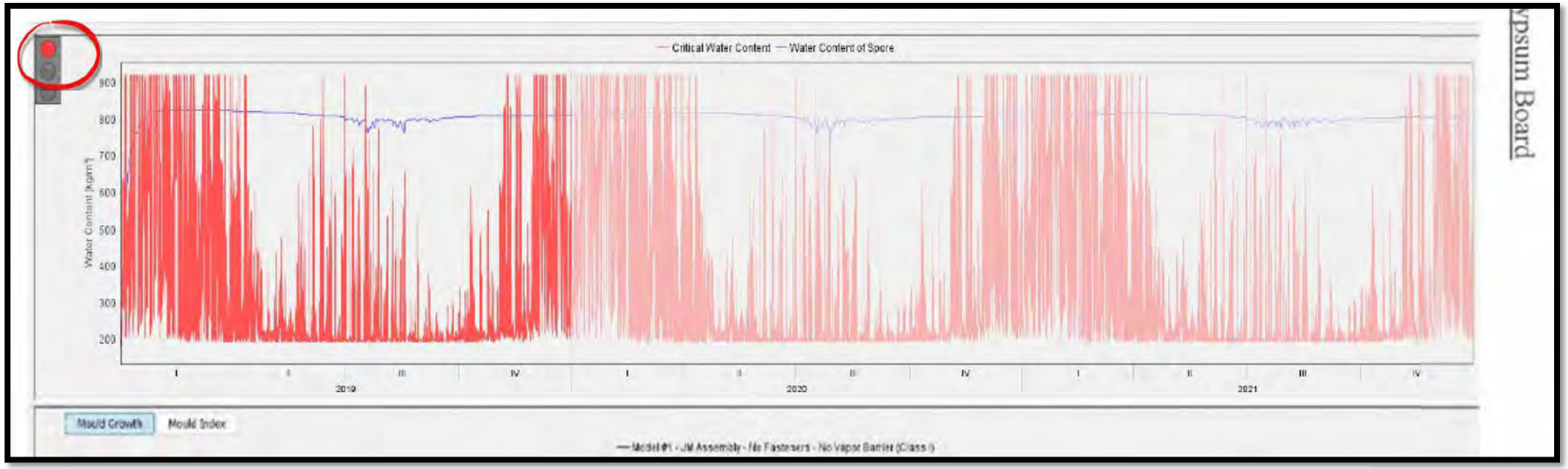
Water content of top layer of insulation is increasing over time. This layer will become saturated. This should not be recommended.

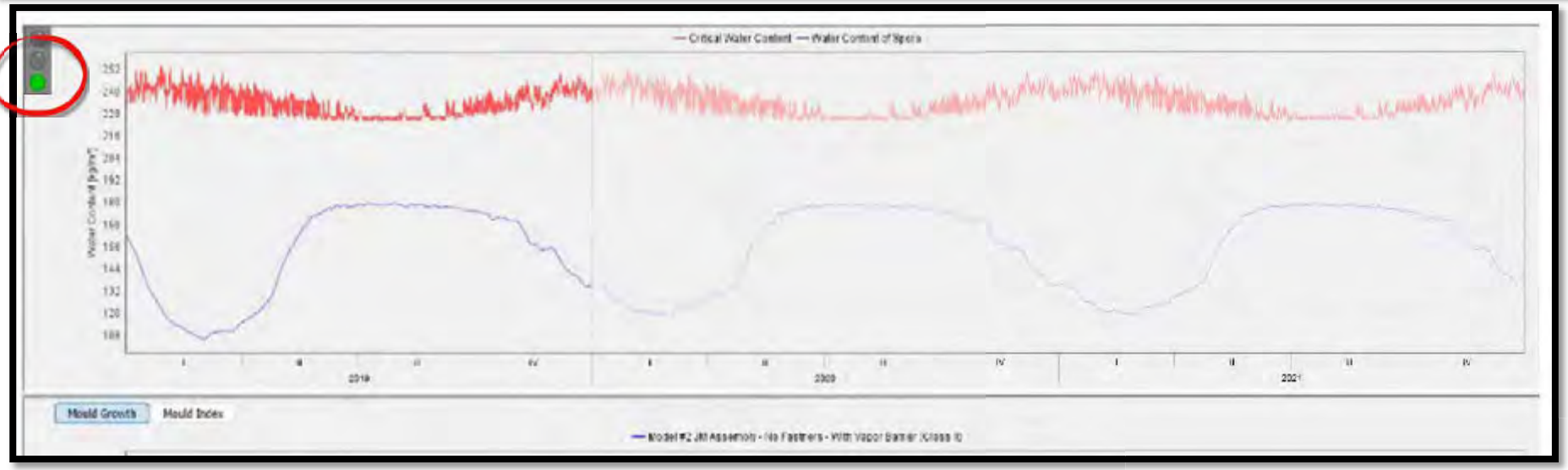
in **Model #2 (with vapor barrier)**. The assembly with no vapor barrier, **Model #1**, fails mold growth tests and indicates good levels of mycelium growth over three years as seen

BASIS OF DESIGN: SYSTEM S-153
MANUFACTURER: SEAMAN CORPORATION



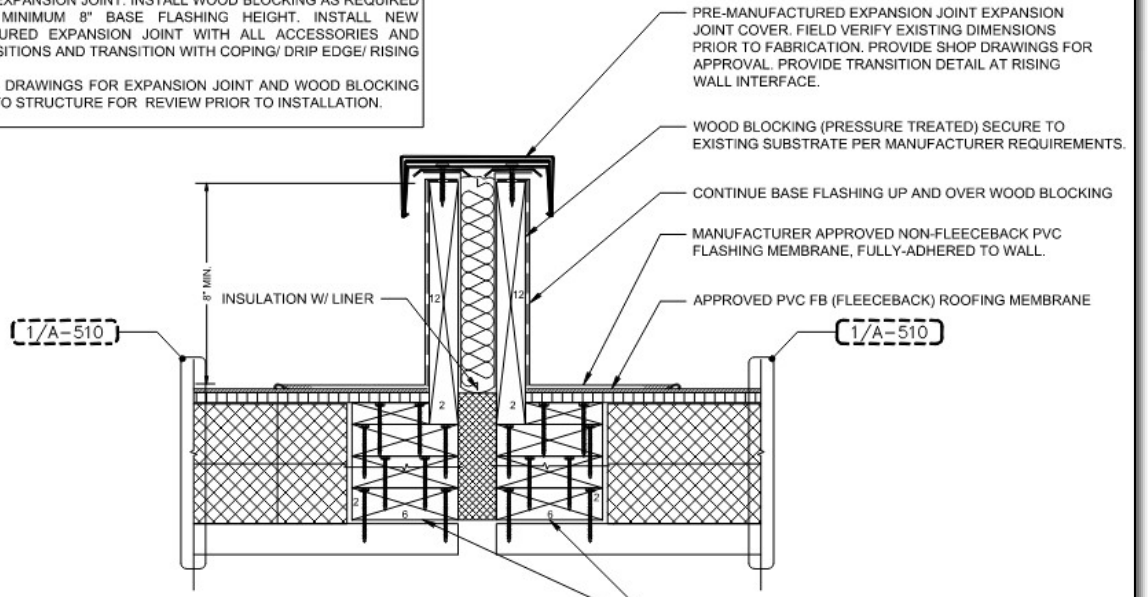
MOLD INDEX- WUFI



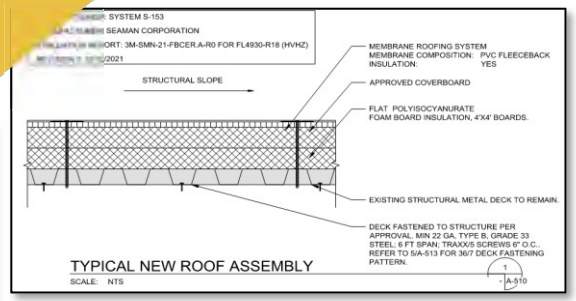


TARGET BECx OUTCOME
CONSTRUCTABLE DESIGN

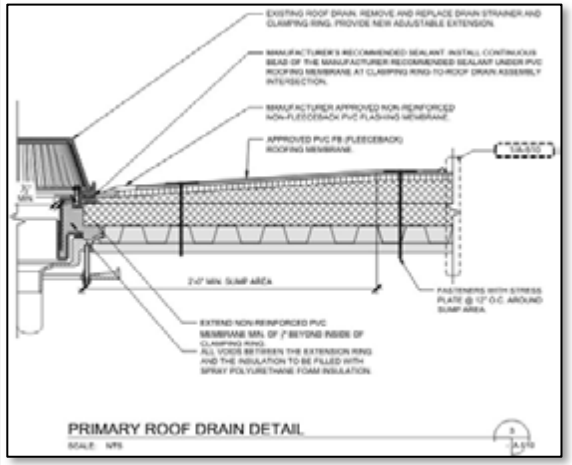
CAREFULLY REMOVE EXISTING METAL COUNTERFLASHING AND EXISTING SHEET METAL EXPANSION JOINT. INSTALL WOOD BLOCKING AS REQUIRED TO PROVIDE MINIMUM 8" BASE FLASHING HEIGHT. INSTALL NEW PREMANUFACTURED EXPANSION JOINT WITH ALL ACCESSORIES AND CORNER TRANSITIONS AND TRANSITION WITH COPING/ DRIP EDGE/ RISING WALL.
PROVIDE SHOP DRAWINGS FOR EXPANSION JOINT AND WOOD BLOCKING ATTACHMENT TO STRUCTURE FOR REVIEW PRIOR TO INSTALLATION.



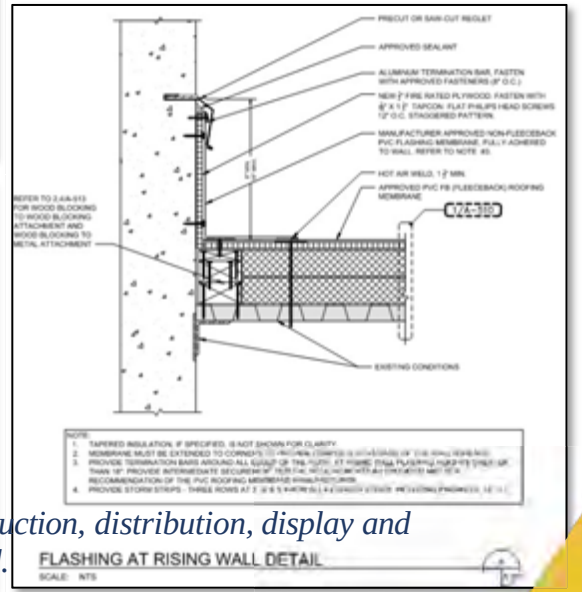
ROOF-TO-ROOF EXPANSION JOINT DETAIL
SCALE: NTS
11 - A-512



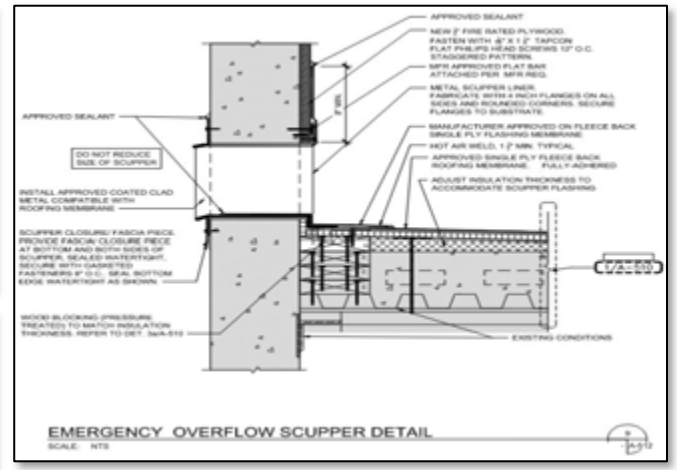
TYPICAL NEW ROOF ASSEMBLY
SCALE: NTS
1 - A-510



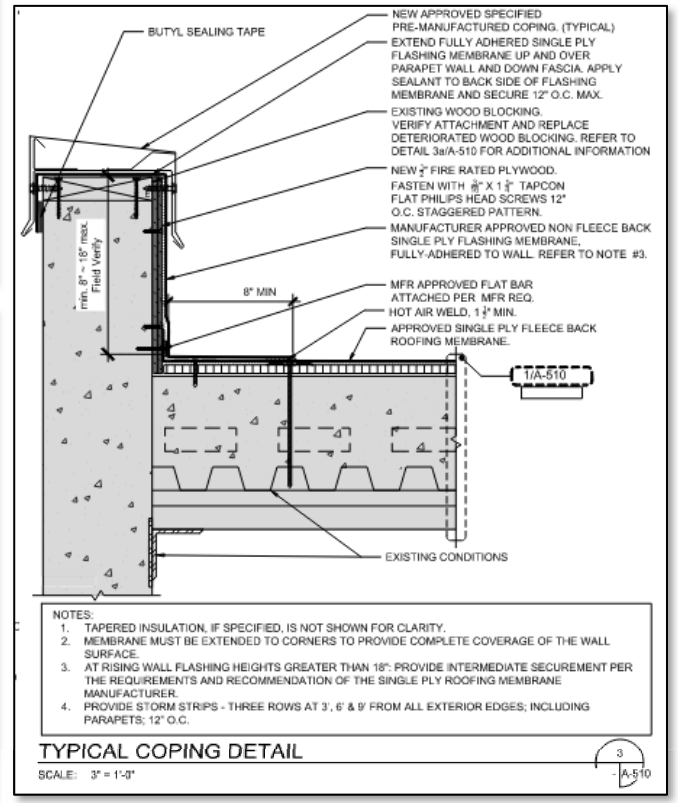
PRIMARY ROOF DRAIN DETAIL
SCALE: NTS
5 - A-510



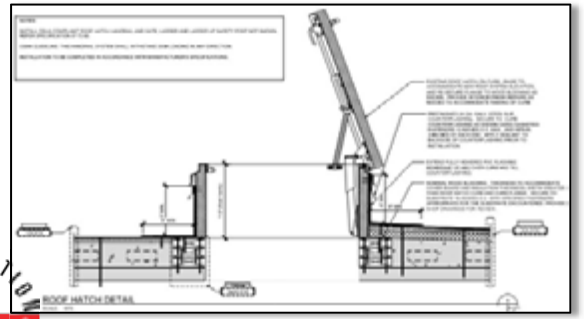
FLASHING AT RISING WALL DETAIL
SCALE: NTS
3 - A-510

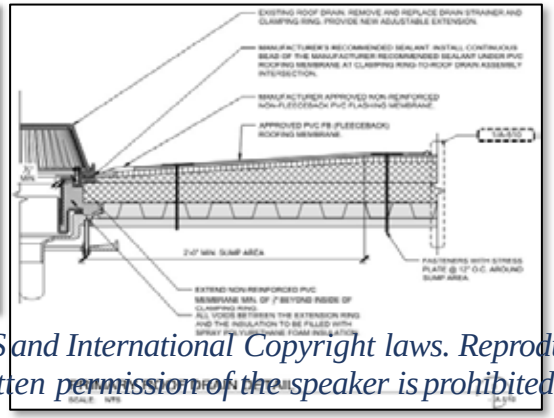


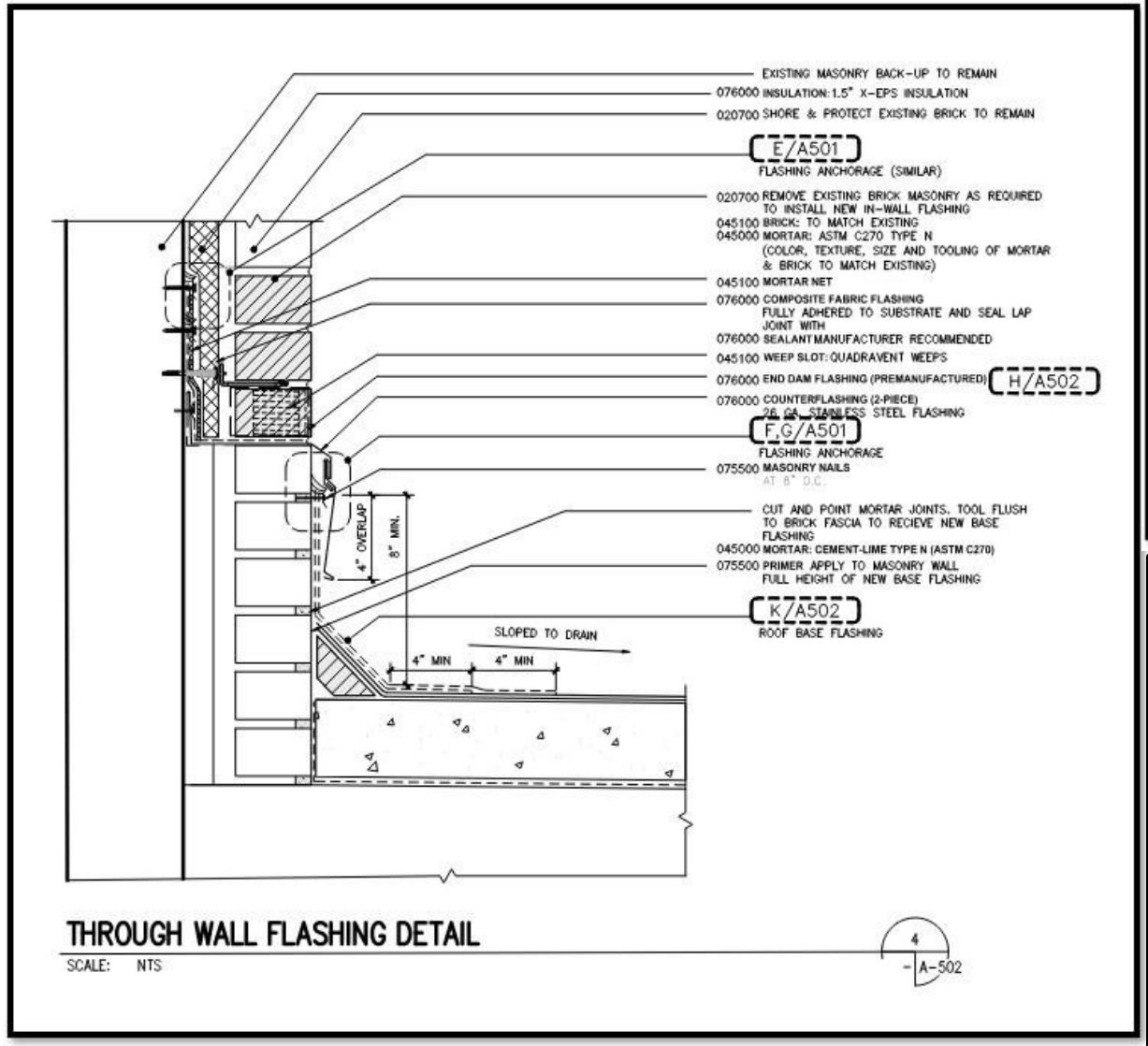
EMERGENCY OVERFLOW SCUPPER DETAIL
SCALE: NTS
4 - A-510

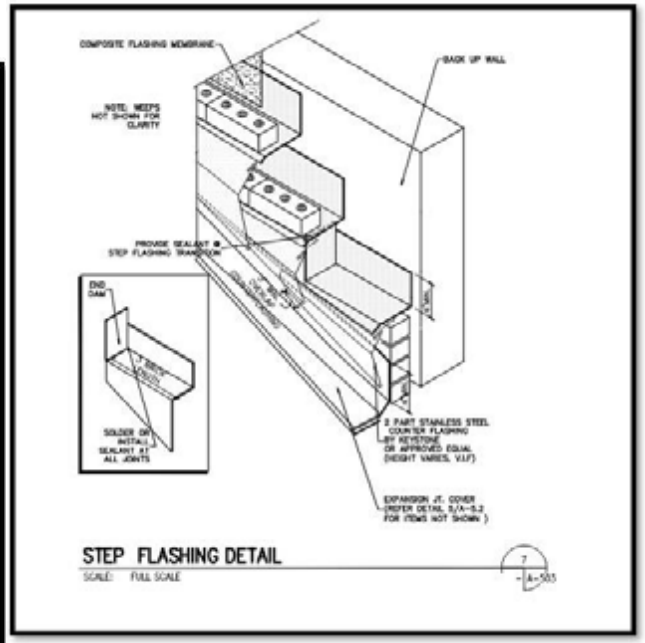


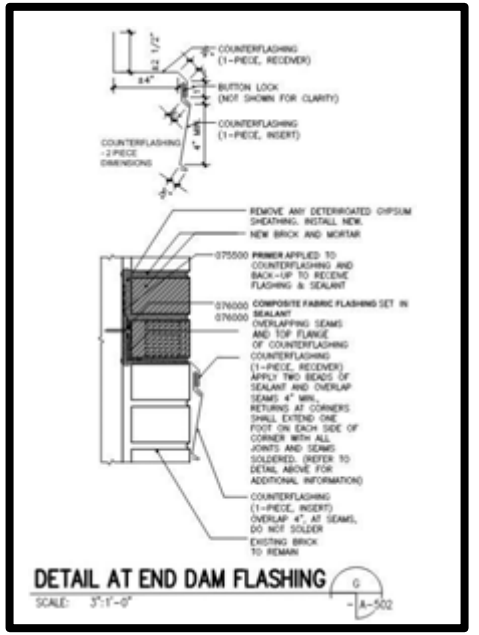
TYPICAL COPING DETAIL
SCALE: 3" = 1'-0"
3 - A-510

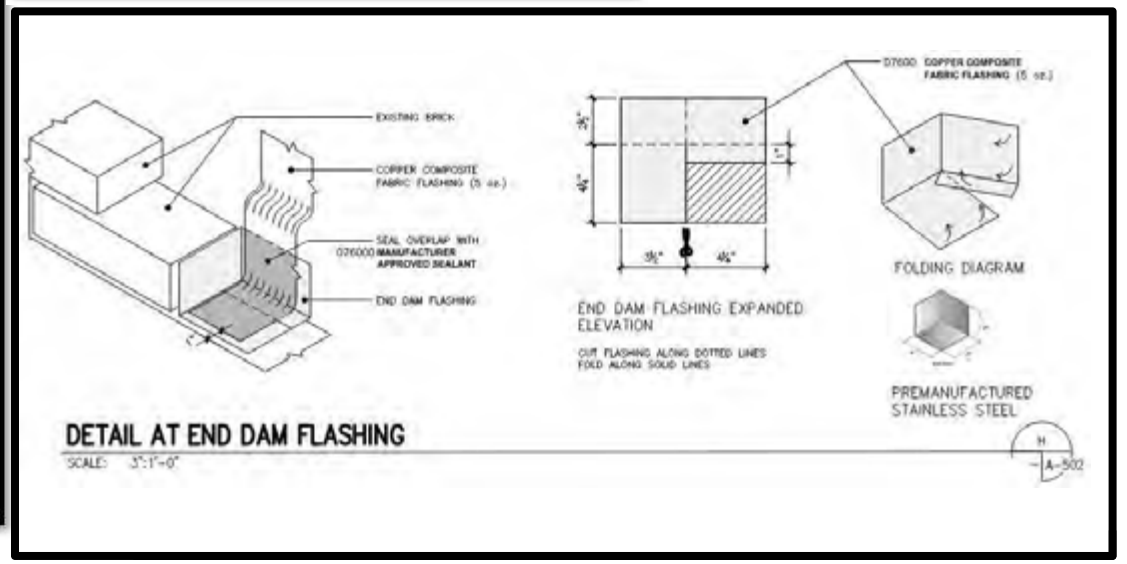




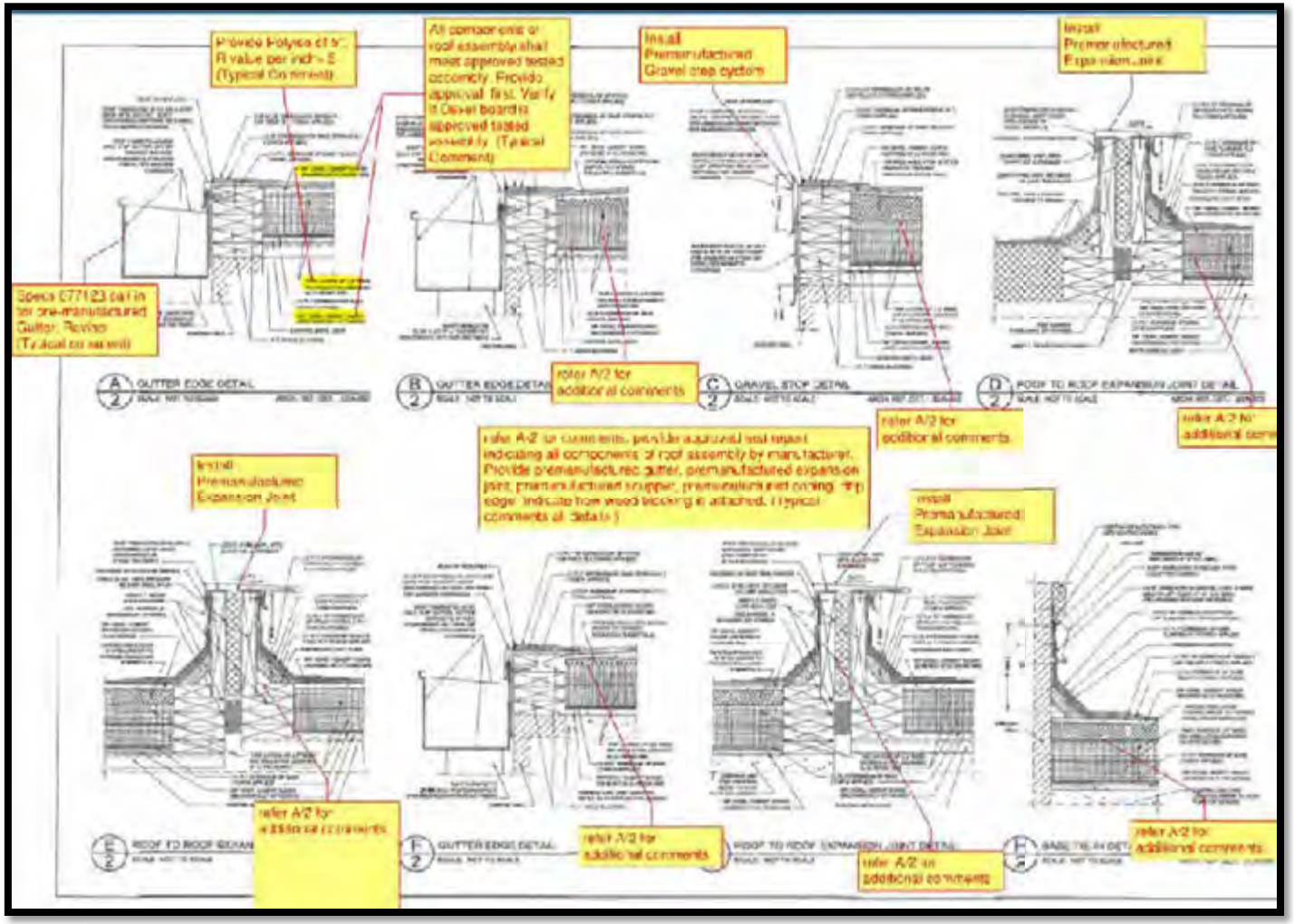


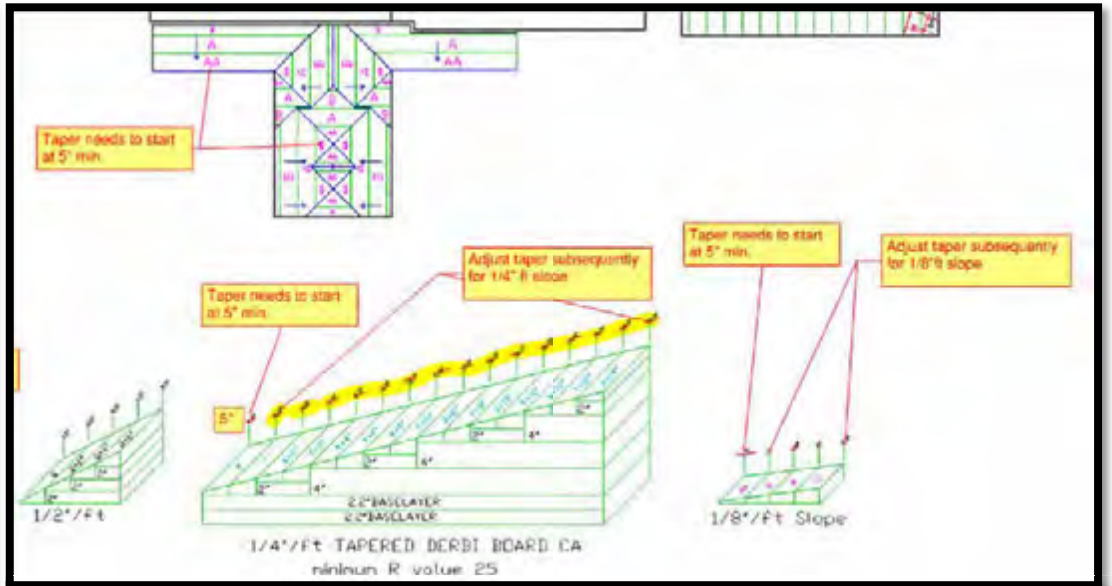






Shop Review Drawings





No.	Specification Section	Submitted Item	Date Submitted	Date Reviewed	Status
1	Division 7	1. Shop Drawings: Tapered Layout, Details: 2.Derbigum Approved Contractor Letter, Sample Derbigum Warranty, Schedule of Vlues, Product Data Sheet	4/24/2020	4/28/2020	Revise and Resubmit
1 (resubmit)	Division 7	1. Shop Drawings: Tapered Layout, Details: 2.Derbigum Approved Contractor Letter, Sample Derbigum Warranty, Schedule of Vlues, Product Data Sheet	5/5/2020	5/7/2020	1. Shop Drawings: Tapered Layout, Details: Rejected 2: Revise and Resubmit
2	Division 7	Derbigum System letter	5/6/2020	5/7/2020	Revise and Resubmit
3	Division 7	Premanufactured Gutter	5/6/2028	5/7/2028	Exceptions noted
1 (resubmit)	Division 7	1. Shop Drawings: Tapered Layout 2.Derbigum Approved Contractor Letter, Sample Derbigum Warranty, Schedule of Vlues, Product Data Sheet	5/10/2020	5/11/2020	1. Shop Drawings: Tapered Layout: No Exceptions 2: No exception Noted
2 (resubmit)	Division 7	Derbigum System letter	5/10/2020	5/11/2020	No Exceptions
1 (resubmit)	Division 7	1. Shop Drawings: Details	5/10/2020	5/11/2020	1. Details: No Exceptions
4	Division 7	EIFS	6/26/2020	6/26/2020	No Exceptions
5	Division 7	Steel Framing behind EIFS	6/30/2020	6/30/2020	No Exceptions

Mock Up Samples