



# THERMAX™ Wall System

## CAD Detail Sets

# DETAILS

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### Abstract

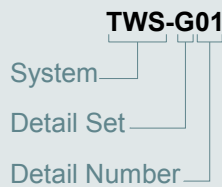
The “**TWS-General**” detail set outlines the general guidelines for design using the THERMAX™ Wall System (TWS), focusing on maintaining continuity of the four control layers (thermal, air, vapor, and water). These details can be used as guides for any THERMAX Wall project.

Cladding specific supplemental sets, “**TWS-Masonry**,” “**TWS-Rainscreen**,” and “**TWS-Applied**,” address conditions that apply to specific cladding types. These are meant to be used in addition to the TWS-General set.

*Other system detail sets available at [dowbuildingsolutions.com](http://dowbuildingsolutions.com)*

### NAVIGATING

#### Nomenclature



#### Key

- TWS** THERMAX Wall System
- G** General / Cladding Neutral
- M** Masonry
- R** Rainscreen
- A** Applied, Adhered



# THERMAX™ Wall System

## General Details

# DETAILS

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### Abstract

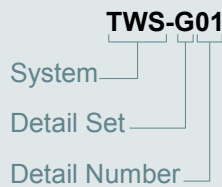
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*Other system detail sets available at [dowbuildingsolutions.com](http://dowbuildingsolutions.com)*

### NAVIGATING

#### Nomenclature



#### Key

- TWS** THERMAX Wall System
- G** General / Cladding Neutral
- M** Masonry
- R** Rainscreen
- A** Applied, Adhered

### DESIGN INTENT

1. EXTERIOR INSULATION WITH 4 MIL ACRYLIC COATED ALUMINUM FACER ACTS AS 4 PRIMARY CONTROL LAYERS: THERMAL (CI), WATER-RESISTIVE, AIR SEALING, & VAPOR RETARDING, WHILE THE INSULATION JOINT TREATMENT (LIQUIDARMOR™) WILL SEAL & COMPLETE CONTROL LAYERS, MAKING THEM CONTINUOUS.
2. STYROFOAM™ BRAND CM SERIES SPRAY POLYURETHANE FOAM TO BE INSTALLED AFTER ALL MAJOR PENETRATIONS.
3. CONTINUOUS INSULATION THICKNESS TO BE DETERMINED TO MINIMIZE CONDENSATION POTENTIAL AND COMPLY WITH ENERGY CODE.

### ASTM STANDARDS

#### THERMAX XARMOR™ (CI)

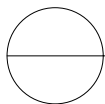
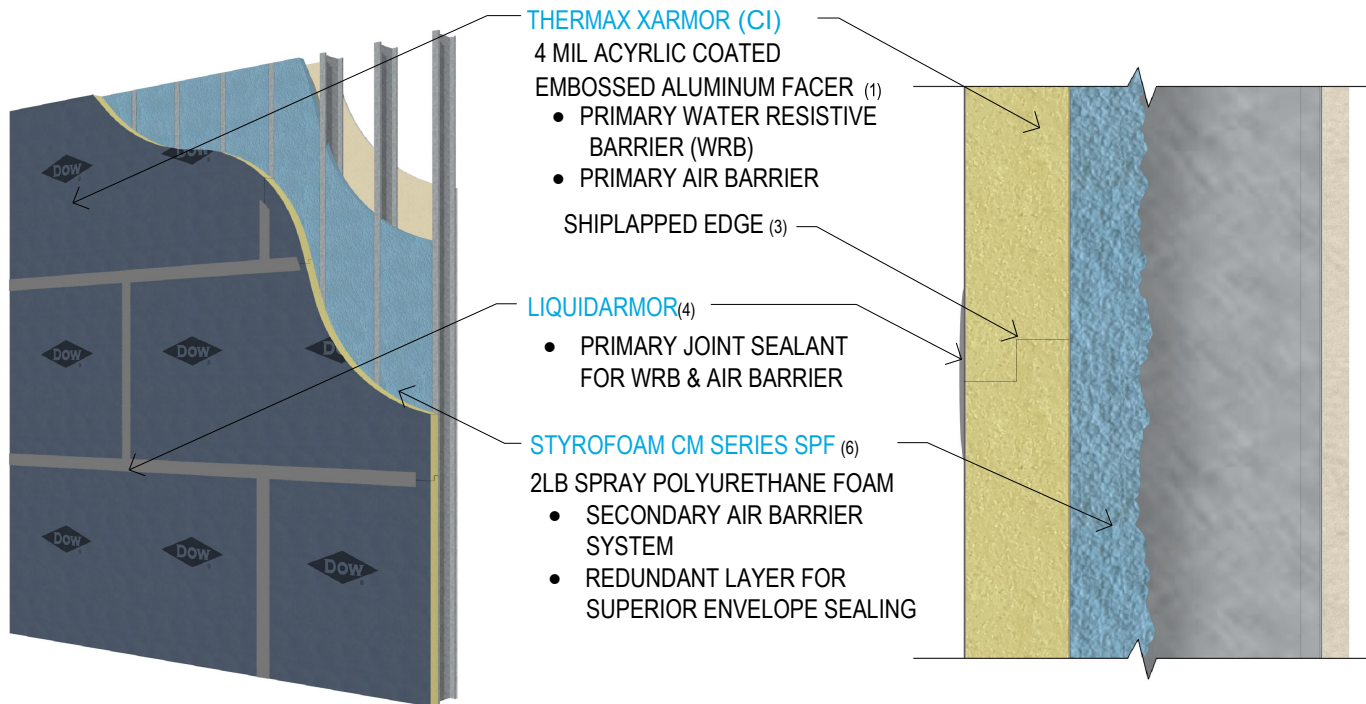
- ASTM C518 R-6.5 @ 1"
- ASTM C1289 TYPE I CLASS 2
- ASTM E84 CLASS A

#### THERMAX XARMOR WITH LIQUIDARMOR

- AIR BARRIER PER ASTM E2357, ASTM E283
- WATER BARRIER PER ASTM E331
- CLASS 1 VAPOR RETARDER PER ASTM E96

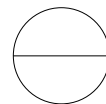
#### CM SERIES SPRAY FOAM

- SECONDARY AIR/WATER/VAPOR BARRIER PER ABOVE



CLADDING-NEUTRAL SYSTEM | ISOMETRIC

TWS-G01.1 (EXCLUDES BASE FLASHINGS, FASTENERS, CLADDINGS, ETC.)



CLADDING-NEUTRAL SYSTEM | SECTION

TWS-G01.2

### MINIMUM REQUIREMENTS

1. BREACHES TO EXTERIOR INSULATION FACER MUST BE SEALED WITH LIQUIDARMOR. MIN. WIDTH AND THICKNESS APPLIED ON FACER AROUND BREACH BASED ON DETAIL TWS-G02.
2. VOIDS GREATER THAN 1/4" MUST BE FILLED USING GREAT STUFF PRO GAPS & CRACKS OR OTHER APPROVED SEALANT PRIOR TO FLASHING INSULATION.
3. SHIPLAP EDGE AVAILABLE FOR INSULATIONS 1.5" THICK & GREATER, MUST BE INSTALLED AS SHOWN ABOVE FOR SUPERIOR WATER SHEDDING.
4. THERMAX JOINTS TO BE SEALED WITH LIQUIDARMOR BASED ON DETAIL TWS-G02 REQUIREMENTS.
5. THERMAX XARMOR INSULATION CAN BE LEFT EXPOSED FOR MAX. 180 DAYS PRIOR TO INSTALLATION OF EXTERIOR CLADDING.
6. MIN. 1.5" THICK WITH A MAX. INSTALLATION PASS THICKNESS OF 1.5".

### DESIGN INTENT

1. THE BASIS OF DESIGN FOR THE THERMAX™ WALL SYSTEM USES THERMAX XARMOR™ (CI), LIQUIDARMOR™ CM OR LT, AND STYROFOAM™ BRAND CM SERIES SPRAY POLYURETHANE FOAM. NOTE THAT OTHER OPTIONS ARE ACCEPTABLE PER CODE.
2. THE THERMAX WALL SYSTEM CAN BE COMPOSED OF SEVERAL DIFFERENT OPTIONS, CHOOSING ANY COMBINATION OF ITEMS FROM SECTIONS (A) THRU (E). ALL OPTIONS WILL MEET CODE FOR CONTINUOUS INSULATION (R-VALUE REQUIREMENTS VARY BY CLIMATE ZONE), AIR BARRIER, VAPOR RETARDER, AND WATER BARRIER.

### WARRANTIES AVAILABLE WITH REGISTRATION

1. 15 YEAR WATER-RESISTIVE WHEN USING: THERMAX XARMOR (CI) + LIQUIDARMOR + CM SERIES SPRAY FOAM.
2. 10 YEAR WATER-RESISTIVE WHEN USING: THERMAX XARMOR (CI) + LIQUIDARMOR (NO SPRAY FOAM).
3. NOTE: THERMAL WARRANTIES AND EXPOSURE WARRANTIES ARE ALSO AVAILABLE.

#### (A) THERMAX™ BRAND CONTINUOUS INSULATION

1. **THERMAX XARMOR (CI)**  
4 MIL GRAY ACRYLIC COATED ALUMINUM EMBOSSED FACER
2. **THERMAX (CI)**  
1.25 MIL BLUE ACRYLIC COATED ALUMINUM EMBOSSED FACER
3. **THERMAX SHEATHING**  
1 MIL SMOOTH ALUMINUM FACER

#### (B) DOW SEALANT MATERIALS <sup>(1)</sup>

1. **LIQUIDARMOR™ CM**  
50 +/- 5 WET MILS THICK  
2" WIDTH MIN.
2. **LIQUIDARMOR LT**  
30 +/- 5 WET MILS THICK  
1" WIDTH MIN.
3. **COMPATIBLE TAPE ALTERNATIVE**  
SEE CURRENT LIST ON THE ANSWER CENTER

#### (C) EXTERIOR GYPSUM SHEATHING (OPTIONAL)<sup>(6)</sup>

MAY BE REQUIRED FOR THE FOLLOWING UL HOURLY RATED ASSEMBLIES:

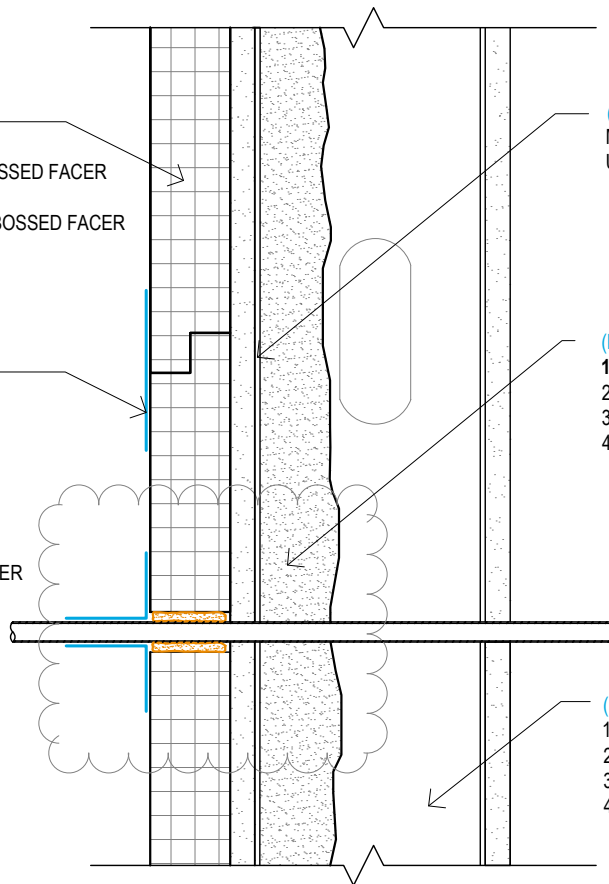
- 1 HR (WOOD) - U026, U0326, U330, U354, U355
- 1 HR (METAL) - U460, V454, V482, W417
- 2 HR (METAL) - U424, U425, V499

#### (D) STUD CAVITY INSULATION

1. **STYROFOAM CM SERIES SPF** <sup>(2, 3, 4)</sup>
2. **FROTH-PAK™ ULTRA SPF** <sup>(2, 3, 4)</sup>
3. **EMPTY (NO SPF)** <sup>(3, 4, 5)</sup>
4. **BATT**

#### (E) STUD / SUBSTRATE

1. **LOAD BEARING METAL STUD**
2. **NON BEARING METAL STUD**
3. **WOOD STUD**
4. **CMU / MASS WALL**



### SYSTEM OPTIONS

TWS-G02

COLOR FOR VISUAL CLARIFICATION ONLY

### MINIMUM REQUIREMENTS

1. THERMAX JOINTS TO BE SEALED CENTERED OVER JOINT WITH MIN. 2" WIDTH (CENTERED OVER JOINT) LIQUIDARMOR CM @ 50 +/- 5 WET MILS OR MIN. 1" WIDTH (CENTERED OVER JOINT) LIQUIDARMOR LT @ 30 +/- 5 WET MILS OR 4" WIDTH COMPATIBLE TAPE.
2. MIN. 1.5" THICK WITH MAX. PASS THICKNESS OF 1.5".
3. WHERE NOT USING SPRAY FOAM, MUST SEAL INTERIOR OF ALL PENETRATIONS WITH GREAT STUFF PRO™ GAPS & CRACKS IN ADDITION TO REQUIREMENTS LISTED ON PENETRATIONS GUIDE.
4. NO OTHER MANUFACTURER'S BRAND OF SPRAY FOAM MAY BE APPLIED DIRECTLY ON THE BACK OF RIGID POLYISOCYANURATE INSULATION BOARD AS THIS WOULD BE PATENT INFRINGEMENT.
5. EXTERIOR GYPSUM SHEATHING IS NOT REQUIRED TO MEET WEATHER RESISTIVE & AIR BARRIER REQUIREMENTS, BUT MAY BE REQUIRED FOR HOURLY RATED WALL ASSEMBLIES OR OTHER PROJECT SPECIFICS.

### DESIGN INTENT

1. SECURE THERMAX™ BRAND INSULATION TO BUILDING STRUCTURE.
2. USE FASTENERS EVALUATED BY DOW'S TEAM OF BUILDING SCIENTISTS TO ASSURE LONG-TERM PERFORMANCE OF SYSTEM CONTROL LAYERS.
3. MINIMIZE NUMBER OF PENETRATIONS THROUGH INSULATION FACER TO MAINTAIN INTEGRITY OF WATER-RESISTIVE AND AIR BARRIERS.

### FASTENER RECOMMENDATIONS

Framed Walls	Rodenhouse Thermal Grip® ci Washer, prong or flat, or equivalent 2" diameter washer with solid cap design (no keyholes)
CMU / Concrete	Rodenhouse Thermal Grip® ci Washer with tap-con or masonry screw
CMU / Concrete (requires flashing)	Rodenhouse Plasti-Grip® PMF, Ramset T3 Insulfast

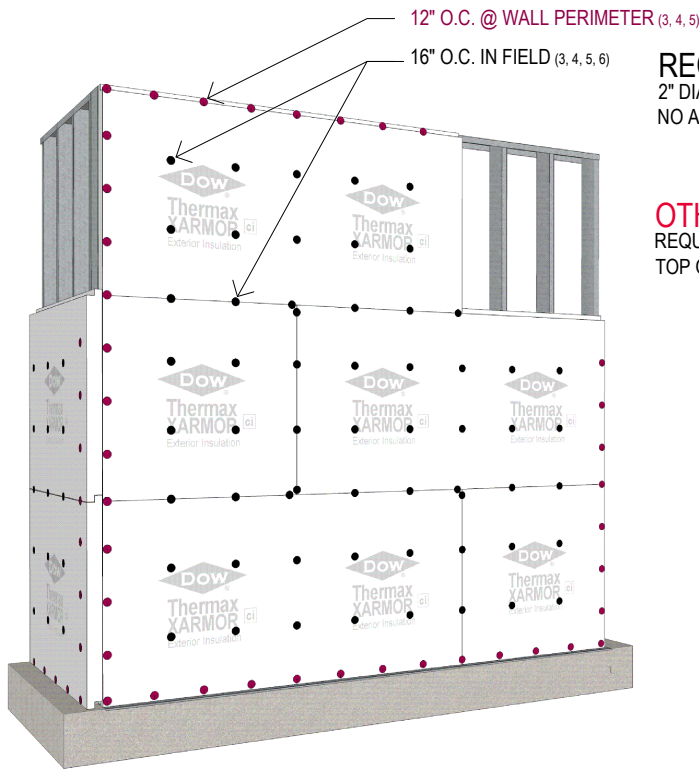


 FIG 1: FASTENING PATTERN LAYOUT | ISOMETRIC  
TWS-G03.1 COLOR FOR VISUAL CLARIFICATION ONLY

**RECOMMENDED FASTENERS**  
2" DIAMETER SOLID CAP WITHOUT KEYHOLES  
NO ADDITIONAL SEALING REQUIRED

**OTHER FASTENERS**  
REQUIRE LIQUIDARMOR APPLIED OVER TOP OF, OR BEHIND, FASTENER<sup>(4)</sup>

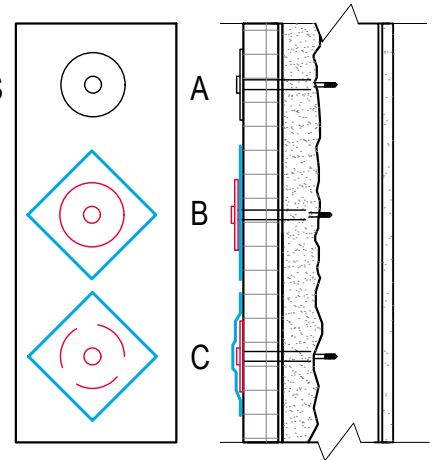


 FIG 2: FASTENING FLASHING | ELEV. (L) & SECTION (R)  
TWS-G03.2 FIG. 2A (TOP), FIG. 2B (MIDDLE), FIG. 2C (BOTTOM)

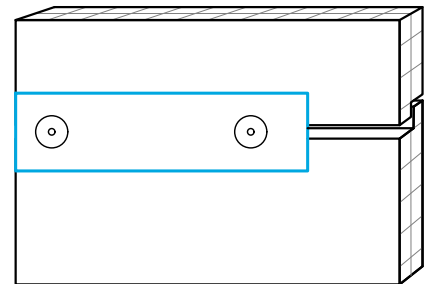


 FIG 3: FASTENING @ BOARD JOINT | ISOMETRIC  
TWS-G03.3 COLOR FOR VISUAL CLARIFICATION ONLY

### MINIMUM REQUIREMENTS

1. MIN. 18 GAUGE METAL STUDS.
2. INSULATION BOARDS SHOULD BE INSTALLED IN RUNNING BOND PATTERN.
3. INSULATION TO BE FASTENED @ MAX. 12" O.C. AT WALL PERIMETERS AND AROUND OPENINGS AND MAX 16" O.C. IN WALL FIELD.
4. "OTHER FASTENERS" AND OVER-DRIVEN FASTENERS THAT BREACH THE FACER OF THERMAX INSULATION MUST BE SEALED WITH LIQUIDARMOR™ APPLIED ON FACER AROUND BREACH AS SHOWN IN FIG.2-C USING FLASHING REQUIREMENTS ON DETAIL TWS-G02.
5. ALL FASTENERS USED TO SECURE THERMAX TO SUBSTRATE TO HAVE A MIN. 2" DIA. WASHER.
6. ONE FASTENER CAN BE USED FOR NO MORE THAN 2 BOARDS. WHERE 3 OR MORE BOARDS MEET, USE AT LEAST 1 FASTENER PER EVERY 2 BOARDS.




### DESIGN INTENT

1. MUST MAINTAIN CONTINUITY OF ALL CONTROL LAYERS AT TRANSITIONS FROM THERMAX™ WALL SYSTEM TO OTHER SYSTEMS.
2. ENSURE COMPATIBILITY WHERE DOW FLASHING MATERIALS JOIN MATERIALS PRODUCED BY OTHER MANUFACTURERS.
3. COUNTERFLASH MATERIALS TO PROMOTE WATERSHEDDING AT TRANSITION LOCATIONS.

### COMPATIBILITY RECOMMENDATIONS

1. CONCRETE & CMU APPLICATIONS: ENSURE ADEQUATE LIQUIDARMOR™ THICKNESS IS APPLIED FOR PROPER ADHESION TO AGGREGATE.
2. CHEMICALLY COMPATIBLE ADHESIVE TECHNOLOGIES WITH THERMAX INSULATION AND LIQUIDARMOR (NOTE CHEMICAL COMPATIBILITY IS NOT A QUALIFIER OF LONG-TERM ADHESION): ACRYLIC & ACRYLIC LATEX • BUTYL • RUBBERIZED ASPHALT • SILICONE • HOT RUBBER
3. COMPATIBILITY OF PRODUCTS/CHEMISTRIES NOT LISTED ABOVE MUST BE VERIFIED BY RESPECTIVE MANUFACTURER.

#### KEY

-  DOW SEALANT MATERIAL
-  3RD PARTY WRB / AIR BARRIER
-  DOW JOINT FILLER / SEALANT

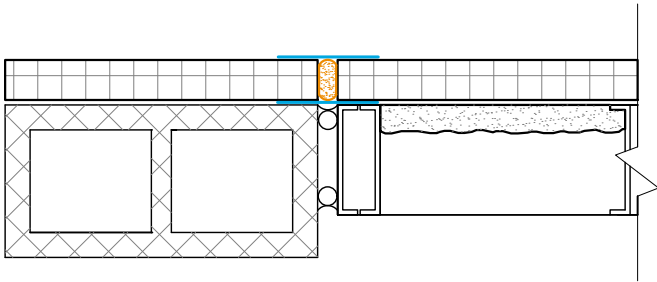


FIG 1: TRANSITION FROM STEEL STUD TO CMU BLOCK | PLAN  
TWS-G04.1 (NOTE: NOT AN EXPANSION JOINT DETAIL)

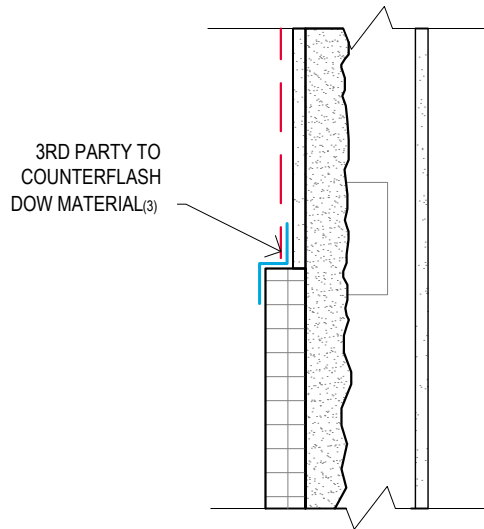


FIG 2: VERTICAL TRANSITION OF OTHER WRB TO THERMAX | SECTION  
TWS-G04.2

MIN. REQ. 3 FOR  
MATERIAL ORDER

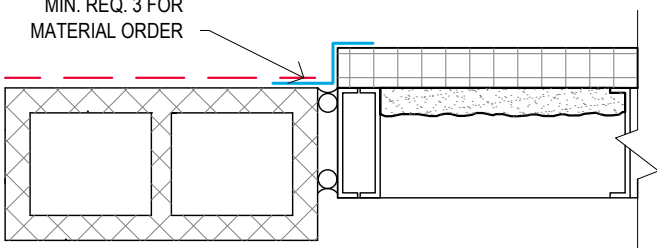


FIG 3: TRANSITION FROM THERMAX TO WRB ON CMU | PLAN  
TWS-G04.3

MIN. REQ. 3 FOR MATERIAL ORDER

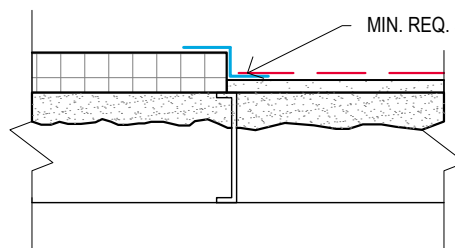


FIG 4: HORIZONTAL TRANSITION OF OTHER WRB TO THERMAX | PLAN  
TWS-G04.4

### MINIMUM REQUIREMENTS

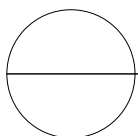
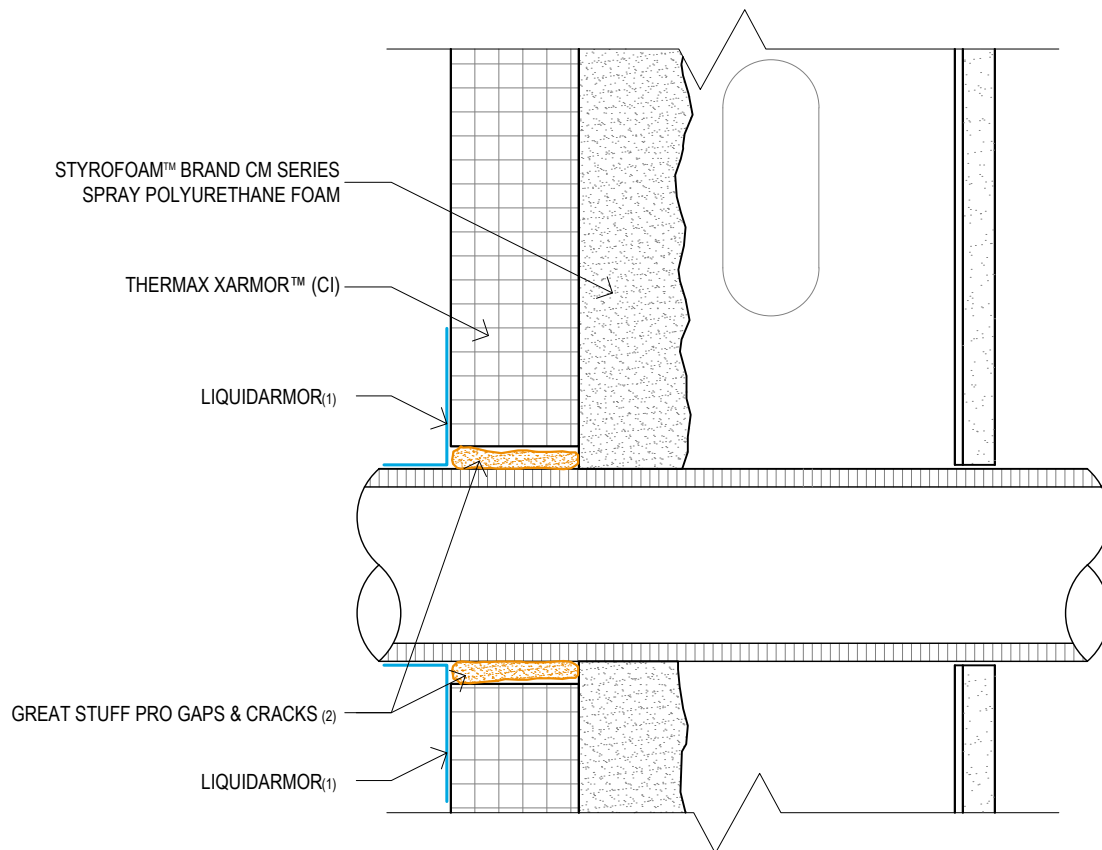
1. OVERLAP OF SEALANT ADHESION ON ANY TRANSITION FROM FACE OF THERMAX ONTO ADJACENT MATERIALS MUST USE LIQUIDARMOR BASED ON REQUIREMENTS ON DETAIL TWS-G02.
2. SELF ADHERED MATERIALS SHOULD NOT BE INSTALLED OVER (COUNTERFLASH) FLUID APPLIED MATERIALS; FLUID APPLIED OVER FLUID APPLIED, FLUID APPLIED OVER SELF ADHERED, AND SELF ADHERED OVER SELF ADHERED ARE ACCEPTABLE.
3. FIG.1, GREAT STUFF PRO GAPS & CRACKS OR OTHER APPROVED SEALANT TO FILL JOINTS  $\geq 1/4"$  PRIOR TO FLASHING WITH MIN. OVERLAP TO FACE OF REQUIREMENTS ON DETAIL TWS-G02 TO EACH FACE OF THERMAX.
4. FIG. 2, 3, 4, MIN. WIDTH OF LIQUIDARMOR REQUIRED BASED ON DETAIL TWS-G02 ONTO FACE OF THERMAX AND FACE OF OTHER SUBSTRATE. 1-4

### Design Intent

1. ALL PENETRATIONS MUST BE SEALED TO MAINTAIN INTEGRITY OF 4 CONTROL LAYERS AND PREVENT MOISTURE INTRUSION.
2. STYROFOAM™ BRAND CM SERIES SPRAY POLYURETHANE FOAM TO BE INSTALLED AFTER ALL MAJOR PENETRATIONS (CONDUIT, UTILITIES, PLUMBING, ETC.) AS SECONDARY LAYER OF AIR SEALING.

### Recommended Sealants

1. GREAT STUFF PRO™ GAPS & CRACKS INSULATING FOAM SEALANT FOR GAPS LESS THAN 3", WITH LIQUIDARMOR™ FLASHING APPLIED OVER TOP
2. LIQUIDARMOR FLASHING FOR GAPS LESS THAN 1/4"
3. DOW CORNING® 758 WEATHER BARRIER SEALANT
4. DOW CORNING 778 LIQUID SILICONE FLASHING

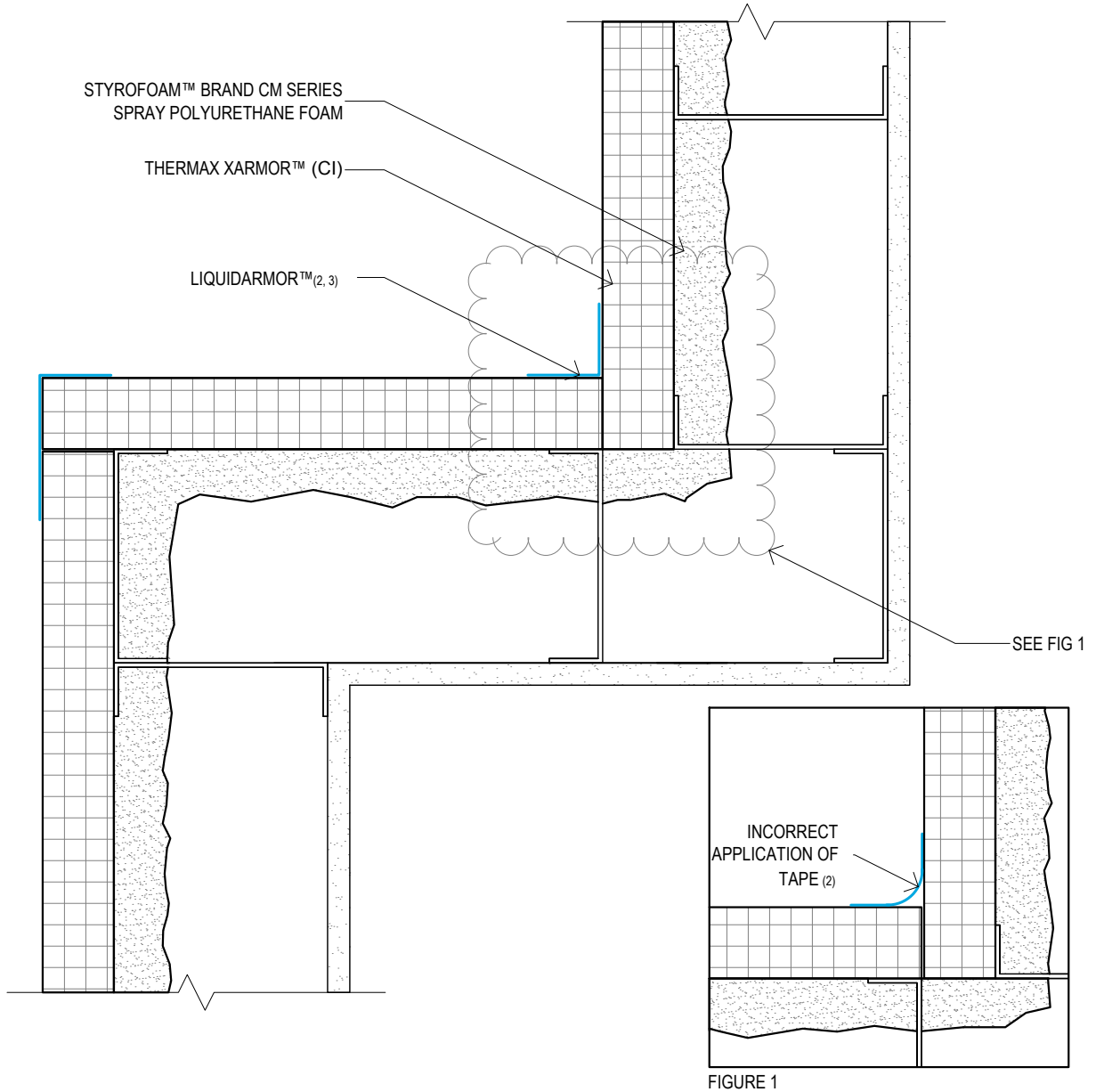


### PENETRATION GUIDELINES

TWS-G05 *COLOR FOR VISUAL CLARIFICATION ONLY*

### MINIMUM REQUIREMENTS

1. PENETRATION TO BE SEALED WITH LIQUIDARMOR USING REQUIREMENTS IN DETAIL TWS-G02.
2. VOIDS IN INSULATION GREATER THAN 1/4" MUST BE FILLED WITH GREAT STUFF PRO GAPS & CRACKS OR OTHER APPROVED SEALANT PRIOR TO FLASHING.



### INTERIOR AND EXTERIOR CORNERS | PLAN

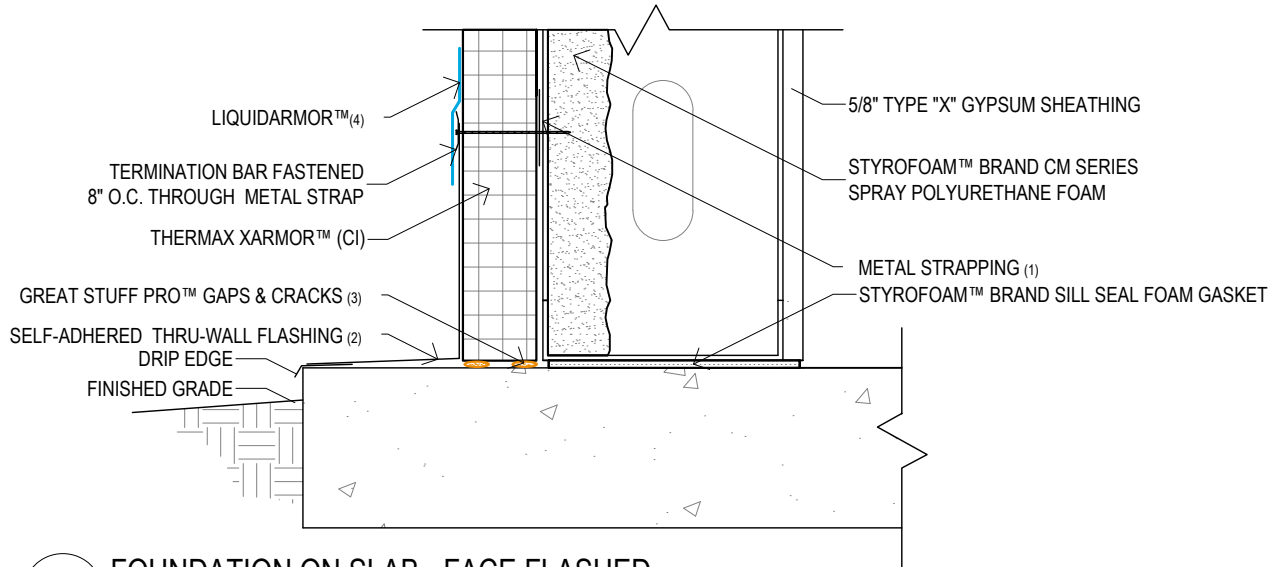
TWS-G06

COLOR FOR VISUAL CLARIFICATION ONLY

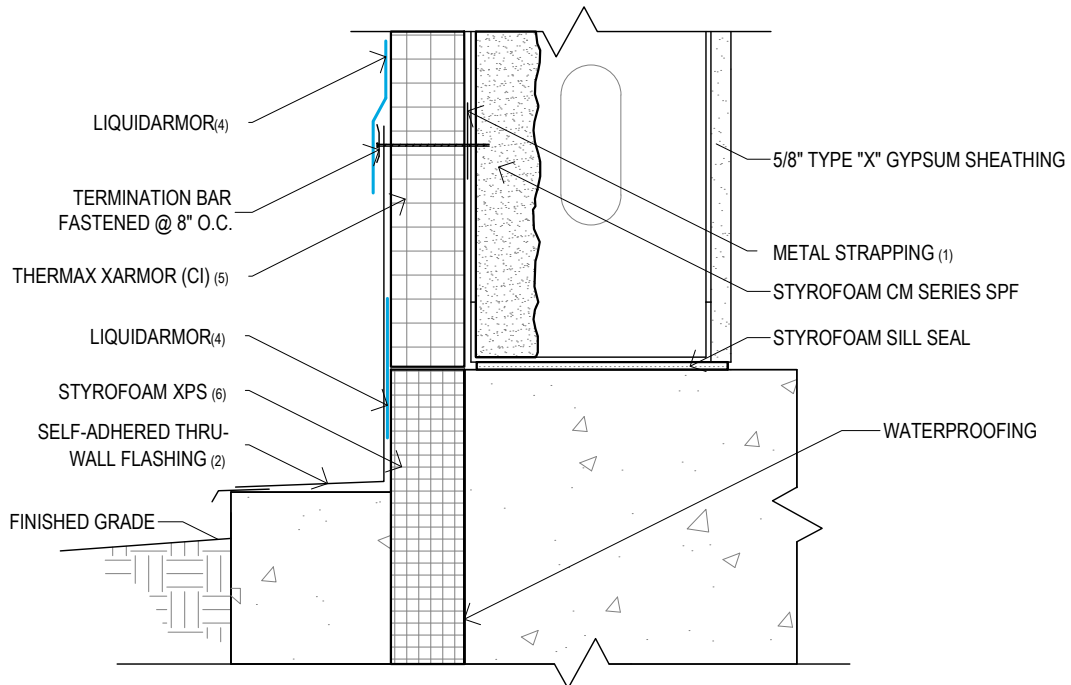
#### MINIMUM REQUIREMENTS

1. ALL APPLICATIONS USING COMPATIBLE TAPE MUST BE INSTALLED IN A "SHINGLE LAP" PATTERN VERTICALLY TO PROMOTE WATER SHEDDING. INSTALLATION SHOULD START FROM THE BOTTOM, GOING UP, AND EACH SUBSEQUENT PIECE SHOULD BE INSTALLED SUCH THAT IT OVERLAPS THE PIECE BELOW IT BY THE MIN. REQUIRED IN DETAIL TWS-G02.
2. TAPE TO BE INSTALLED USING HARD STRAIGHT EDGING TOOL (HAND APPLIED PRESSURE NOT ACCEPTABLE) TO AVOID ERRORS SIMILAR TO THAT SHOWN IN FIGURE 1.
3. INSULATION CORE (RAW EDGES) TO BE ENCAPSULATED BY FLASHING WITH MIN. ADHERENCE BASED ON DETAIL TWS-G02 ON FACE OF EACH ADJOINING BOARD.





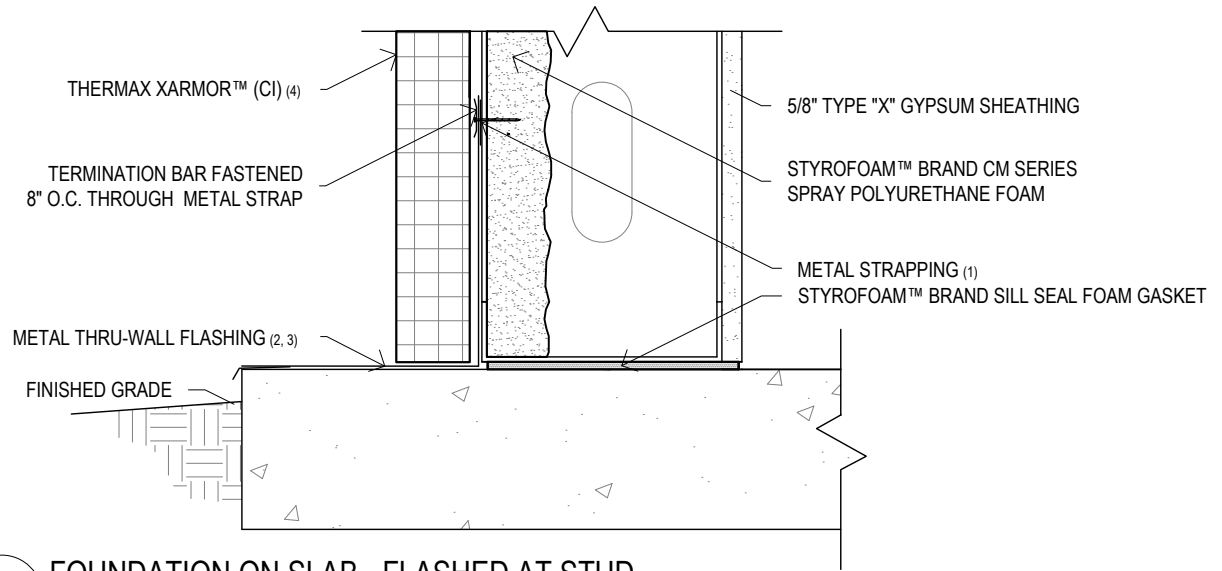
 FOUNDATION ON SLAB - FACE FLASHED  
TWS-G07.1 COLOR FOR VISUAL CLARIFICATION ONLY



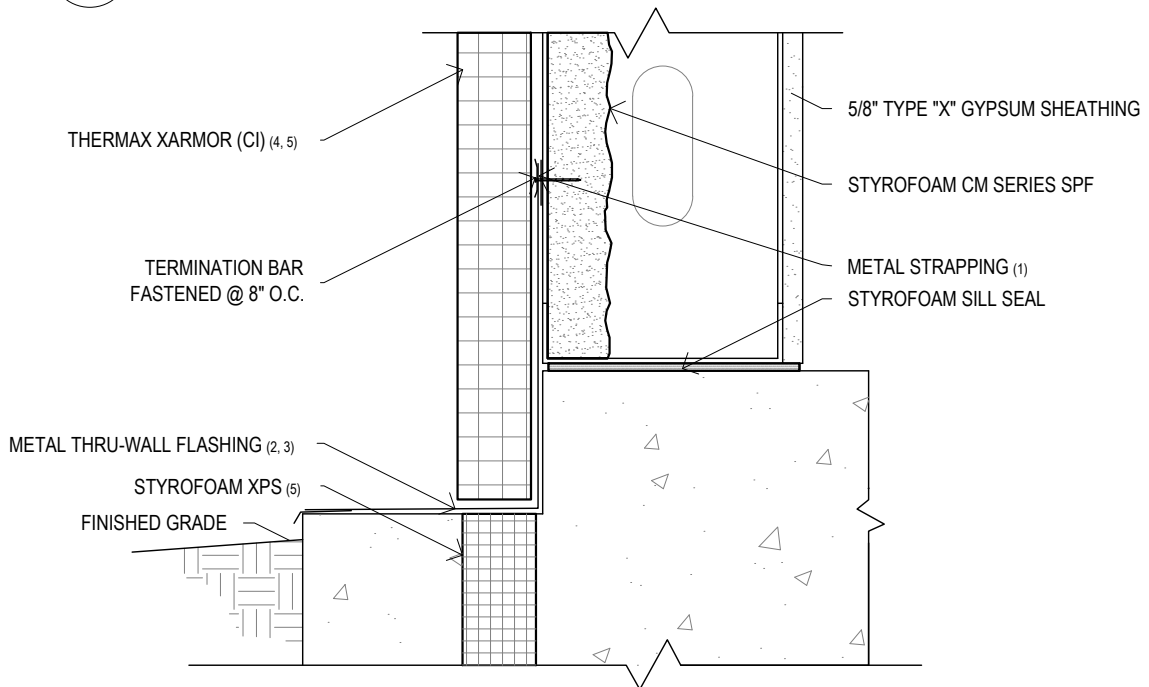
 FOUNDATION BELOW GRADE - FACE FLASHED  
TWS-G07.2 COLOR FOR VISUAL CLARIFICATION ONLY

## MINIMUM REQUIREMENTS

1. MIN. 3" WIDTH OF LIGHT GAUGE METAL STRAPPING, MIN 16" O.C. ABOVE GRADE, TO ACT AS NAILING BASE FOR TERMINATION BAR.
2. THRU-WALL FLASHING MIN. 40 MIL THICK, MIN 90 DAY UV RESISTANCE, INSTALLED PER MANUFACTURER'S RECOMMENDATIONS USING EDGING TOOL OR ROLLER (HAND APPLIED PRESSURE NOT ACCEPTABLE). LIQUIDARMOR NOT ACCEPTABLE FOR THIS APPLICATION.
3. GREAT STUFF PRO GAPS & CRACKS APPLIED MIN. WIDTH OF INSULATION THICKNESS.
4. FOR MIN. FLASHING WIDTHS FOR LIQUIDARMOR, SEE DETAIL TWS-G02.
5. THERMAX PRODUCTS NOT INTENDED FOR USE BELOW GRADE.
6. MIN. 25 PSI STYROFOAM TYPE IV (PER ASTM C578) EXTRUDED POLYSTYRENE (XPS) TO BE USED WHEN INSULATING BELOW GRADE.



 FOUNDATION ON SLAB - FLASHED AT STUD  
TWS-G08.1 COLOR FOR VISUAL CLARIFICATION ONLY



 FOUNDATION BELOW GRADE - FLASHED AT STUD  
TWS-G08.2 COLOR FOR VISUAL CLARIFICATION ONLY

**MINIMUM REQUIREMENTS**

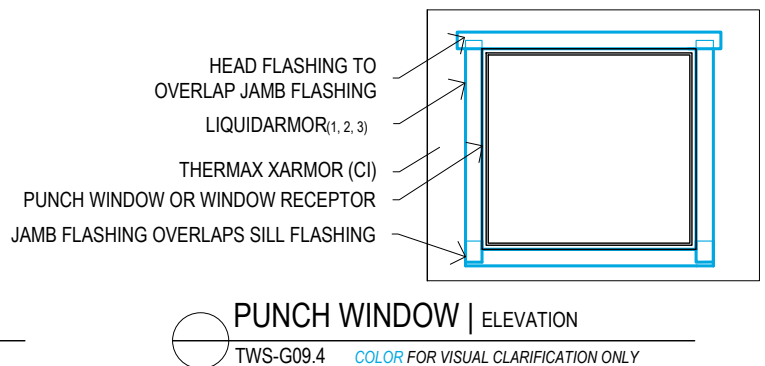
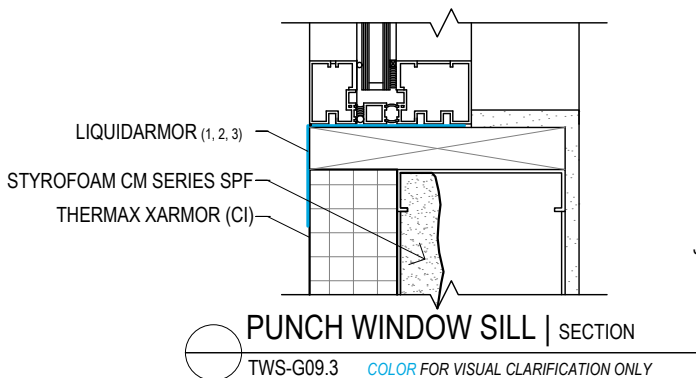
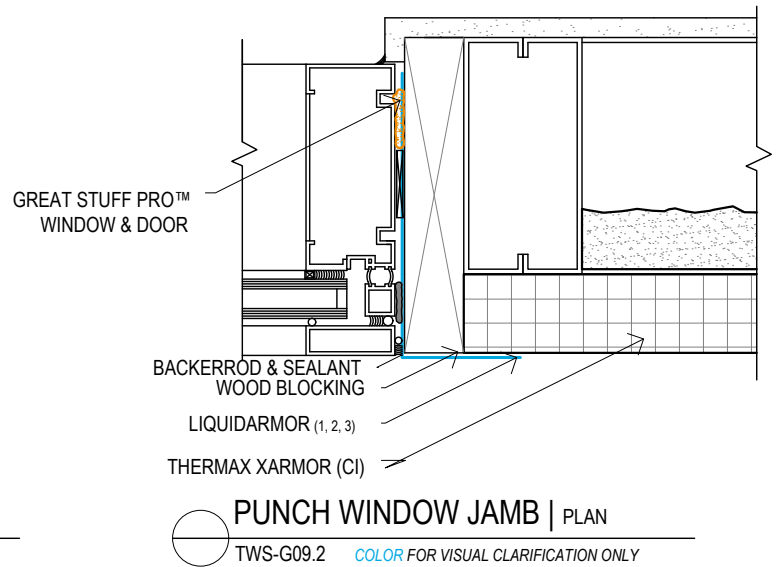
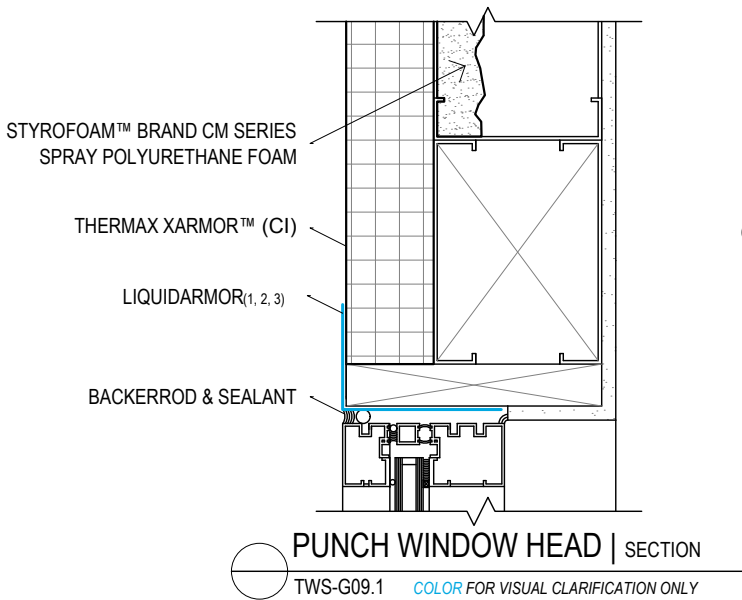
1. MIN. 3" LIGHT GAUGE METAL STRAPPING, MIN. 16" ABOVE GRADE TO ACT AS NAILING BASE FOR TERMINATION BAR.
2. METAL FLASHING MUST BE ABLE TO RESIST TEMPERATURES OF MIN. 200°F GENERATED BY 2LB SPRAY POLYURETHANE FOAM.
3. DESIGNS WHERE SPRAY POLYURETHANE FOAM IS APPLIED ON THRU-WALL FLASHING MEMBRANES, POLYETHYLENE-FACED AND RUBBERIZED ASPHALTIC SELF ADHERED MEMBRANES ARE NOT ACCEPTABLE.
4. IN THIS DESIGN, THERMAX XARMOR CI ACTS AS COUNTERFLASHING TO METAL THRU-WALL FLASHING.
5. THERMAX PRODUCTS NOT INTENDED FOR USE BELOW GRADE; MIN. 25 PSI STYROFOAM TYPE IV (PER ASTM C578) EXTRUDED POLYSTYRENE (XPS) TO BE USED WHEN INSULATING BELOW GRADE.

### DESIGN INTENT

1. USE LIQUIDARMOR™ TO TRANSITION THE AIR & WATER RESISTIVE BARRIER FROM THE FACE OF THE THERMAX™ INSULATION INTO ALL JAMBS, SILLS, & WINDOW HEADS PRIOR TO INSTALLATION OF PUNCH WINDOWS & WINDOW RECEPTORS.
2. SEALANTS AND CAULKS AS SPECIFIED BY WINDOW MANUFACTURER TO BE USED AS PRIMARY DEFENSE AGAINST MOISTURE INTRUSION & AIR INFILTRATION.
3. WINDOW RECEPTOR TO ATTACH TO WOOD BLOCKING THROUGH DOW SEALANT MEMBRANES FOR ENHANCED AIR AND MOISTURE SEALING.

### GENERAL RECOMMENDATIONS

1. WINDOW SEALANT COMPATIBILITY SHOULD BE VERIFIED BY DOW FOR LONG-TERM ADHESION TO DOW FLASHING.
2. DOW CORNING® BUILDING SEALANTS ARE COMPATIBLE WITH DOW FLASHING MATERIALS AND SHOULD BE USED AS PER MANUFACTURER'S & INSTALLATION INSTRUCTIONS.
3. WOOD BLOCKING IS PREFERRED TO PROVIDE ADDED RIGIDITY AND A NAILING BASE AT JAMBS, SILLS, & HEADS.
4. A DOUBLE STUD IS RECOMMENDED AT JAMBS TO ALLOW FOR GREATER FLEXIBILITY WITH CLADDING TERMINATIONS AROUND WINDOWS & DOORS.



### MINIMUM REQUIREMENTS

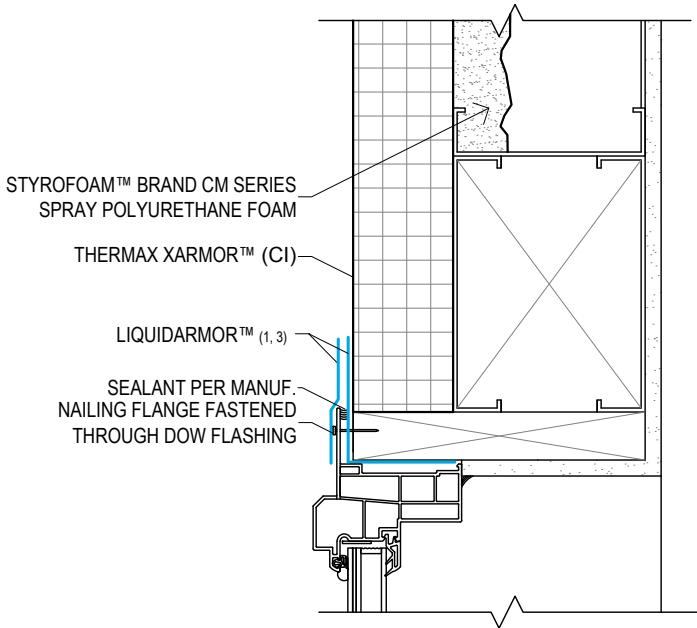
1. DOW SEALANT TO BE INSTALLED ONTO FACE OF THERMAX BASED ON WIDTH REQUIREMENTS ON DETAIL TWS-G02 AND MIN. 2" INTO ROUGH OPENING (SILL, JAMB, & HEADER) OR 1" PAST INTERIOR CAULK JOINT, WHICHEVER IS GREATER.
2. IF NOT USING WOOD BLOCKING AT WINDOW JAMB, HEAD, SILL, MUST USE "SHINY 90" TO BRIDGE INSULATION CORE (RAW EDGE OF THERMAX).
3. FOR WIDTHS REQUIRING MULTIPLE WIDTHS OF FLASHING TAPE, PIECES SHOULD BE INSTALLED IN A SHINGLE-LAP FASHION TO PROMOTE WATER SHEDDING WITH MIN. ADHERENCE BETWEEN EACH PIECE BASED ON DETAIL TWS-G02.
4. ACCEPTABLE BLOCKING TYPES: DIMENSIONAL LUMBAR (SHOWN), OSB / PLYWOOD SHEATHING, OR METAL ANGLE TRIM ("SHINY 90").

# THERMAX™ wallsystem

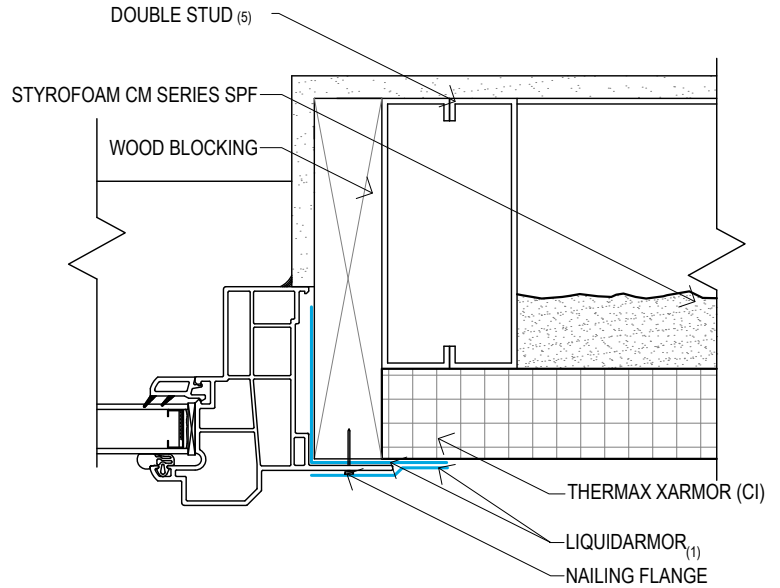
details by 

CLADDING NEUTRAL

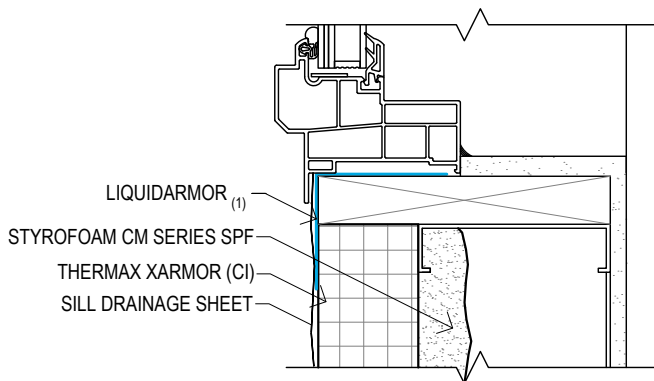
## Windows - Flange



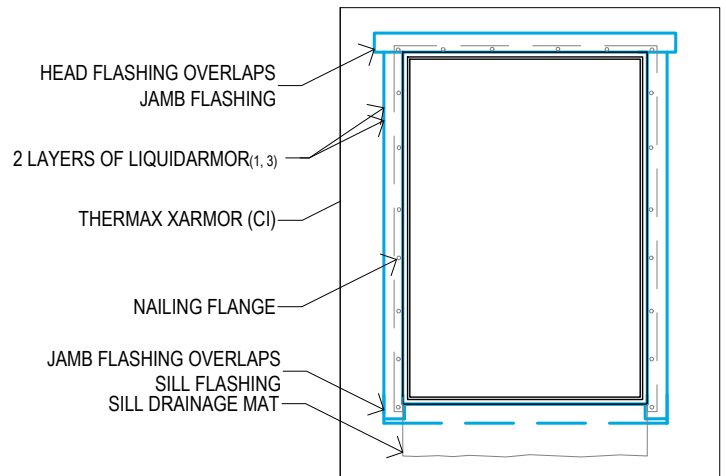
 **FLANGE WINDOW HEAD | SECTION**  
TWS-G10.1 *COLOR FOR VISUAL CLARIFICATION ONLY*



 **FLANGE WINDOW JAMB | PLAN**  
TWS-G10.2 *COLOR FOR VISUAL CLARIFICATION ONLY*



 **FLANGE WINDOW SILL | SECTION**  
TWS-G10.3 *COLOR FOR VISUAL CLARIFICATION ONLY*



 **FLANGE WINDOW | ELEVATION**  
TWS-G10.4 *COLOR FOR VISUAL CLARIFICATION ONLY*

### MINIMUM REQUIREMENTS

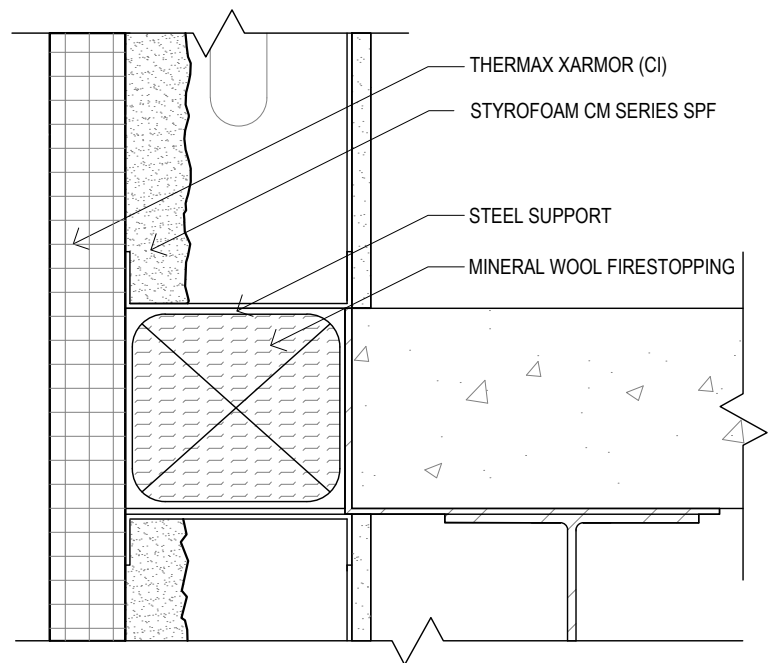
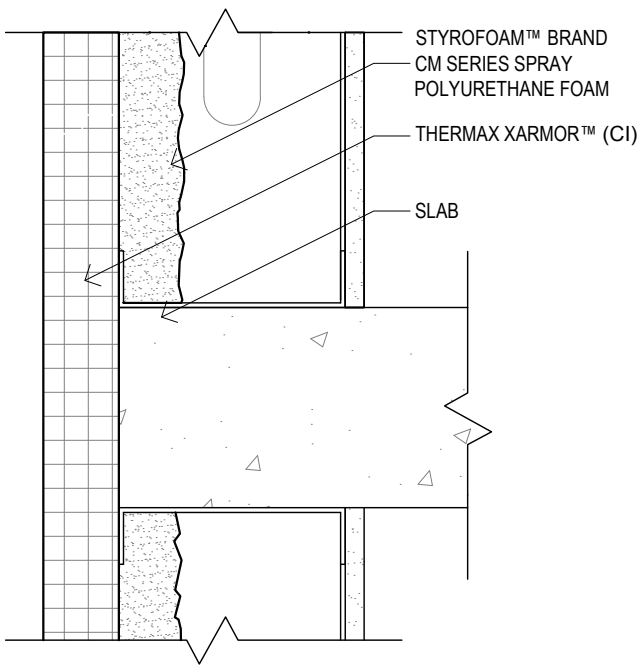
1. DOW SEALANT TO BE INSTALLED MIN. 2" ONTO FACE OF THERMAX AND INTO ROUGH OPENING (SILL, JAMB, & HEADER) MIN. 2" OR 1" PAST INTERIOR CAULK JOINT, WHICHEVER IS GREATER.
2. ALL FLANGE PENETRATIONS TO BE THROUGH SELF-SEALING DOW FLASHING MATERIAL AT WINDOW JAMBS & HEADER.
3. AFTER WINDOW INSTALLATION, FLANGE TO BE SEALED WITH LIQUIDARMOR. NOTE: IF USING MORE THAN ONE TYPE OF SEALANT, US SEQUENCING GUIDELINES FROM DETAIL TWSG02.
4. CAULK @ WINDOW FLANGE TO BE INSTALLED AS PER WINDOW MANUFACTURER REQUIREMENTS.
5. DOUBLE STUD AT WINDOW JAMB RECOMMENDED TO ALLOW FOR FLEXIBILITY WITH CLADDING ATTACHMENT.

### DESIGN INTENT

1. MINIMIZE THERMAL BRIDGING WITH CONTINUOUS INSULATION INSTALLED OVER EDGE OF SLAB.
2. MAINTAIN INTEGRITY OF FOUR CONTROL LAYERS BY SEALING OVER EDGE OF SLAB TO PREVENT UNWANTED MOISTURE/AIR INFILTRATION.

### GENERAL RECOMMENDATIONS

1. EDGE OF SLAB TO BE FLUSH WITH FACE OF EXTERIOR METAL STUD TO MAINTAIN CONTINUITY AND THICKNESS OF WALL SYSTEM AT FLOOR TO FLOOR CONDITIONS.
2. THINNER PIECES OF THERMAX MAY BE USED WHERE EDGE OF SLAB IS NOT FLUSH WITH EXTERIOR FACE OF METAL STUD. HOWEVER, THIS CONDITION CAN BE LABOR INTENSIVE.
3. WHERE EDGE OF SLAB IS FLUSH WITH EXTERIOR FACE OF THERMAX INSULATION, MUST FLASH RAW SLAB EDGE WITH LIQUIDARMOR™ OR DEFENDAIR 200 TO MAINTAIN CONTINUITY OF CONTROL LAYERS.



EDGE OF SLAB

TWS-G11.1

EDGE OF SLAB WITH FIRESTOP

TWS-G11.2

### MINIMUM REQUIREMENTS

1. EDGE OF SLAB MUST NOT BE LEFT EXPOSED. A MOISTURE RESISTANT/AIR SEALING MEMBRANE MUST BE USED TO TRANSITION FROM FACE OF THERMAX, OVER RAW SLAB EDGE, ONTO FACE OF THERMAX BELOW IN A SHINGLE-LAP FASHION.
2. FASTENERS USED TO SECURE THERMAX TO EDGE OF SLAB MUST BE SEALED WITH LIQUIDARMOR USING REQUIREMENTS LISTED IN DETAIL TWS-G02.
3. FLOOR TO FLOOR FIRE-STOPPING CONSTRUCTION DETAILS TO BE DESIGNED/VERIFIED BY FIRE PROTECTION ENGINEER / FIRE STOP MANUFACTURER / OR EQUAL.

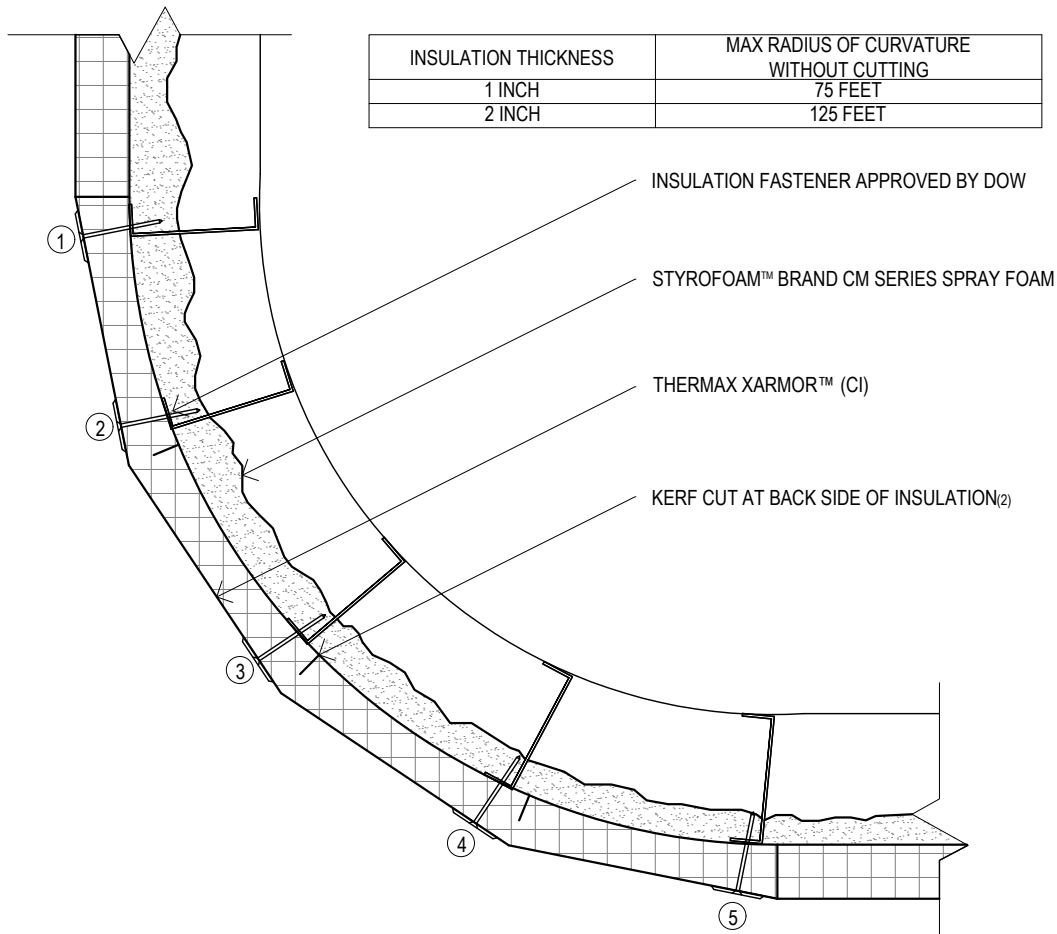
### DESIGN INTENT


USE THERMAX™ BRAND INSULATION ALONG CURVED FACADE WHILE MAINTAINING INTEGRITY OF THE 4 CONTROL LAYERS.

1. WITHOUT KERF: USE THERMAX OVER SPECIFIC RADII OF CURVATURE WITHOUT THE NEED TO CUT, SCORE, OR KERF.
2. EXTERIOR FACE KERF: FILL ALL VOIDS WITH GREAT STUFF PRO™ GAPS & CRACKS AND FLASH USING LIQUIDARMOR™ TO SEAL FROM MOISTURE & AIR INFILTRATION.
3. INTERIOR FACE KERF: SEAL WITH STYROFOAM™ BRAND CM SERIES SPRAY POLYURETHANE FOAM.

### GENERAL RECOMMENDATIONS

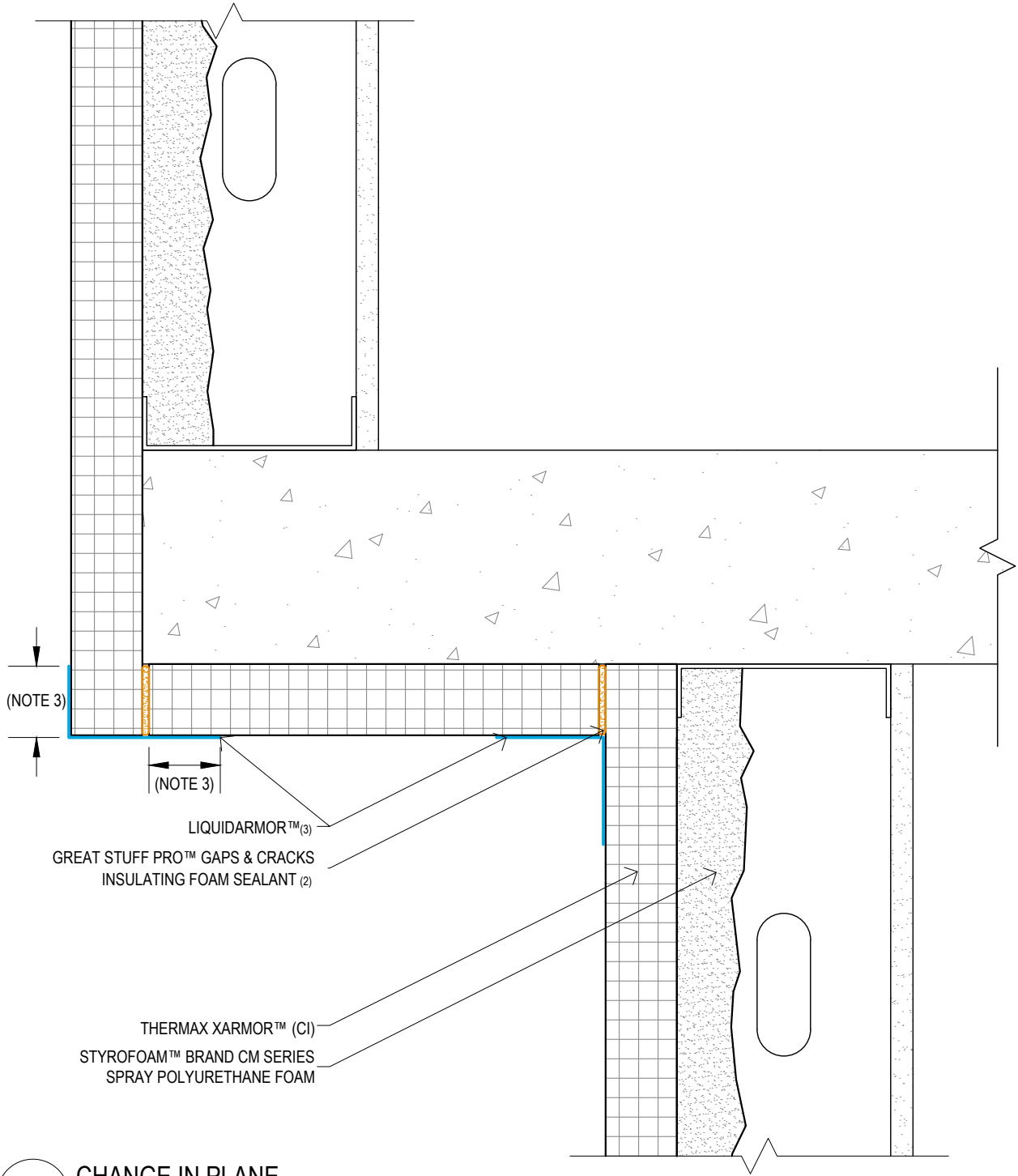
1. FOR EXTREME RADII OF CURVATURE WITH THICKNESSES OF THERMAX EXCEEDING 2", USE MULTIPLE LAYERS OF THINNER THERMAX.
2. FLASHING TECHNIQUES OUTLINED IN OTHER DETAILS WILL STILL BE RELEVANT FOR RADII OF CURVATURE ESPECIALLY AS THEY PERTAIN TO FASTENERS & FENESTRATIONS.



 KERF CUT ALONG RADIUS | PLAN  
TWS-G12

### MINIMUM REQUIREMENTS

1. IF MAX RADIUS OF CURVATURE OR MAX INSULATION THICKNESS IS EXCEEDED, THERMAX WILL NEED TO BE "KERF CUT" TO PROPERLY ENCLOSE THE EXTERIOR STRUCTURE.
2. EACH CUT TO HAVE A MAX DEPTH NO GREATER THAN  $\frac{1}{2}$  OF INSULATION THICKNESS.
3. CUTS TO EXTERIOR THERMAX FACER MUST BE FILLED WITH GREAT STUFF PRO GAPS & CRACKS INSULATING FOAM SEALANT, OR OTHER APPROVED SEALANT, SUCH THAT THE FOAM EXPANDS TO THE EXTERIOR FACE OF THERMAX AND FULLY FILLS ALL VOIDS.
4. EXCESS GREAT STUFF PRO GAPS & CRACKS, OR OTHER APPROVED SEALANT MUST BE TRIMMED FLUSH TO THE FACE OF THE BOARD AND FLASHED WITH LIQUIDARMOR BASED ON WIDTH REQUIREMENTS FROM TWS-G02.



### CHANGE IN PLANE

TWS-G13 *COLOR FOR VISUAL CLARIFICATION ONLY*

#### MINIMUM REQUIREMENTS

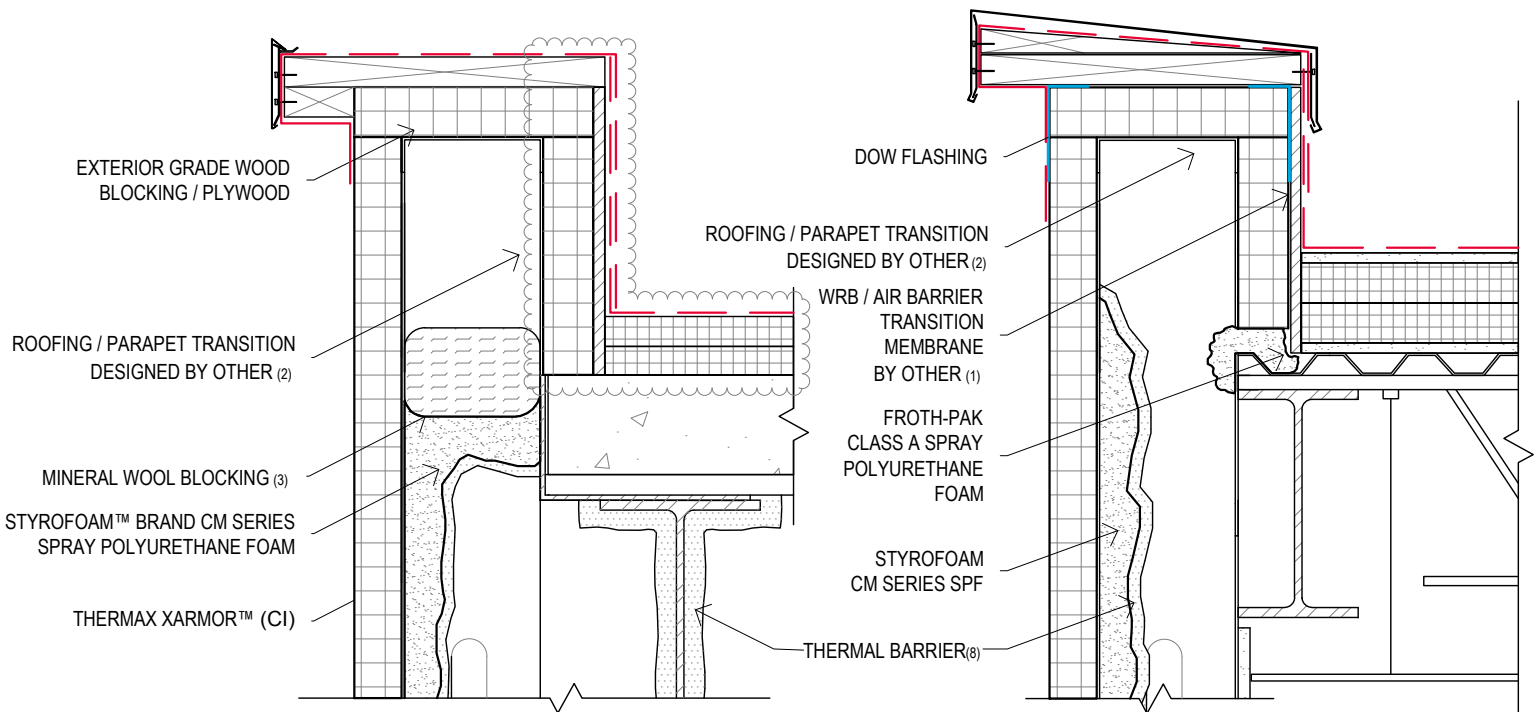
1. THERMAX INSULATION SHOULD BE LAYERED IN A SHINGLE-LAP FASHION (AS SHOWN) TO PROMOTE WATER SHEDDING AND PREVENT MOISTURE INTRUSION AT HORIZONTAL INSULATION JUNCTURES.
2. ANY VOIDS 1/4" OR GREATER, INCLUDING WHERE TWO BOARDS MEET, MUST BE FILLED WITH GREAT STUFF PRO GAPS & CRACKS OR OTHER APPROVED SEALANT PRIOR TO INSTALLATION OF ANY FLASHING MATERIALS.
3. MIN. ADHESION WIDTH OF LIQUIDARMOR ONTO EACH FACE OF THERMAX BASED ON DETAIL TWS-G02.

### DESIGN INTENT

1. SUCCESSFULLY TRANSITION 4 CONTROL LAYERS FROM VERTICAL WALL PLANE TO HORIZONTAL ROOFING PLANE WITHOUT INTERRUPTION.
2. INSULATION & AIR BARRIER TO SEAL OFF UNCONDITIONED PARAPET WALL FROM INTERACTING WITH CONDITIONED INTERIOR AIR TO FURTHER PREVENT CONDENSATION POTENTIAL.
3. TRANSITION TO ROOFING MEMBRANE MATERIALS USING COMPATIBLE MATERIALS.

### GENERAL RECOMMENDATIONS

1. COMBINATION OF MATERIALS MAY BE USED TO ENCAPSULATE PARAPET WALL - ALL MANUFACTURERS SHOULD BE CONSULTED TO ENSURE CHEMICAL COMPATIBILITY OF MEMBRANE/TRANSITION MATERIALS TO THERMAX™.
2. 3RD PARTY MATERIAL TO TRANSITION FROM ROOFING MEMBRANE OVER/UNDER COPING TO TERMINATE ON FACE OF THERMAX INSULATION.
3. FROTH PAK INSULATION AT ROOF DECK / PARAPET JUNCTURE TO BE INSTALLED PRIOR TO ROOF INSULATION & MEMBRANE.



 **STUD WALL PARAPET SPF TERMINATION**  
TWS-G14.1 COLOR FOR VISUAL CLARIFICATION ONLY

 **PARAPET ON METAL DECK**  
TWS-G14.2 COLOR FOR VISUAL CLARIFICATION ONLY

### MINIMUM REQUIREMENTS

1. LIQUIDARMOR™ IS NOT ACCEPTABLE PRODUCTS FOR TRANSITIONING WRB/AIR BARRIER MEMBRANE FROM FACE OF THERMAX, AROUND PARAPET CAP, ONTO ROOFING MEMBRANE. TRANSITION MEMBRANES TO BE PROVIDED BY ROOFING MANUFACTURER.
2. LIQUIDARMOR NOT SUITABLE FOR ROOFING MEMBRANE MATERIALS AND CANNOT BE LEFT EXPOSED INDEFINITELY.
3. ALL PENETRATIONS AT PARAPET MUST BE MADE THROUGH SELF-SEALING MEMBRANES.
4. FLASHING DETAILS AT FRONT OF PARAPET SHOULD BE INSTALLED IN A SHINGLE-LAP PATTERN SUCH THAT THEY COUNTER FLASH ONTO THERMAX INSULATION.
5. AT ROOF WALL JUNCTURE, MIN. 1.5" +/- 0.5" APPLICATION SPRAY POLYURETHANE FOAM TO BE INSTALLED TO PREVENT AIR EXFILTRATION AT PARAPET.
6. FOR STUD ASSEMBLIES THAT RUN PAST ROOF DECK TO CREATE PARAPET WALL, MINERAL WOOL BLOCKING OR EQUAL TO ACT AS SUBSTRATE FOR 2LB SPRAY POLYURETHANE FOAM TO PROPERLY SEAL CAVITY.
7. 2LB SPRAY POLYURETHANE FOAM CANNOT BE LEFT EXPOSED AND REQUIRES A THERMAL BARRIER IN PLENUM SPACES.
8. FOR THERMAL BARRIER REQUIREMENTS, SEE DETAIL TWS-G16 CEILING PLENUM.

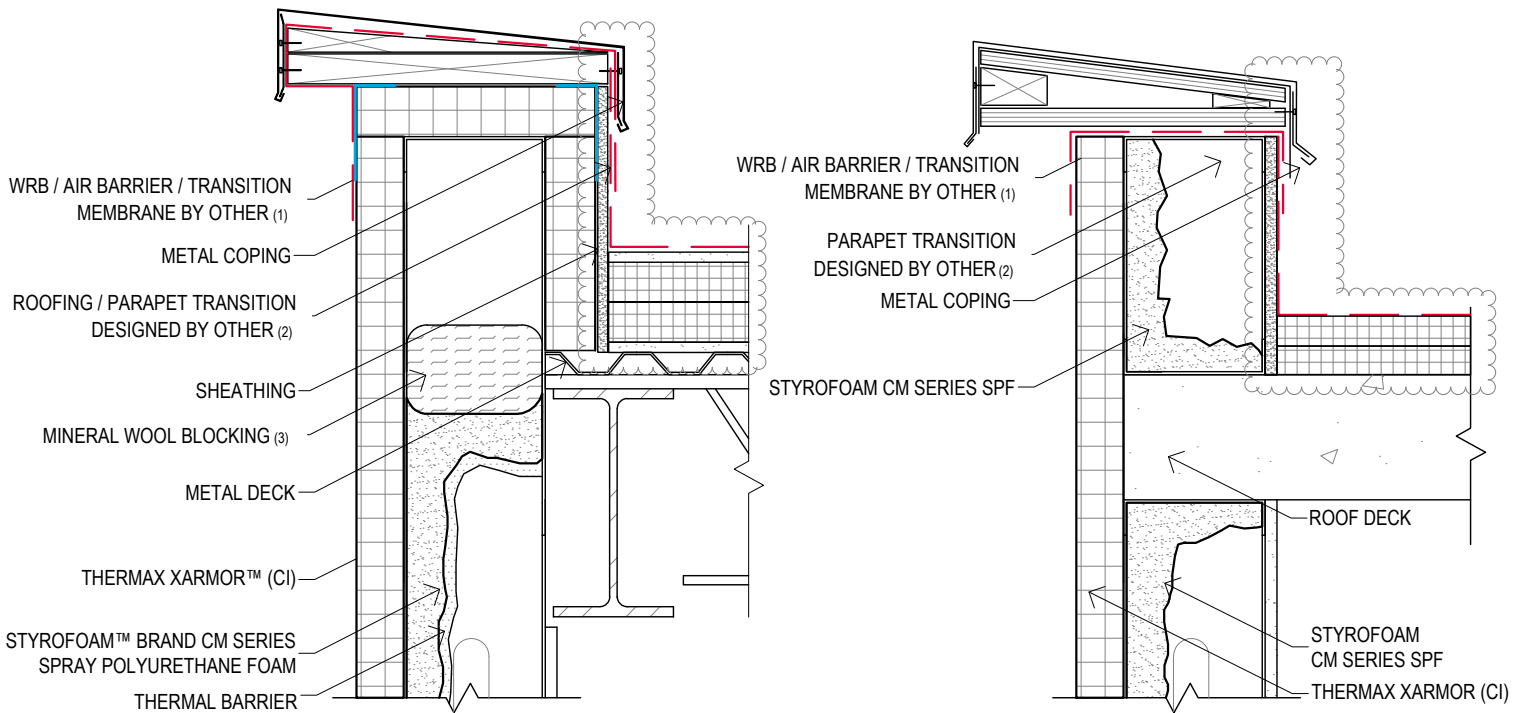


### DESIGN INTENT

1. SUCCESSFULLY TRANSITION 4 CONTROL LAYERS FROM VERTICAL WALL PLANE TO HORIZONTAL ROOFING PLANE WITHOUT INTERRUPTION.
2. INSULATION & AIR BARRIER TO SEAL OFF UNCONDITIONED PARAPET WALL FROM INTERACTING WITH CONDITIONED INTERIOR AIR TO FURTHER PREVENT CONDENSATION POTENTIAL.
3. TRANSITION TO ROOFING MEMBRANE MATERIALS USING COMPATIBLE MATERIALS.

### GENERAL RECOMMENDATIONS

1. COMBINATION OF MATERIALS MAY BE USED TO ENCAPSULATE PARAPET WALL - ALL MANUFACTURERS SHOULD BE CONSULTED TO ENSURE CHEMICAL COMPATIBILITY OF MEMBRANE/TRANSITION MATERIALS TO THERMAX™.
2. 3RD PARTY MATERIAL TO TRANSITION FROM ROOFING MEMBRANE OVER/UNDER COPING TO TERMINATE ON FACE OF THERMAX INSULATION.
3. FROTH-PAK™ INSULATION AT ROOF DECK / PARAPET JUNCTURE TO BE INSTALLED PRIOR TO ROOF INSULATION & MEMBRANE.

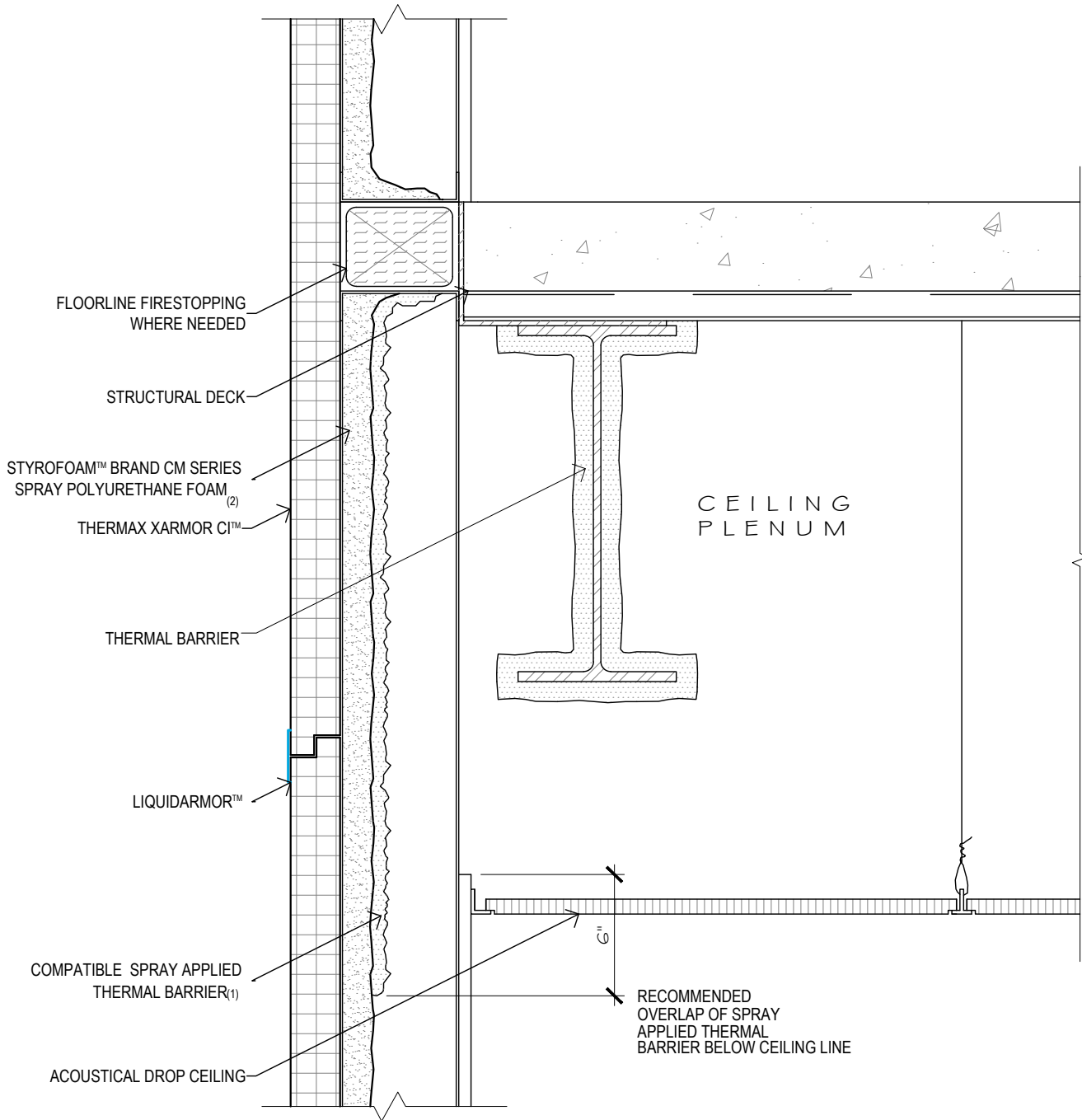


 **PARAPET SPF TERMINATION WITH BLOCKING**  
TWS-G15.1 *COLOR FOR VISUAL CLARIFICATION ONLY*

 **PARAPET AT EDGE OF SLAB**  
TWS-G15.2 *COLOR FOR VISUAL CLARIFICATION ONLY*

### MINIMUM REQUIREMENTS

1. LIQUIDARMOR™ IS NOT ACCEPTABLE PRODUCTS FOR TRANSITIONING WRB/AIR BARRIER MEMBRANE FROM FACE OF THERMAX, AROUND PARAPET CAP, ONTO ROOFING MEMBRANE. TRANSITION MEMBRANES TO BE PROVIDED BY ROOFING MANUFACTURER.
2. LIQUIDARMOR NOT SUITABLE FOR ROOFING MEMBRANE MATERIALS AND CANNOT BE LEFT EXPOSED INDEFINITELY.
3. ALL PENETRATIONS AT PARAPET MUST BE MADE THROUGH SELF-SEALING MEMBRANES AS DEFINED BY ASTM E331.
4. FLASHING DETAILS AT FRONT OF PARAPET SHOULD BE INSTALLED IN A SINGLE-LAP PATTERN SUCH THAT THEY COUNTER FLASH ONTO THERMAX INSULATION.
5. AT ROOF WALL JUNCTURE, MIN. 1.5" +/- 0.5" APPLICATION SPRAY POLYURETHANE FOAM TO BE INSTALLED TO PREVENT AIR EXFILTRATION AT PARAPET.
6. FOR STUD ASSEMBLIES THAT RUN PAST ROOF DECK TO CREATE PARAPET WALL, MINERAL WOOL BLOCKING OR EQUAL TO ACT AS SUBSTRATE FOR 2LB SPRAY POLYURETHANE FOAM TO PROPERLY SEAL CAVITY.
7. 2LB SPRAY POLYURETHANE FOAM CANNOT BE LEFT EXPOSED AND REQUIRES A THERMAL BARRIER IN PLENUM SPACES.
8. SEE DETAIL TWS-G16 REQUIREMENTS FOR EXPOSED SPF WHERE INTERIOR GYPSUM IS NOT CONTINUOUS TO BOTTOM OF ROOF DECK.

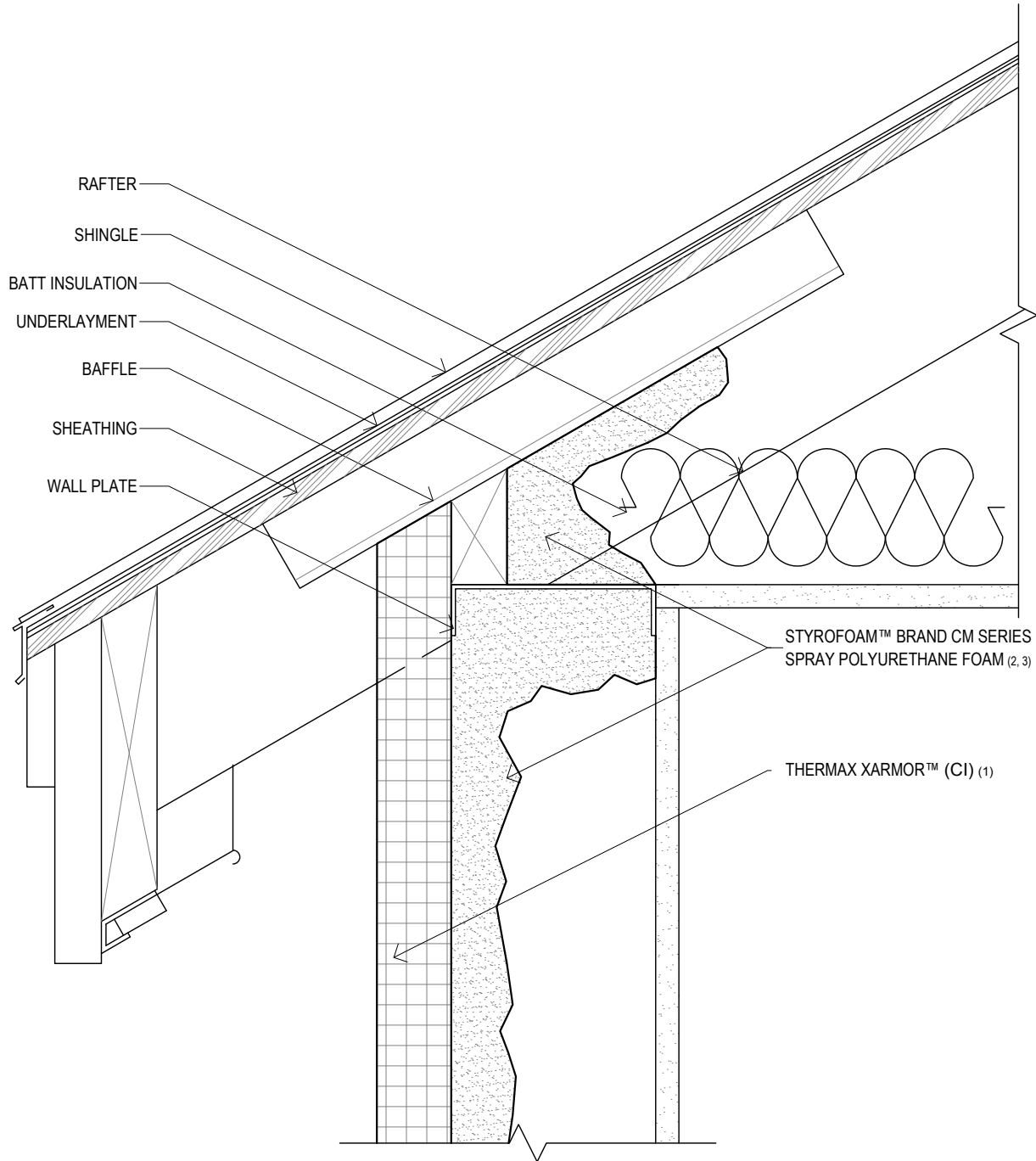


### CEILING PLENUM

TWS-G16 COLOR FOR VISUAL CLARIFICATION ONLY

#### MINIMUM REQUIREMENTS

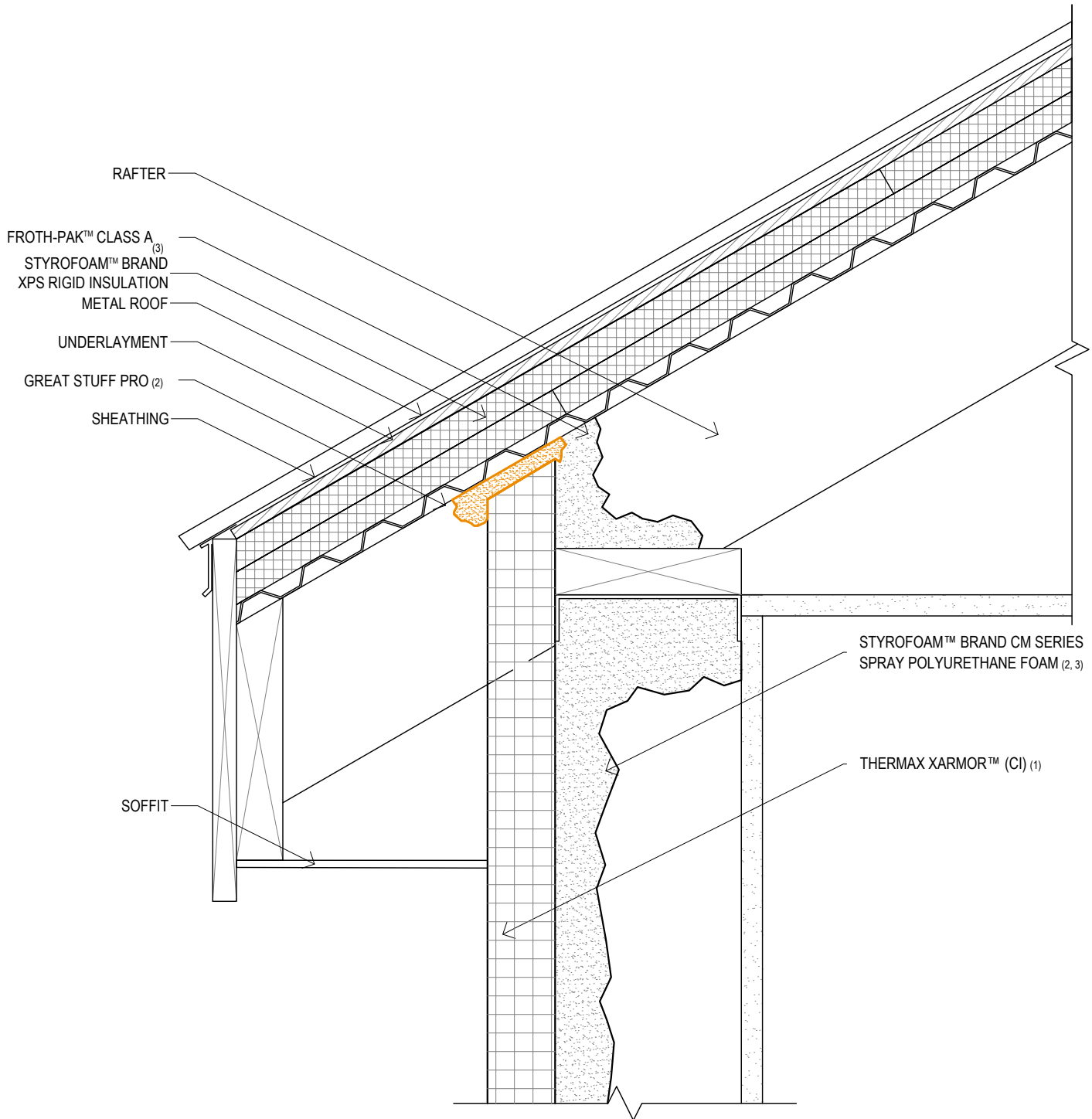
1. MIN. 6" OVERLAP OF SPRAY APPLIED THERMAL BARRIER BELOW CEILING LINE.
2. 2LB SPRAY POLYURETHANE FOAM CANNOT BE LEFT EXPOSED AND REQUIRES A THERMAL BARRIER IN PLENUM SPACES.
3. THERMAX™ BRAND INSULATION MAY BE LEFT EXPOSED IN PLENUM WITHOUT ADDITIONAL THERMAL BARRIER.



 GABLE ROOF / WALL JUNCTURE | SECTION  
TWS-G17

**MINIMUM REQUIREMENTS**

1. THERMAX™ BRAND INSULATION SHOULD BE CUT TO RUN INTO RAFTERS AND RUN TO TOP OF WALL PLATE.
2. SPRAY POLYURETHANE FOAM AT RAFTER TO BE INSTALLED ALONG BAFFLE TO AIR SEAL WHILE ALLOWING FOR PROPER VENTILATION.
3. MAX. SPF APPLICATION THICKNESS OF 6" AT JUNCTURE BETWEEN TOP OF WALL PLATE AND RAFTER. (NOTE 6" SPF THICKNESS REQUIRES 4 SEPARATE PASSES, EACH INSTALLATION PASS NOT TO EXCEED 1"-1.5" TO PREVENT DISTORTION OF BAFFLE MATERIAL DUE TO HEAT.)



 UNVENTED GABLE ROOF / WALL JUNCTION | SECTION  
TWS-G18 *COLOR FOR VISUAL CLARIFICATION ONLY*

**MINIMUM REQUIREMENTS**

1. THERMAX™ BRAND INSULATION SHOULD BE CUT TO RUN INTO RAFTERS AND RUN TO TOP OF WALL PLATE.
2. GREAT STUFF PRO GAPS & CRACKS, OR OTHER APPROVED SEALANT, TO BE USED TO SEAL BETWEEN THERMAX INSULATION AND ALL RAFTERS TO COMPLETE AIR SEAL.
3. FROTH-PAK CLASS A MAX. 6" HEIGHT AND MAX. 2" DEPTH, MAY BE LEFT EXPOSED WITHOUT ADDITIONAL THERMAL BARRIER.



# THERMAX™ Wall System

## Masonry Cladding Details

# DETAILS

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### Abstract

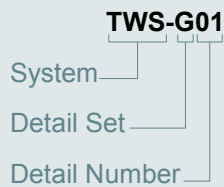
The “**TWS-General**” detail set outlines the general guidelines for design using the THERMAX™ Wall System (TWS), focusing on maintaining continuity of the four control layers (thermal, air, vapor, and water). These details can be used as guides for any THERMAX Wall project.

Cladding specific supplemental sets, “**TWS-Masonry**,” “**TWS-Rainscreen**,” and “**TWS-Applied**,” address conditions that apply to specific cladding types. These are meant to be used in addition to the TWS-General set.

*Other system detail sets available at [dowbuildingsolutions.com](http://dowbuildingsolutions.com)*

### NAVIGATING

#### Nomenclature



#### Key

- TWS** THERMAX Wall System
- G** General / Cladding Neutral
- M** Masonry
- R** Rainscreen
- A** Applied, Adhered

### DETAILS GUIDE

1. WALL SECTION LISTS APPLICABLE DETAILS FOR REFERENCE.
2. DETAIL NAMING SYSTEM:
  - TWS-X00.0
    - 0 - DETAIL NUMBER ON PAGE
    - 00 - DETAIL NUMBER IN SET
    - G - GENERAL
    - M - MASONRY
    - TWS - THERMAX™ WALL SYSTEM
3. FULL DETAIL SETS FOR "TWS-G" AND "TWS-M" AVAILABLE AT [DOWBUILDINGSOLUTIONS.COM](http://DOWBUILDINGSOLUTIONS.COM)

### PARAPET DETAILS

- TWS-G15.1
- TWS-G15.2
- TWS-G16.1
- TWS-G16.2

### EDGE OF SLAB DETAILS

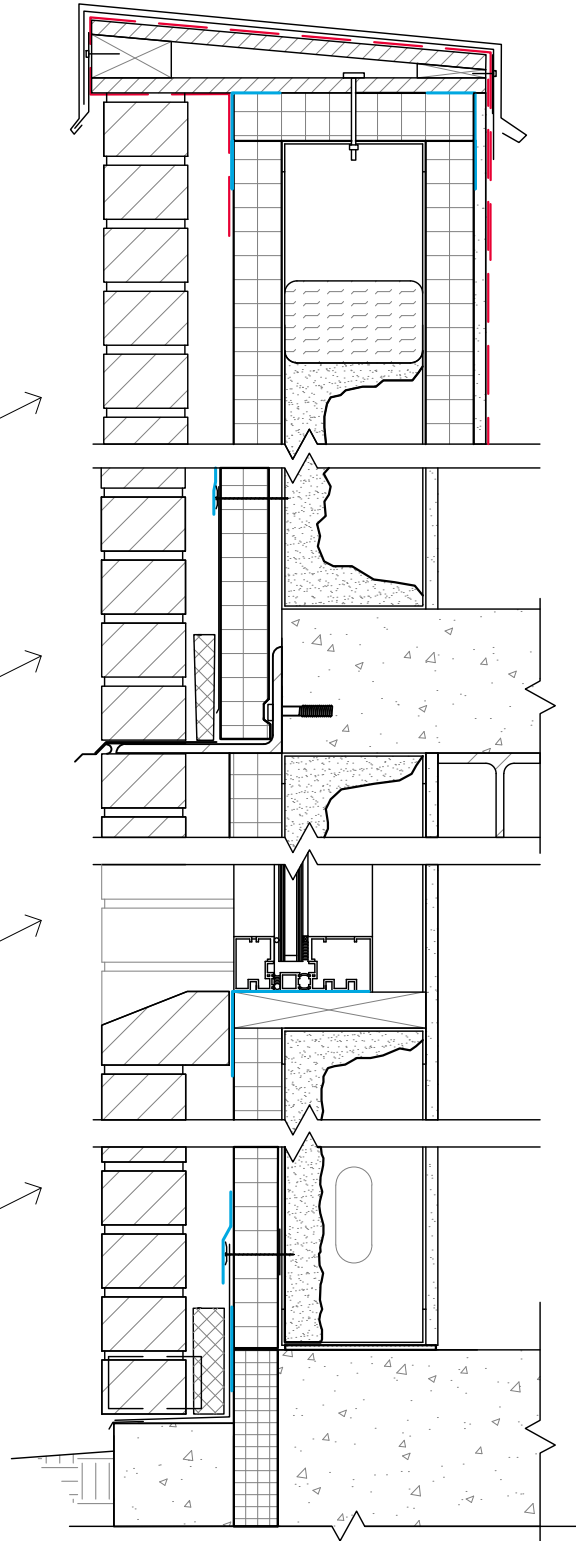
- TWS-G12.1
- TWS-G12.2
- TWS-M06.1
- TWS-M06.2

### WINDOW DETAILS

- TWS-G09.1
- TWS-G09.2
- TWS-009.3
- TWS-G09.4
- TWS-G10.1
- TWS-G10.2
- TWS-G10.3
- TWS-G10.4
- TWS-M05.1
- TWS-M05.2
- TWS-M05.3

### FOUNDATION DETAILS

- TWS-G07.1
- TWS-G07.2
- TWS-G07.3
- TWS-G07.4
- TWS-M04.1
- TWS-M04.2



 MASONRY OVERVIEW SECTION  
TWS-M01 COLOR FOR VISUAL CLARIFICATION ONLY

### MINIMUM REQUIREMENTS

1. ACCEPTABLE DETAILS INCLUDE, BUT ARE NOT LIMITED TO, THOSE LISTED ABOVE. MUST REFERENCE THERMAX WALL SYSTEM GENERAL DETAILS (CLADDING NEUTRAL) FOR OTHER MIN. REQUIREMENTS.

### Design Intent

1. USE SELF-SEALING MASONRY ANCHORS TO MAINTAIN INTEGRITY OF 4 CONTROL LAYERS.
2. SELECT FASTENERS WITH THERMAL BREAKS TO IMPROVE EFFECTIVE R-VALUE OF THE ENVELOPE.
3. USE BARREL-LIKE MASONRY FASTENERS TO REDUCE NUMBER OF PENETRATIONS TO ENVELOPE.
4. SEAL UNEVALUATED FASTENERS WITH SELF-SEALING DOW MEMBRANES.

### Masonry Anchor Recommendations

#### EVALUATED SELF-SEALING BARREL STYLE ANCHORS

- HECKMANN POS-I-TIE® WITH RODENHOUSE THERMAL-GRIP® CI WASHER
- HOHMANN & BARNARD 2-SEAL™ TIE, 2-SEAL THERMAL WINGNUT ANCHOR, & THERMAL 2-SEAL TIE
- WIRE-BOND SURE TIE WITH THERMAL WASHER

#### ANCHORS REQUIRING ADDITIONAL FLASHING

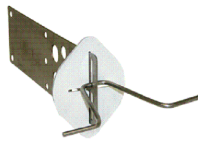
- HOHMANN & BARNARD: DW-10X SERIES, HB200/213 SERIES
  - WIRE-BOND: HCL SERIES, TYPE III X SERIES
- LIST NOT EXHAUSTIVE.

### SELF-SEALING BARREL FASTENERS (RECOMMENDED)



THERMAX XARMOR CI™

### ENGINEERED TIE (HIGH RISE)<sup>(5)</sup> REQUIRES ADDITIONAL FLASHING / SEALANT



THERMAX XARMOR CI

LIQUIDARMOR™<sup>(4)</sup>

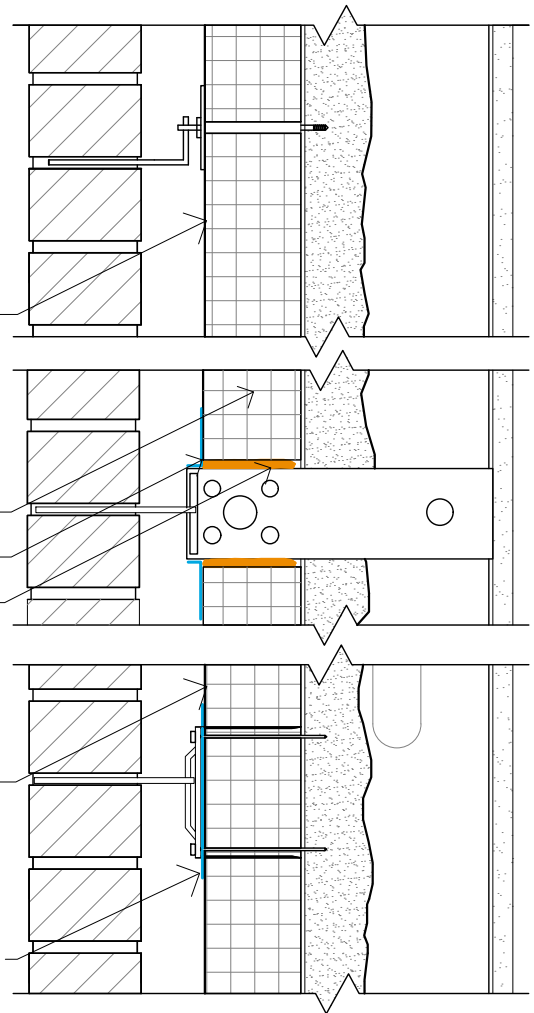
GREAT STUFF PRO™ GAPS & CRACKS

### FACE MOUNTED / PENETRATING ANCHOR<sup>(4)</sup> REQUIRES ADDITIONAL FLASHING / SEALANT (NOT PREFERRED)



THERMAX XARMOR CI

LIQUIDARMOR<sup>(4)</sup>



### MINIMUM REQUIREMENTS

1. GENERAL FASTENING PATTERN IS 16" O.C. VERTICALLY & HORIZONTALLY UNLESS SPECIFIED DIFFERENTLY BY LICENSED ENGINEER.
2. APPROVED ANCHORS MUST INCLUDE WASHER.
3. WHERE ANCHOR USES MIN. 2" DIA. WASHER, MASONRY ANCHOR MAY BE USED TO REPLACE 1 INSULATION FASTENER AT THAT LOCATION.
4. ALL PENETRATING ANCHORS MUST BE INSTALLED THROUGH LIQUIDARMOR WITH MIN. WIDTH BASED ON DETAIL TWS-G02.
5. MUST SEAL VOIDS AROUND ALL SHEAR / PLATE ANCHORS WITH GREAT STUFF PRO INSULATING FOAM SEALANT OR OTHER APPROVED SEALANT AND FLASH USING LIQUIDARMOR.

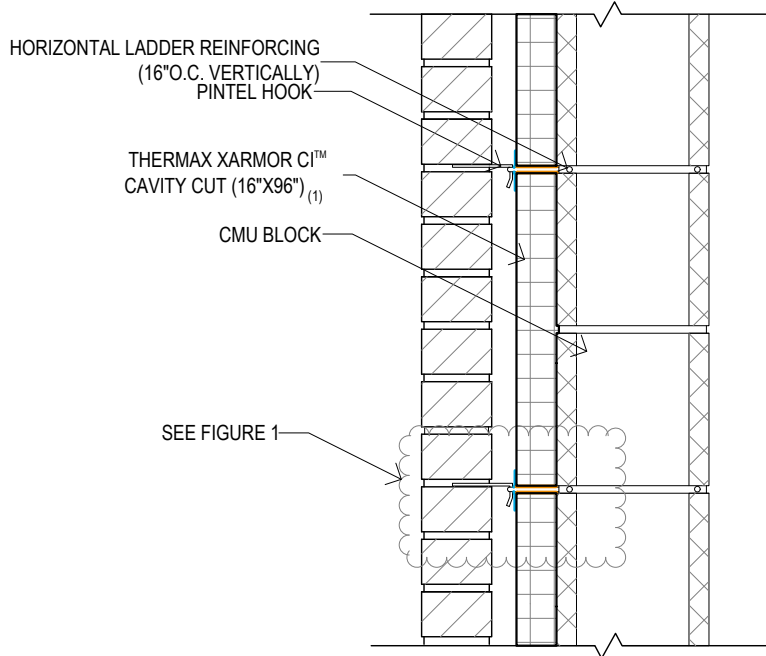
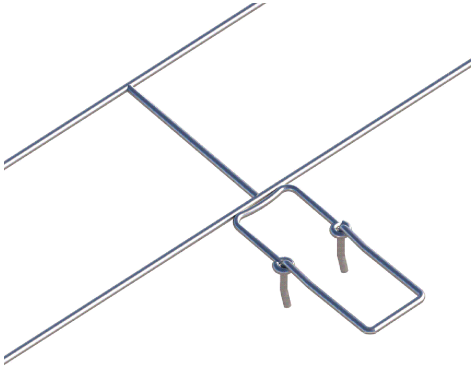
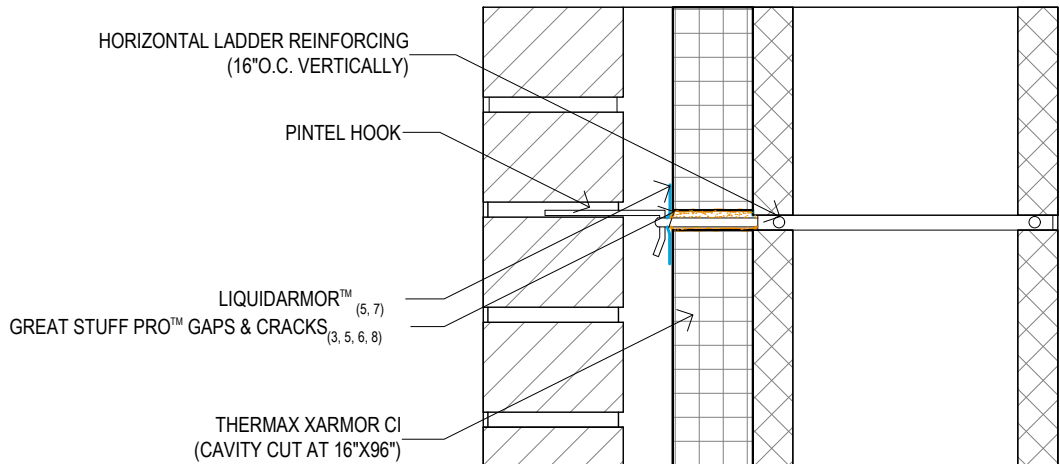


FIGURE 1

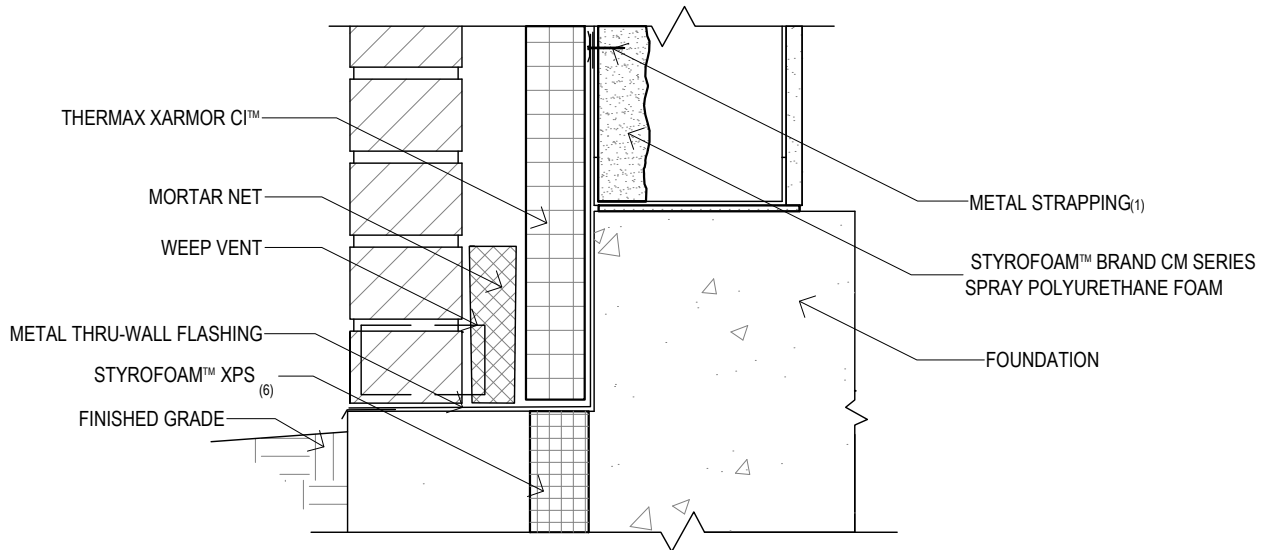


 ANCHOR GUIDELINES ON CMU  
TWS-M03 COLOR FOR VISUAL CLARIFICATION ONLY

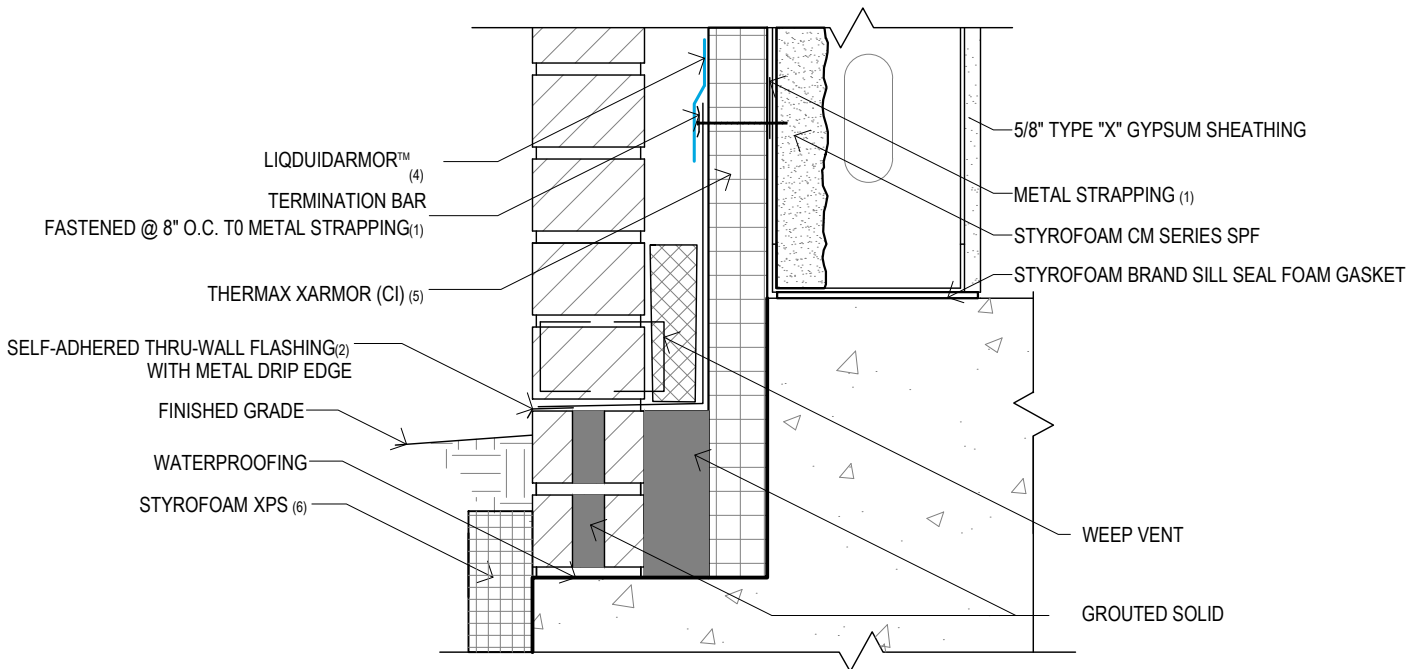
**MINIMUM REQUIREMENTS**

1. THERMAX™ BRAND INSULATION BOARDS TO BE CUT AT 16" O.C. WITH A SQUARE EDGE (NOT SHIP LAPPED).
2. JOINTS AT BOARD PERIMETER TO BE FILLED WITH GREAT STUFF PRO GAPS & CRACKS INSULATING FOAM SEALANT OR OTHER APPROVED SEALANT PRIOR TO INSTALLATION OF LIQUIDARMOR.
3. GREAT STUFF PRO GAPS & CRACKS MUST TACK OVER (10-15 MIN.) PRIOR TO INSTALLATION OF LIQUIDARMOR FLASHING.
4. SELF ADHERED FLASHING MATERIALS ARE NOT ACCEPTABLE FOR THIS APPLICATION DUE TO THE DIFFICULTY IN CREATING A PROPER SEAL AROUND MASONRY WIRE TIES.
5. LIQUIDARMOR CAN SPAN A MAX. 1/4" GAPS - ALL AREAS WHERE JOINTS BETWEEN THERMAX BOARDS EXCEED 1/4" REQUIRE GREAT STUFF PRO GAPS & CRACKS OR OTHER APPROVED SEALANT TO BE INSTALLED.
6. GREAT STUFF PRO GAPS & CRACKS MAY BE LEFT EXPOSED FOR 60 DAYS MAX.
7. SEE DETAIL TWS-G02 FOR LIQUIDARMOR MIN. APPLICATION REQUIREMENTS AND EXPOSURE LIMITS.
8. GREAT STUFF PRO GAPS & CRACKS MAY BE USED TO ADHERE INSULATION BOARDS TO CMU SUBSTRATE.





 **FOUNDATION BRICK AT GRADE**  
TWS-M04.1 *COLOR FOR VISUAL CLARIFICATION ONLY*



 **FOUNDATION PARTIAL BELOW GRADE - GROUTED SOLID**  
TWS-M04.2 *COLOR FOR VISUAL CLARIFICATION ONLY*

### MINIMUM REQUIREMENTS

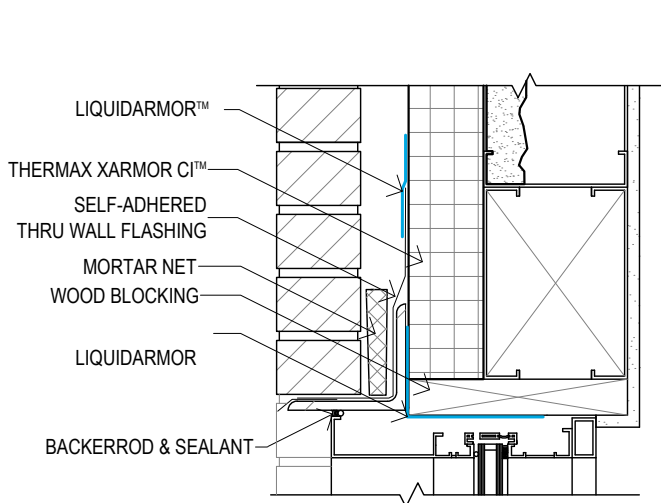
1. MIN. 3" WIDTH OF LIGHT GAUGE METAL STRAPPING, MIN. 16" O.C. ABOVE GRADE, TO ACT AS NAILING BASE FOR TERMINATION BAR.
2. THRU-WALL FLASHING MIN. 40 MIL THICK, MIN 90 DAY UV RESISTANCE, INSTALLED PER MANUFACTURER'S RECOMMENDATIONS USING EDGING TOOL OR ROLLER (HAND APPLIED PRESSURE NOT ACCEPTABLE). LIQUIDARMOR NOT ACCEPTABLE FOR THIS APPLICATION.
3. FOR MIN. WIDTHS OF LIQUIDARMOR APPLICATION, SEE DETAIL TWS-G02.
4. THERMAX™ BRAND INSULATION NOT INTENDED FOR USE BELOW GRADE.
5. MIN. 25 PSI STYROFOAM TYPE IV (PER ASTM C578) EXTRUDED POLYSTYRENE (XPS) TO BE USED WHEN INSULATING BELOW GRADE.
6. SEE THERMAX WALL SYSTEM GENERAL DETAIL SET ("TWS-G") FOR OTHER FOUNDATION OPTIONS AND REQUIREMENTS.

### DESIGN INTENT

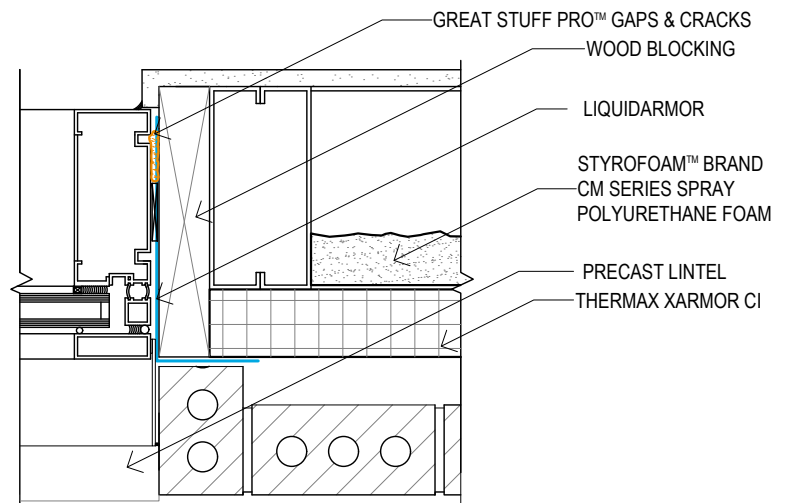
1. USE LIQUIDARMOR™ TO TRANSITION THE AIR & WATER RESISTIVE BARRIER FROM THE FACE OF THE THERMAX™ INSULATION INTO ALL JAMBS, SILLS, & WINDOW HEADS PRIOR TO INSTALLATION OF PUNCH WINDOWS & WINDOW RECEPTORS.
2. SEALANTS AND CAULKS AS SPECIFIED BY WINDOW MANUFACTURER TO BE USED AS PRIMARY DEFENSE AGAINST MOISTURE INTRUSION & AIR INFILTRATION.
3. WINDOW RECEPTOR TO ATTACH TO WOOD BLOCKING THROUGH DOW SEALANT MEMBRANES FOR ENHANCED AIR AND MOISTURE SEALING.

### GENERAL RECOMMENDATIONS

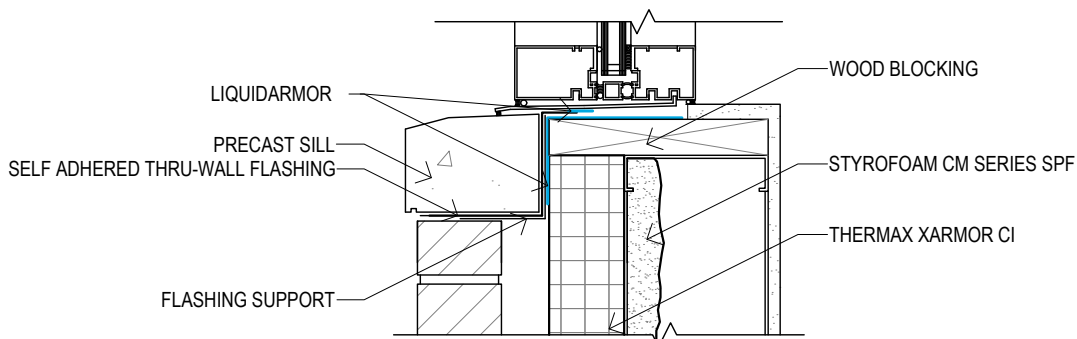
1. WINDOW SEALANT COMPATIBILITY SHOULD BE VERIFIED BY DOW FOR LONG-TERM ADHESION TO DOW FLASHING.
2. DOW CORNING® BUILDING SEALANTS ARE COMPATIBLE WITH DOW FLASHING MATERIALS AND SHOULD BE USED AS PER MANUFACTURER'S & INSTALLATION INSTRUCTIONS.
3. WOOD BLOCKING IS PREFERRED TO PROVIDE ADDED RIGIDITY AND A NAILING BASE AT JAMBS, SILLS, & HEADS.
4. A DOUBLE STUD IS RECOMMENDED AT JAMBS TO ALLOW FOR GREATER FLEXIBILITY WITH CLADDING TERMINATIONS AROUND WINDOWS & DOORS.



○ WINDOW HEAD | SECTION  
TWS-M05.1 COLOR FOR VISUAL CLARIFICATION ONLY



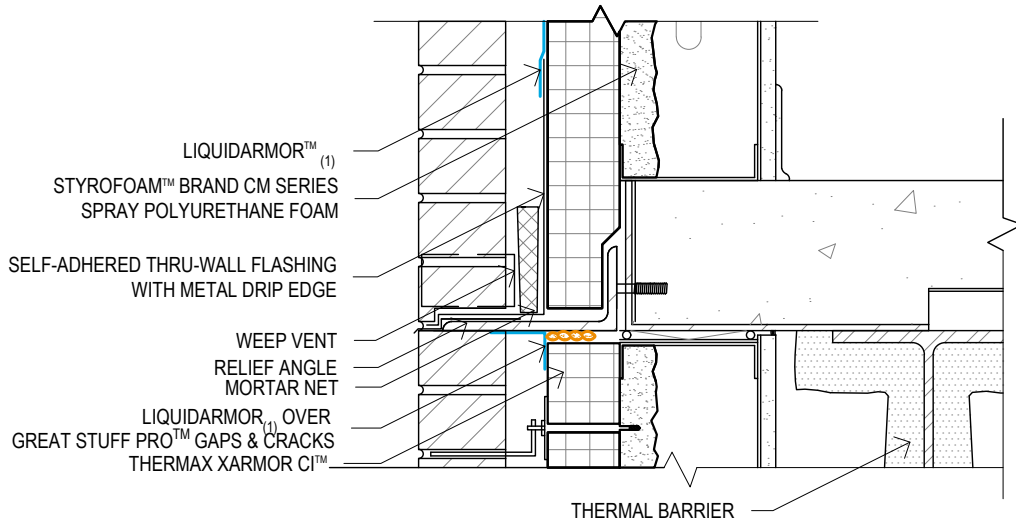
○ BRICK FACE RETURN AT WINDOW JAMB | PLAN  
TWS-M05.2 COLOR FOR VISUAL CLARIFICATION ONLY



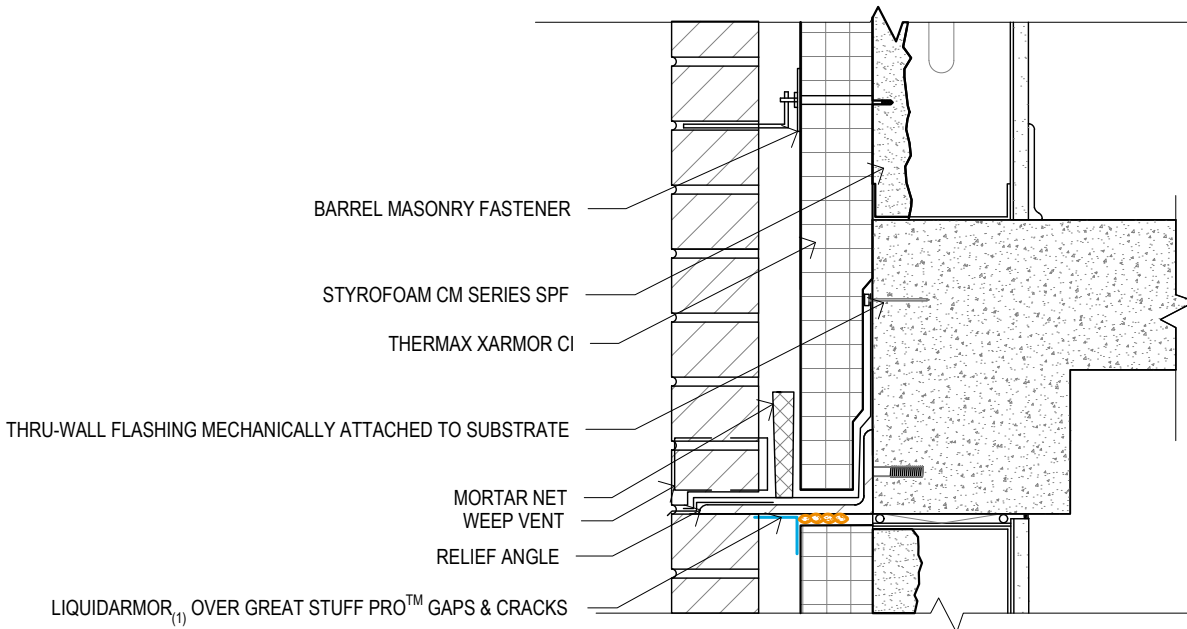
○ PRECAST WINDOW SILL | SECTION  
TWS-M05.3 COLOR FOR VISUAL CLARIFICATION ONLY

### MINIMUM REQUIREMENTS

1. DOW SEALANT TO BE INSTALLED ONTO FACE OF THERMAX BASED ON WIDTH REQUIREMENTS ON DETAIL TWS-G02 AND INTO ROUGH OPENING (SILL, JAMB, & HEADER) MIN. 2" OR 1" PAST INTERIOR CAULK JOINT, WHICHEVER IS GREATER.
2. IF NOT USING WOOD BLOCKING AT WINDOW JAMB, HEAD, SILL, MUST USE "SHINY 90" TO BRIDGE INSULATION CORE (RAW EDGE).
3. FOR WIDTHS REQUIRING MULTIPLE WIDTHS OF COMPATIBLE TAPE, PIECES SHOULD BE INSTALLED IN A SHINGLE-LAP FASHION TO PROMOTE WATER SHEDDING WITH MIN. 2" ADHERENCE BETWEEN EACH PIECE.
4. SEE THERMAX WALL SYSTEM GENERAL DETAIL SET ("TWS-G") FOR OTHER WINDOW OPTIONS & REQUIREMENTS.



 **EDGE OF SLAB - FACE FLASHED**  
 TWS-M06.1 COLOR FOR VISUAL CLARIFICATION ONLY



 **EDGE OF SLAB - FLASHED AT SLAB**  
 TWS-M06.2 COLOR FOR VISUAL CLARIFICATION ONLY

### MINIMUM REQUIREMENTS

1. FOR MIN. APPLICATION THICKNESS AND WIDTH OF LIQUIDARMOR, SEE DETAIL TWS-G005.
2. WHERE THERMAX COUNTERFLASHES THRU-WALL FLASHING, SELF ADHERED MEMBRANES ARE ONLY ACCEPTABLE IF SLAB PROVIDES SUFFICIENT SUBSTRATE TO BE INSTALLED ON - ALL OTHER APPLICATIONS WILL REQUIRE METAL THRU-WALL FLASHINGS.
3. INSULATION SHOULD BE FLASHED TO BOTTOM EDGE OF RELIEF ANGLES TO PREVENT MOISTURE INTRUSION.
4. IF THRU-WALL FLASHING INSTALLED ON FACE OF THERMAX, LIQUIDARMOR MUST COUNTER FLASH LEADING EDGE OF THRU-WALL FLASHING.
5. SEE THERMAX WALL SYSTEM GENERAL DETAIL SET ("TWS-G") FOR OTHER EDGE OF SLAB OPTIONS & REQUIREMENTS.



# THERMAX™ Wall System

## Rainscreen Details

# DETAILS

### Contents

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<b>TWS-RAINSCREEN</b> <i>Supplemental Set</i>	<b>3-0</b>
TWS-R01 Rainscreen Overview	3-1
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TWS-R08 Proprietary Furring	3-8
TWS-R09 Typ. Wall	3-9
<b>TWS-APPLIED</b> <i>Supplemental Set</i>	4-0

### Abstract

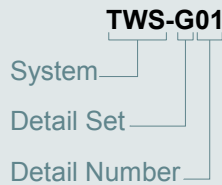
The “**TWS-General**” detail set outlines the general guidelines for design using the THERMAX™ Wall System (TWS), focusing on maintaining continuity of the four control layers (thermal, air, vapor, and water). These details can be used as guides for any THERMAX Wall project.

Cladding specific supplemental sets, “**TWS-Masonry**,” “**TWS-Rainscreen**,” and “**TWS-Applied**,” address conditions that apply to specific cladding types. These are meant to be used in addition to the TWS-General set.

*Other system detail sets available at [dowbuildingsolutions.com](http://dowbuildingsolutions.com)*

### NAVIGATING

#### Nomenclature



#### Key

- TWS** THERMAX Wall System
- G** General / Cladding Neutral
- M** Masonry
- R** Rainscreen
- A** Applied, Adhered

### DETAILS GUIDE

1. WALL SECTION LISTS APPLICABLE DETAILS FOR REFERENCE.
2. DETAIL NAMING SYSTEM:
  - TWS-X00.0
    - .0 - DETAIL NUMBER ON PAGE
    - 00 - DETAIL NUMBER IN SET
    - G - GENERAL
    - R - RAINSCREEN
    - TWS - THERMAX™ WALL SYSTEM
3. FULL DETAIL SETS FOR "TWS-G" AND "TWS-R" AVAILABLE AT [DOWBUILDINGSOLUTIONS.COM](http://DOWBUILDINGSOLUTIONS.COM)
4. SEE TWS-G DETAIL SET FOR MINIMUM REQUIREMENTS.

### PARAPET DETAILS

TWS-G15.1  
TWS-G15.2  
TWS-G16.1  
TWS-G16.2

### EDGE OF SLAB DETAILS

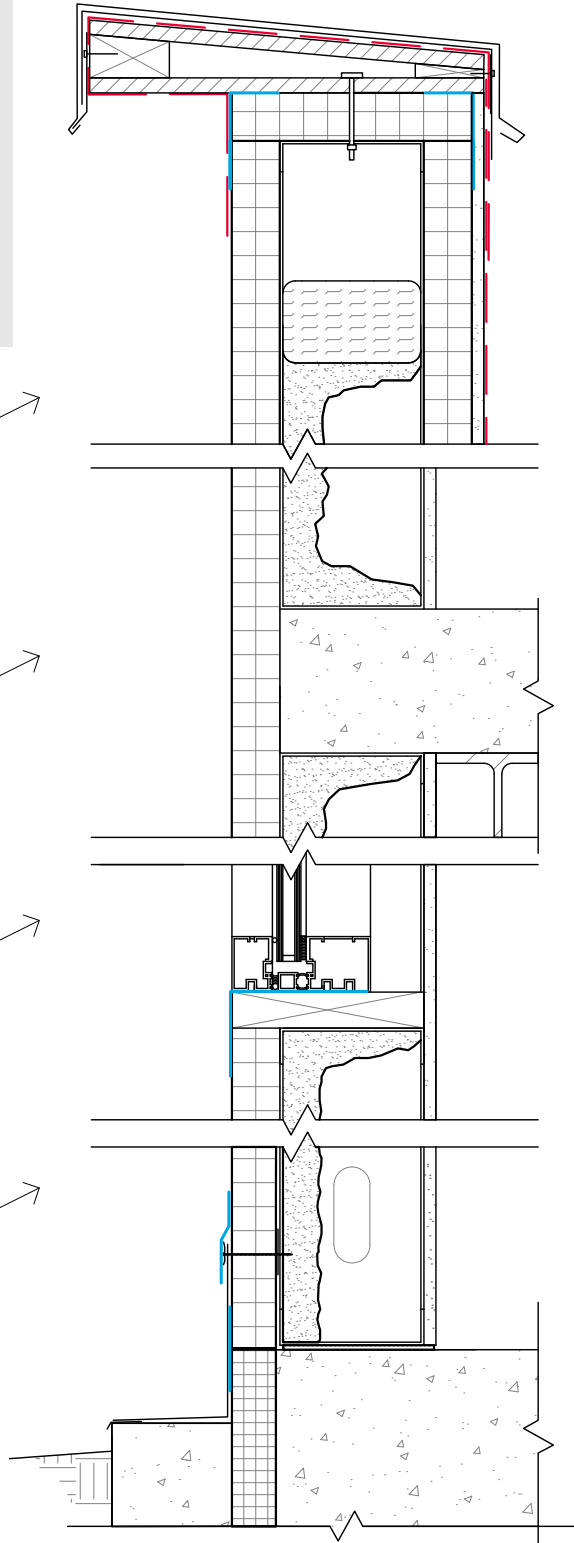
TWS-G12.1  
TWS-G12.2

### WINDOW DETAILS

TWS-G09.1      TWS-G10.1  
TWS-G09.2      TWS-G10.2  
TWS-G09.3      TWS-G10.3  
TWS-G09.4      TWS-G10.4

### FOUNDATION DETAILS

TWS-G07.1  
TWS-G07.2  
TWS-G07.3  
TWS-G07.4



 **RAINSCREEN OVERVIEW SECTION**  
TWS-R01      COLOR FOR VISUAL CLARIFICATION ONLY

### Design Intent

1. Use furring system surface mounted over the rigid insulation and fastened to the structure.
2. See table below to find maximum thickness of insulation allowed based on cladding weight and fastening options.
3. Seal penetrations of furring strips using LIQUIDARMOR™ to maintain continuous air and water barrier at the face of the rigid insulation.
4. Rainscreen panels are attached to the furring strips rather than directly to the studs, minimizing penetrations through the air/water barrier plane.

### Furring Options

1. Hat Channels
2. Z-Furring (Surface Mounted)
3. Z-Furring (to Stud)
4. Flat Strap
5. Wood Furring
6. Knight Wall CI-Girt

List Not Exhaustive.

Furring type dictated by cladding weight & design.

**IBC 2015: TABLE 2603.12.2**  
**FURRING MINIMUM FASTENING REQUIREMENTS FOR APPLICATION OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT<sup>a</sup>**

FURRING MATERIAL	FRAMING MEMBER	FASTENER TYPE AND MINIMUM SIZE <sup>b</sup>	MINIMUM PENETRATION INTO WALL FRAMING (Inches)	FASTENER SPACING IN FURRING (Inches)	MAXIMUM THICKNESS OF FOAM SHEATHING <sup>4</sup> (Inches)					
					16" o.c. furring <sup>e</sup>			24" o.c. furring <sup>e</sup>		
					Cladding Weight			Cladding Weight		
					3 psf	11 psf	25 psf	3 psf	11 psf	25 psf
Minimum 33 mil steel furring or minimum 1x wood furring <sup>c</sup>	33 mil steel stud	#8 screw	Steel thickness plus 3 threads	12	3	1.5	DR	3	0.5	DR
				16	3	1	DR	2	DR	DR
				24	2	DR	DR	2	DR	DR
		#10 screw	Steel thickness plus 3 threads	12	4	2	DR	4	1	DR
				16	4	1.5	DR	3	DR	DR
				24	3	DR	DR	2	DR	DR
	43 mil or thicker steel stud	#8 screw	Steel thickness plus 3 threads	12	3	1.5	DR	3	0.5	DR
				16	3	1	DR	2	DR	DR
				24	2	DR	DR	2	DR	DR
		#10 screw	Steel thickness plus 3 threads	12	4	3	1.5	4	3	DR
				16	4	3	0.5	4	2	DR
				24	4	2	DR	4	0.5	DR

For SI: 1 inch = 25.4 mm; 1 pound per square foot (psf) = 0.0479 kPa, 1 pound per square inch = 0.00689 MPa.

DR = design required; o.c. = on center.

a. Wood furring shall be Spruce-Pine fir or any softwood species with a specific gravity of 0.42 or greater. Steel furring shall be minimum 33 ksi steel. Steel studs shall be minimum 33 ksi steel for 33 mil and 43 mil thickness and 50 ksi steel for 54 mil steel or thicker.

b. Screws shall comply with the requirements of AISI S200.

c. Where the required cladding fastener penetration into wood material exceeds  $\frac{3}{4}$  inch and is not more than  $1\frac{1}{2}$  inches, a minimum 2-inch nominal wood furring shall be used or an approved design.



d. Foam sheathing shall have a minimum compressive strength of 15 pounds per square inch in accordance with ASTM C578 or ASTM C1289.

e. Furring shall be spaced not more than 24 inches on center, in a vertical or horizontal direction. In a vertical orientation, furring shall be located over wall studs and attached with the required fastener spacing. In a horizontal orientation, the indicated 8-inch and 12-inch fastener spacing in furring shall be achieved by use of two fasteners into studs at 16 inches and 24 inches on center, respectively.

### MINIMUM REQUIREMENTS

1. TABLE 2603.12.2 REFERENCED FROM INTERNATIONAL BUILDING CODE (IBC) 2015. SEE CODE FOR OTHER REQUIREMENTS.
2. SEE DETAIL TWS-G02 FOR MIN. LIQUIDARMOR APPLICATION THICKNESS & WIDTH.
3. VERIFY WITH ENGINEER THAT ATTACHMENT METHOD ADEQUATE FOR WEIGHT OF CLADDING.

### Key

-  LIQUIDARMOR™ or compatible tape over object<sub>(2)</sub>
-  LIQUIDARMOR or compatible tape behind object<sub>(2)</sub>
-  THERMAX XARMOR™ (section)
-  THERMAX XARMOR (elevation)
-  STYROFOAM™ BRAND CM SERIES SPF

### Typical Cladding Types Using Hat Channel

#### Horizontal Attachment

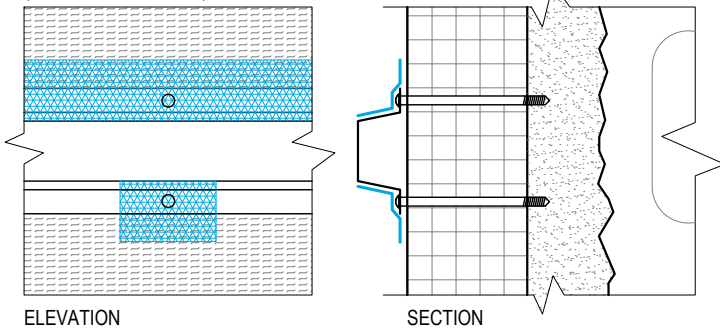
- Fiber Cement Panels
- Backer Board for Applied Finishes

#### Vertical Attachment

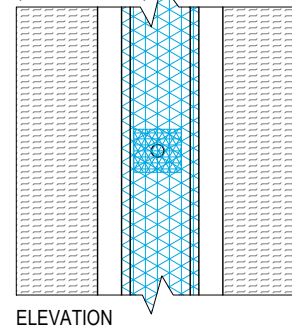
- Fiber Cement Panels
- ACM Panels
- MCM Panels

*Note: List Not Exhaustive*

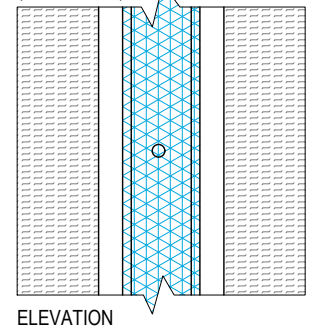
HAT CHANNEL - HORIZONTAL OPTION 1  
(LIQUIDARMOR ONLY)



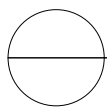
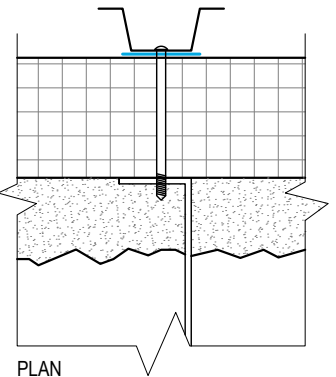
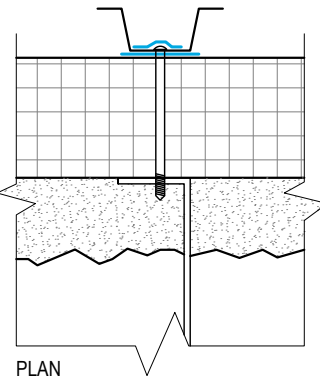
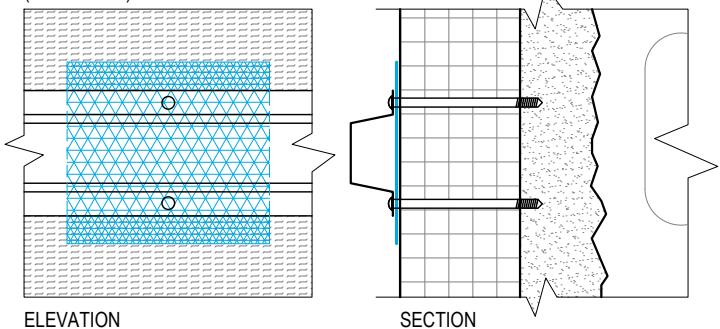
HAT CHANNEL - VERTICAL OPTION 1  
(LIQUIDARMOR)



HAT CHANNEL - VERTICAL 2  
(TAPE ONLY)



HAT CHANNEL - HORIZONTAL OPTION 2  
(TAPE ONLY)



### HAT CHANNEL FURRING



TWS-R03

COLOR FOR VISUAL CLARIFICATION ONLY

### MINIMUM REQUIREMENTS

1. SEE DETAIL TWS-G02 FOR MIN. LIQUIDARMOR APPLICATION THICKNESS & WIDTH.
2. SEE DETAIL TWS-G02 FOR COMPATIBLE TAPE OPTIONS AND NOTED WARRANTY DIFFERENCES.
3. SEE DETAIL TWS-R02 FOR MIN FURRING REQUIREMENTS AND VERIFY ATTACHMENT WITH ENGINEER TO ENSURE ADEQUACY FOR CLADDING WEIGHT REQUIREMENTS.

### Key

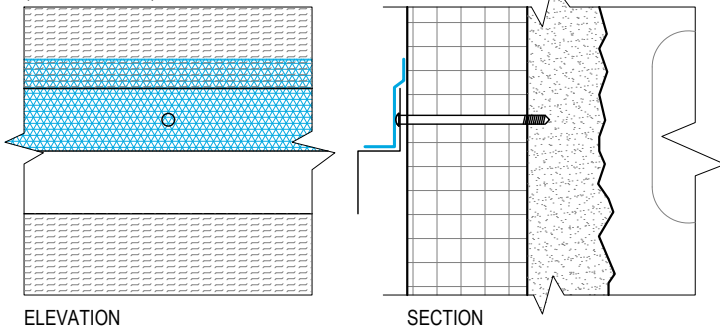
-  LIQUIDARMOR™ or compatible tape over object<sub>(2)</sub>
-  LIQUIDARMOR or compatible tape behind object<sub>(2)</sub>
-  THERMAX XARMOR™ (section)
-  THERMAX XARMOR (elevation)
-  STYROFOAM™ BRAND CM SERIES SPF

### Typical Cladding Types Using Z-Furring

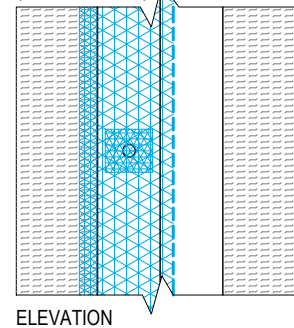
1. MCM Panel
2. ACM Panel
3. Terra Cotta
4. Fiber Cement Panel
5. Backer Board for Applied Finishes

*Note: List Not Exhaustive*

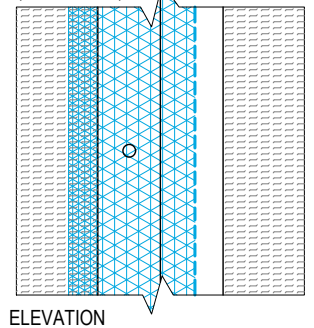
Z-FURRING - HORIZONTAL OPTION 1  
(LIQUIDARMOR)



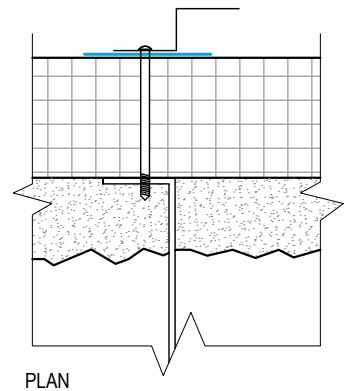
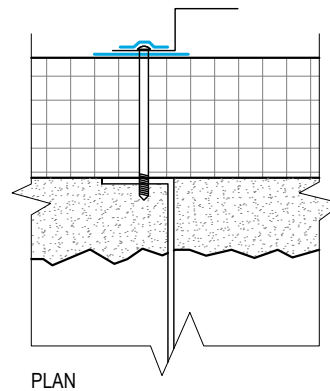
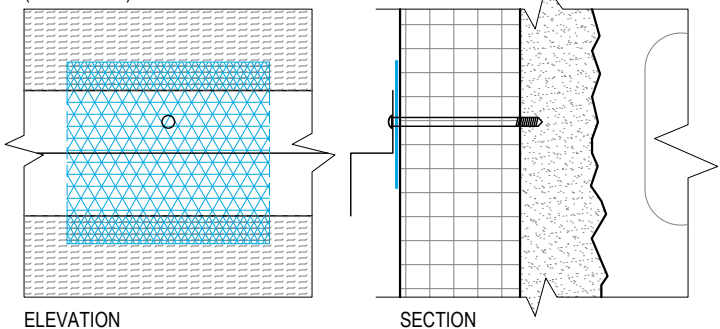
Z-FURRING - VERTICAL OPTION 1  
(LIQUIDARMOR)



Z-FURRING - VERTICAL OPTION 2  
(TAPE ONLY)



Z-FURRING - HORIZONTAL OPTION 2  
(TAPE ONLY)



## Z-FURRING (SURFACE MOUNTED)

TWS-R04 COLOR FOR VISUAL CLARIFICATION ONLY

### MINIMUM REQUIREMENTS

1. SEE DETAIL TWS-G02 FOR MIN. LIQUIDARMOR APPLICATION THICKNESS & WIDTH.
2. SEE DETAIL TWS-G02 FOR COMPATIBLE TAPE OPTIONS AND NOTED WARRANTY DIFFERENCES.
3. SEE DETAIL TWS-R02 FOR MIN FURRING REQUIREMENTS AND VERIFY ATTACHMENT WITH ENGINEER TO ENSURE ADEQUACY FOR CLADDING WEIGHT REQUIREMENTS.



# THERMAX™ wallsystem

details by 

RAINSCREEN






## Z-Furring (to Stud)

### Design Intent

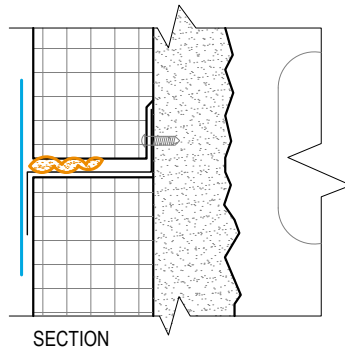
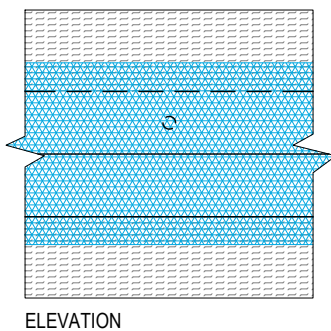
Attaching metal Z-furring directly to stud significantly reduces the continuous insulation's effectiveness due to thermal bridging. If this method is to be used, take into consideration the "ci" reduction values that correspond with horizontal and vertical Z-furring.

Source for values used for thermal effectiveness and reduction in effective R-value is RDH Technical Bulletin No. 11: Cladding Attachment Solutions for Exterior Insulated Commercial Walls, 2015.

### Key

	LIQUIDARMOR™ over object
	GREAT STUFF PRO™ Gaps & Cracks
	THERMAX XARMOR™ (section)
	THERMAX XARMOR™ (elevation)
	STYROFOAM™ Branc CM Series SPF

### Z-FURRING TO STUD - HORIZONTAL

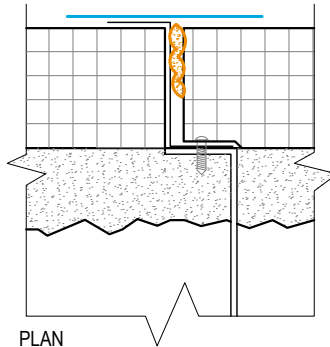
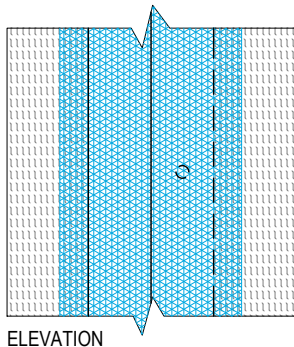


THERMAL EFFECTIVENESS: 30-50%

REDUCTION IN "CI" R-VALUE: ~60%

(EX.  $R-13CI * 0.4 \Rightarrow \sim R-5.2$  WHEN FASTENED USING Z-GIRTS HORIZONTALLY ATTACHED TO STUDS)

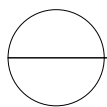
### Z-FURRING TO STUD - VERTICAL



THERMAL EFFECTIVENESS: 20-40%

REDUCTION IN "CI" R-VALUE: ~70%

(EX.  $R-13CI * 0.3 \Rightarrow \sim R-3.9$  WHEN FASTENED USING Z-GIRTS VERTICALLY ATTACHED TO STUDS)



### Z-FURRING (TO STUD)

TWS-R05

COLOR FOR VISUAL CLARIFICATION ONLY

### MINIMUM REQUIREMENTS

1. SEE DETAIL TWS-G02 FOR MIN. LIQUIDARMOR APPLICATION THICKNESS & WIDTH.
2. SEE DETAIL TWS-R02 FOR MIN. FURRING REQUIREMENTS AND VERIFY ATTACHMENT WITH ENGINEER TO ENSURE ADEQUACY FOR CLADDING WEIGHT REQUIREMENTS.

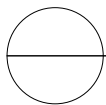
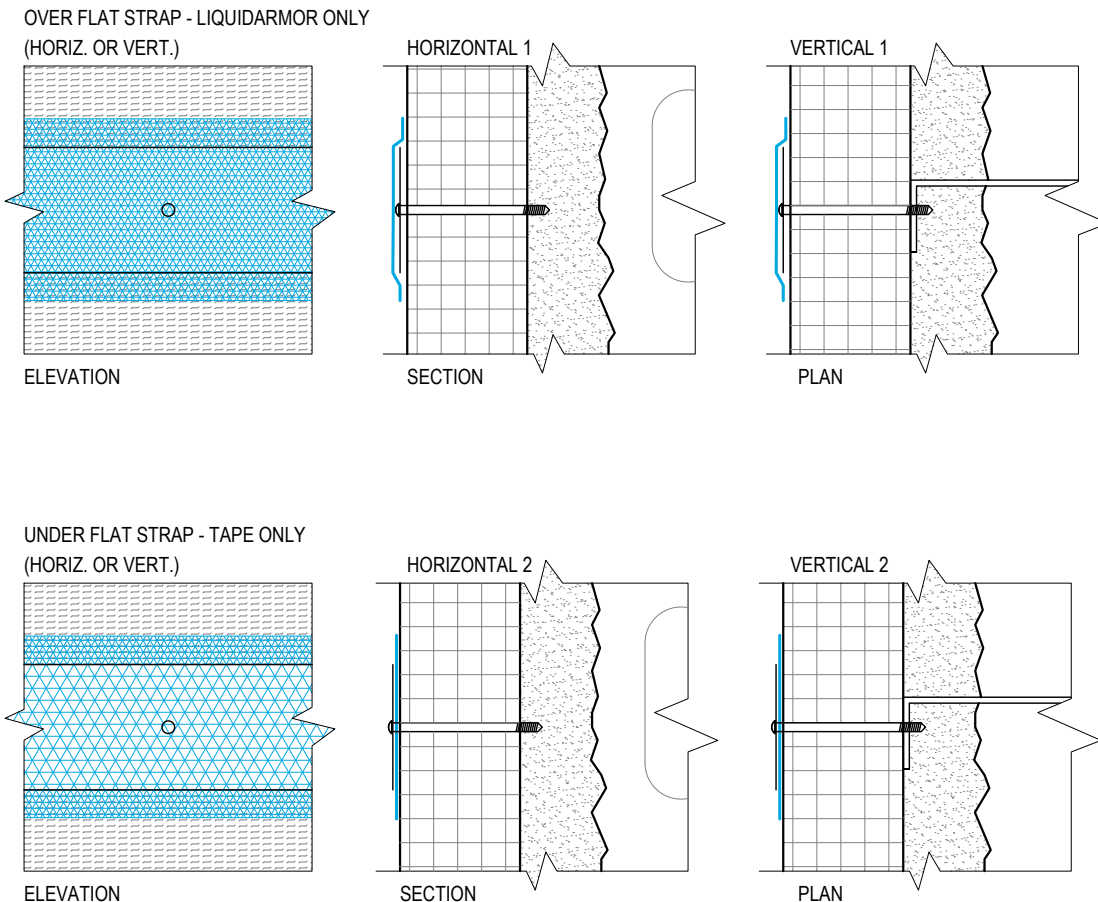
### Key

-  LIQUIDARMOR™ or compatible tape over object<sub>(2)</sub>
-  LIQUIDARMOR or compatible tape behind object<sub>(2)</sub>
-  THERMAX XARMOR™ (section)
-  THERMAX XARMOR (elevation)
-  STYROFOAM™ BRAND CM SERIES SPF

### Typical Cladding Types Using Flat Strap Furring

1. MCM Panel
2. ACM Panel
3. Terra Cotta
4. Fiber Cement Panel
5. Backer Board for Applied Finishes

*Note: List Not Exhaustive*





### FLAT STRAP FURRING

TWS-R06      COLOR FOR VISUAL CLARIFICATION ONLY

### MINIMUM REQUIREMENTS

1. SEE DETAIL TWS-G02 FOR MIN. LIQUIDARMOR APPLICATION THICKNESS & WIDTH.
2. SEE DETAIL TWS-G02 FOR COMPATIBLE TAPE OPTIONS AND NOTED WARRANTY DIFFERENCES.
3. SEE DETAIL TWS-R02 FOR MIN FURRING REQUIREMENTS AND VERIFY ATTACHMENT WITH ENGINEER TO ENSURE ADEQUACY FOR CLADDING WEIGHT REQUIREMENTS.

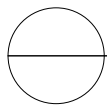
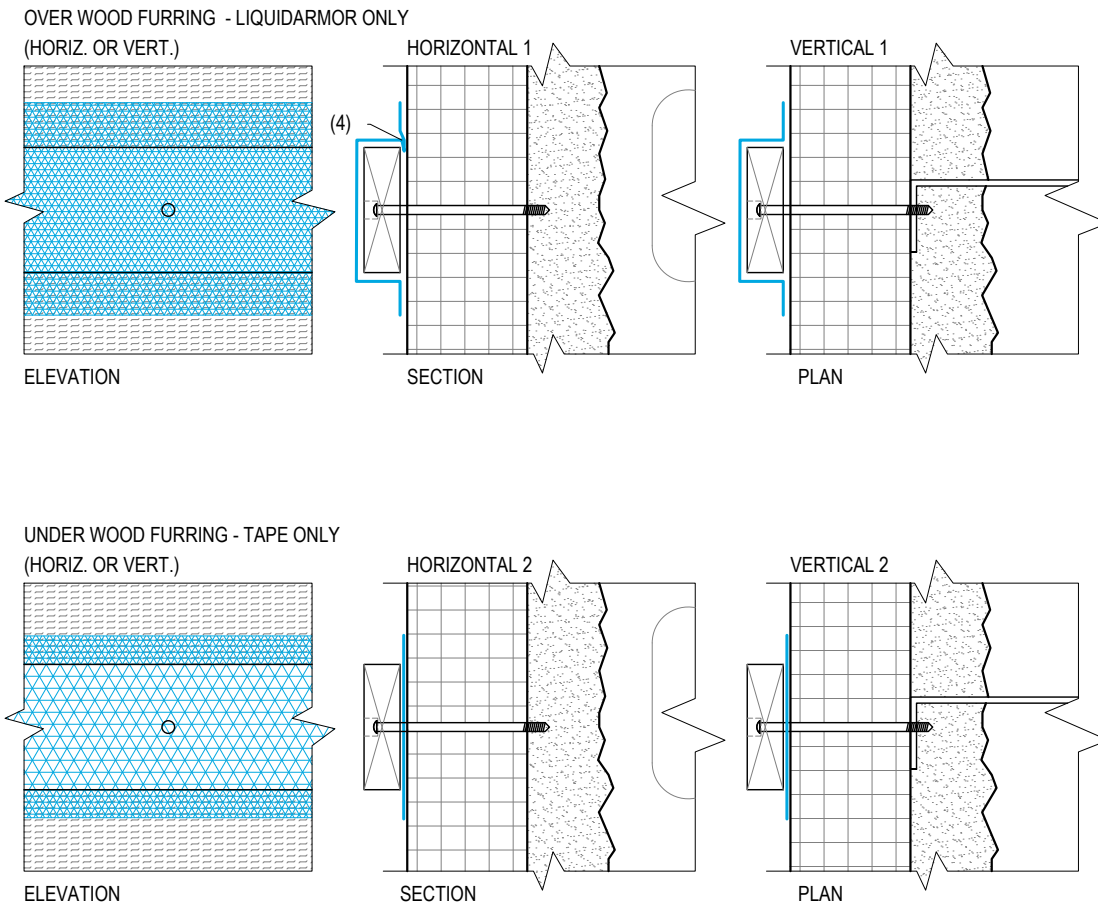
### Key

-  LIQUIDARMOR™ or compatible tape over object<sub>(2)</sub>
-  LIQUIDARMOR or compatible tape behind object<sub>(2)</sub>
-  THERMAX XARMOR™ (section)
-  THERMAX XARMOR (elevation)
-  STYROFOAM™ BRAND CM SERIES SPF

### Typical Cladding Types Using Wood Furring

1. MCM Panel
2. ACM Panel
3. Terra Cotta
4. Fiber Cement Panel
5. Backer Board for Applied Finishes

*Note: List Not Exhaustive*








### WOOD FURRING

TWS-R07 COLOR FOR VISUAL CLARIFICATION ONLY

### MINIMUM REQUIREMENTS

1. SEE DETAIL TWS-G02 FOR MIN. LIQUIDARMOR APPLICATION THICKNESS & WIDTH.
2. SEE DETAIL TWS-G02 FOR COMPATIBLE TAPE OPTIONS AND NOTED WARRANTY DIFFERENCES.
3. SEE DETAIL TWS-R02 FOR MIN FURRING REQUIREMENTS AND VERIFY ATTACHMENT WITH ENGINEER TO ENSURE ADEQUACY FOR CLADDING WEIGHT REQUIREMENTS.
4. LIQUIDARMOR MUST FILL JOINT. IF GAP > 1/4", FILL WITH GREAT STUFF PRO™ GAPS & CRACKS BEFORE APPLYING LIQUIDARMOR.

### Key

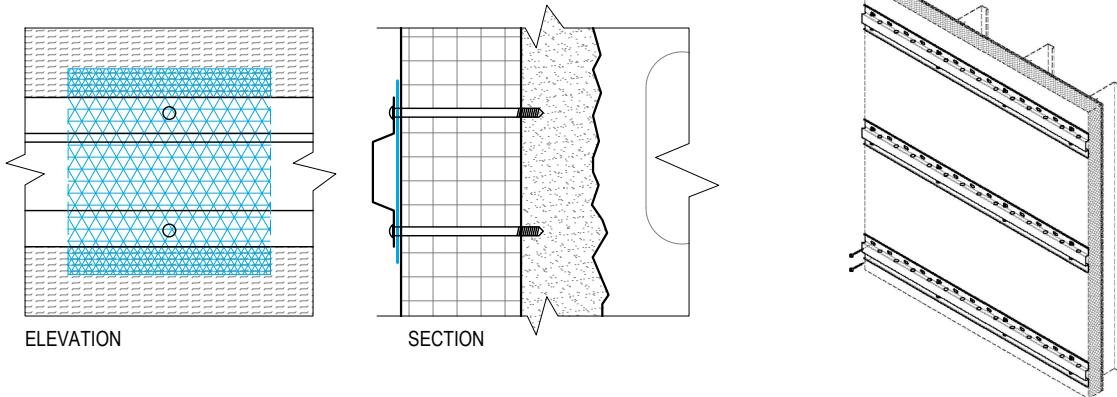
-  Compatible tape over object<sub>(1)</sub>
-  Compatible tape behind object<sub>(1)</sub>
-  THERMAX XARMOR™ (section)
-  THERMAX XARMOR (elevation)
-  STYROFOAM™ BRAND CM SERIES SPF

### Typical Cladding Types Using Knight Wall

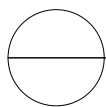
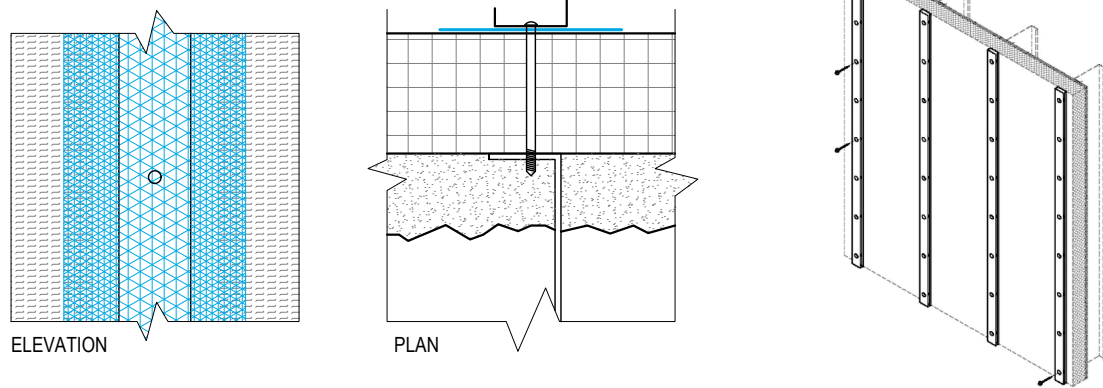
1. MCM Panel
2. ACM Panel
3. Terra Cotta
4. Fiber Cement Panel
5. Backer Board for Applied Finishes

*Note: List Not Exhaustive*

#### KNIGHT HCI® - HORIZONTAL - TAPE ONLY



#### KNIGHT CI® - VERTICAL - TAPE ONLY

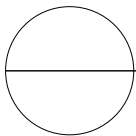
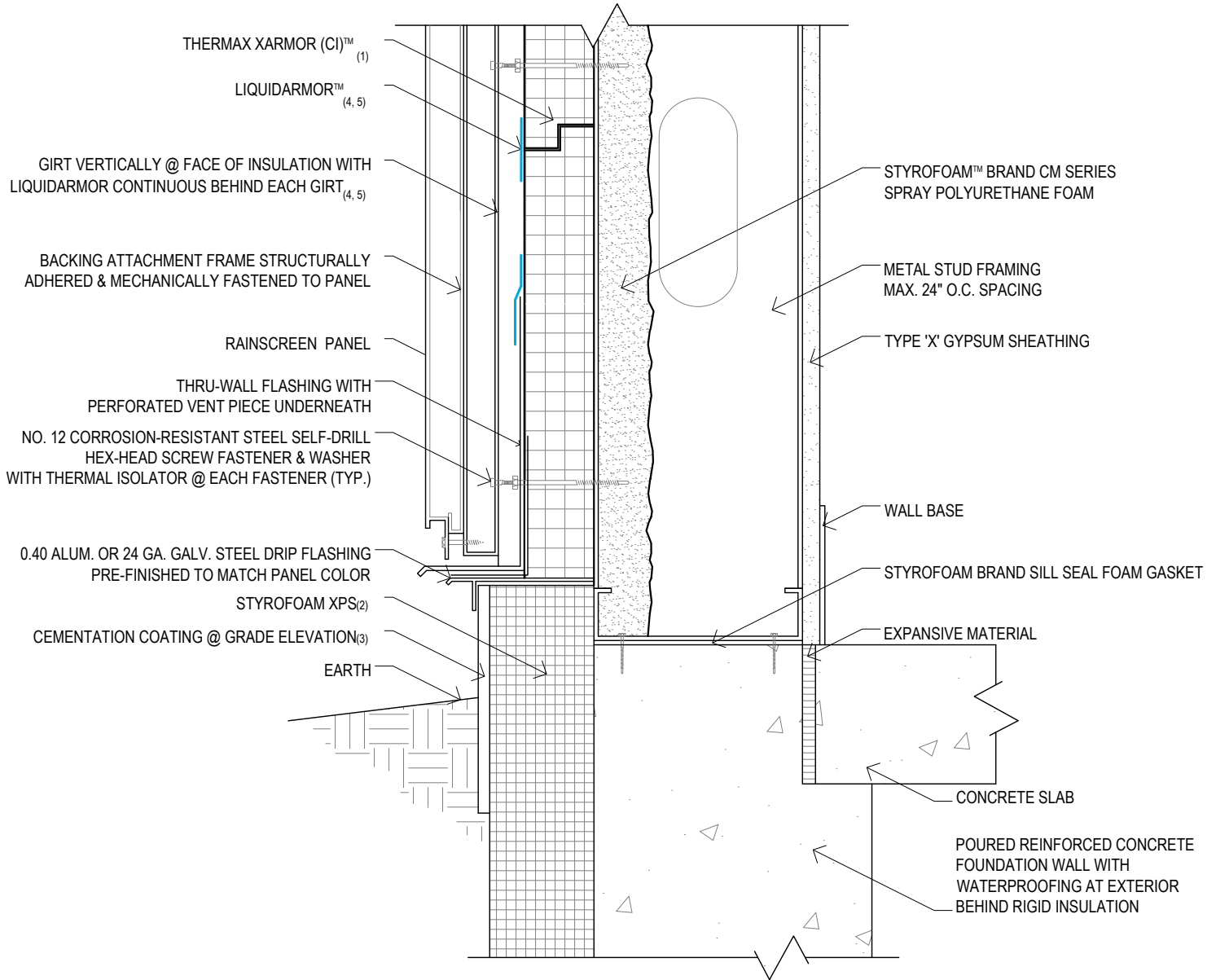


### KNIGHT WALL SYSTEM

TWS-R08 COLOR FOR VISUAL CLARIFICATION ONLY

### MINIMUM REQUIREMENTS

1. SEE DETAIL TWS-G02 FOR COMPATIBLE TAPE OPTIONS AND NOTED WARRANTY DIFFERENCES.
2. SEE DETAIL TWS-R02 FOR MIN FURRING REQUIREMENTS AND VERIFY ATTACHMENT WITH ENGINEER TO ENSURE ADEQUACY FOR CLADDING WEIGHT REQUIREMENTS.
3. VISIT KNIGHT WALL WEBSITE FOR MANUFACTURER SPECIFICS.



### FOUNDATION & TYP. WALL

TWS-R08 *COLOR FOR VISUAL CLARIFICATION ONLY*

#### MINIMUM REQUIREMENTS

1. THERMAX PRODUCTS NOT INTENDED FOR USE BELOW GRADE.
2. MIN. 25 PSI STYROFOAM TYPE IV (PER ASTM C578) EXTRUDED POLYSTYRENE (XPS) TO BE USED WHEN INSULATING BELOW GRADE.
3. EXTEND COATING MIN. 6" BELOW GRADE.
4. MIN. APPLICATION WIDTH & THICKNESS OF LIQUIDARMOR ONTO THERMAX BASED ON DETAIL TWS-G02.
5. LIQUIDARMOR TO BE APPLIED TO INSULATION BOARD SEAMS (NOT OVER ENTIRE INSULATION FACE). SEE DETAILS TWS-R03 THROUGH TWS-R08 FOR FURRING SEALING OPTIONS.



# THERMAX™ Wall System

## Applied Cladding Details

# DETAILS

### Contents

	<i>Page</i>
<b>TWS-GENERAL / CLADDING NEUTRAL</b>	1-0
<b>TWS-MASONRY</b> <i>Supplemental Set</i>	2-0
<b>TWS-RAINSCREEN</b> <i>Supplemental Set</i>	3-0
<b>TWS-APPLIED</b> <i>Supplemental Set</i>	4-0
TWS-A01      Applied Overview	4-1
TWS-A02      Direct Fastening	4-2
TWS-A03      Sealing Lath	4-3
TWS-A04      Typ. Wall	4-4

### Abstract

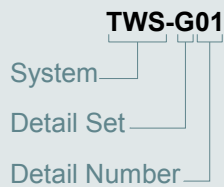
The “**TWS-General**” detail set outlines the general guidelines for design using the THERMAX™ Wall System (TWS), focusing on maintaining continuity of the four control layers (thermal, air, vapor, and water). These details can be used as guides for any THERMAX Wall project.

Cladding specific supplemental sets, “**TWS-Masonry**,” “**TWS-Rainscreen**,” and “**TWS-Applied**,” address conditions that apply to specific cladding types. These are meant to be used in addition to the TWS-General set.

*Other system detail sets available at [dowbuildingsolutions.com](http://dowbuildingsolutions.com)*

### NAVIGATING

#### Nomenclature



#### Key

- TWS** THERMAX Wall System
- G** General / Cladding Neutral
- M** Masonry
- R** Rainscreen
- A** Applied, Adhered

### DETAILS GUIDE

1. WALL SECTION LISTS APPLICABLE DETAILS FOR REFERENCE.
2. DETAIL NAMING SYSTEM:
  - TWS-X00.0
    - 0 - DETAIL NUMBER ON PAGE
    - 00 - DETAIL NUMBER IN SET
    - G - GENERAL
    - A - APPLIED
    - TWS - THERMAX™ WALL SYSTEM
3. FULL DETAIL SETS FOR "TWS-G" AND "TWS-A" AVAILABLE AT [DOWBUILDINGSOLUTIONS.COM](http://DOWBUILDINGSOLUTIONS.COM)
4. SEE TWS-G DETAIL SET FOR MINIMUM REQUIREMENTS.

### PARAPET DETAILS

- TWS-G15.1
- TWS-G15.2
- TWS-G16.1
- TWS-G16.2

### EDGE OF SLAB DETAILS

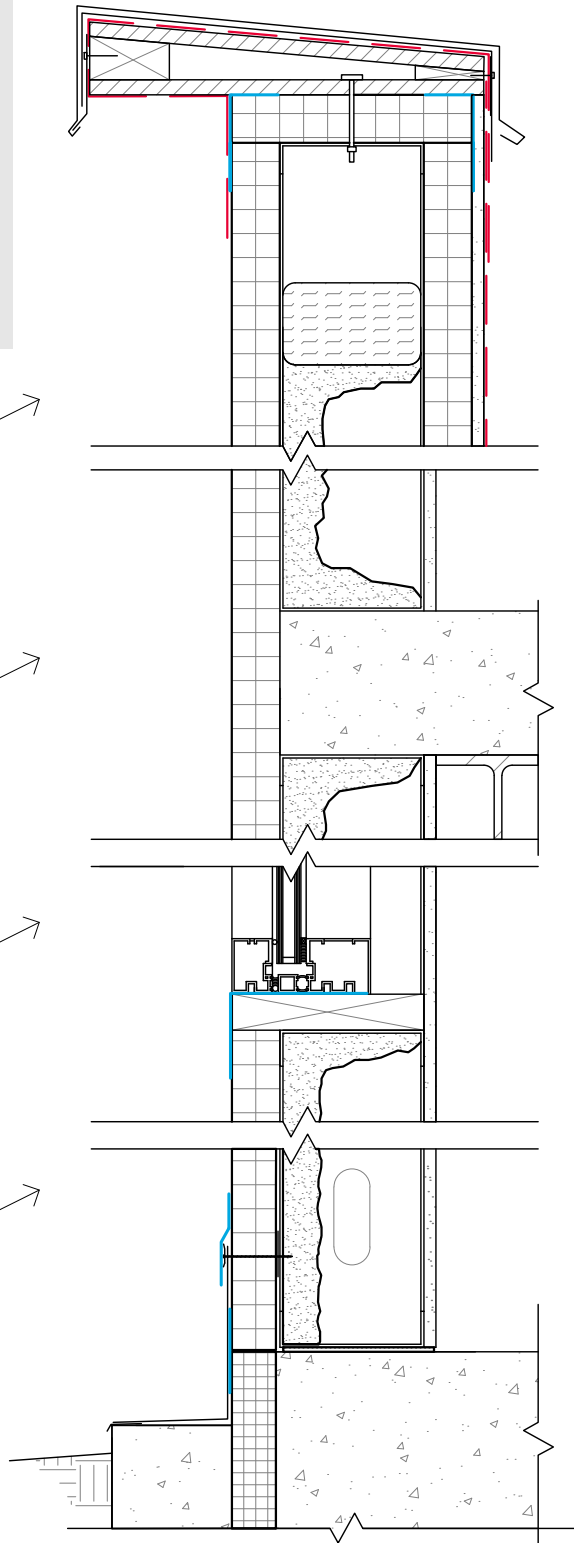
- TWS-G12.1
- TWS-G12.2

### WINDOW DETAILS

- TWS-G09.1      TWS-G10.1
- TWS-G09.2      TWS-G10.2
- TWS-G09.3      TWS-G10.3
- TWS-G09.4      TWS-G10.4

### FOUNDATION DETAILS

- TWS-G07.1
- TWS-G07.2
- TWS-G07.3
- TWS-G07.4



 **APPLIED OVERVIEW SECTION**  
TWS-A01      COLOR FOR VISUAL CLARIFICATION ONLY

### Design Intent

1. Use lath surface mounted over the rigid insulation and fastened to the structure.
2. Use table below as a guide for max thickness of insulation depending on cladding weight and fastening options.
3. Seal penetrations of lath attachment to maintain continuous air and water barrier at the face of the rigid insulation.

### Sealant Options

1. LIQUIDARMOR™ CM
2. LIQUIDARMOR LT

See detail TWS-G02 for more options.

IBC 2015: TABLE 2603.12.1

**CLADDING MINIMUM FASTENING REQUIREMENTS FOR DIRECT ATTACHMENT OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT<sup>a</sup>**

CLADDING FASTENER THROUGH FOAM SHEATHING INTO:	CLADDING FASTENER TYPE AND MINIMUM SIZE <sup>b</sup>	FASTENER SPACING IN FURRING (Inches)	MAXIMUM THICKNESS OF FOAM SHEATHING <sup>c</sup> (Inches)					
			16" o.c. furring <sup>e</sup>			24" o.c. furring <sup>e</sup>		
			Cladding Weight			Cladding Weight		
			3 psf	11 psf	25 psf	3 psf	11 psf	25 psf
Steel framing (minimum penetration of steel thickness plus 3 threads)	#8 screw into 33 mil steel or thicker	6	3	3	15	3	2	DR
		8	3	2	0.5	3	1.5	DR
		12	3	1.5	DR	3	0.75	DR
	#10 screw into 33 mil steel	6	4	3	2	4	3	0.5
		8	4	3	1	4	2	DR
		12	4	2	DR	3	1	DR
	#10 screw into 43 mil steel or thicker	6	4	4	3	4	4	2
		8	4	4	2	4	3	1.5
		12	4	3	1.5	4	3	DR

For SI: 1 inch = 25.4 mm; 1 pound per square foot (psf) = 0.0479 kPa, 1 pound per square inch = 0.00689 MPa.

DR = design required; o.c. = on center.

a. Steel framing shall be minimum 33 ksi steel for 33 mil and 43 mil steel and 50 ksi steel for 54 steel or thicker.

b. Screws shall comply with the requirements of AISI S200.

c. Foam sheathing shall have a minimum compressive strength of 15 pounds per square inch in accordance with ASTM C578 or ASTM C1289.

### MINIMUM REQUIREMENTS

1. TABLE 2603.12.1 REFERENCED FROM INTERNATIONAL BUILDING CODE (IBC) 2015. SEE CODE FOR OTHER REQUIREMENTS.
2. SEE DETAIL TWS-G02 FOR MIN. LIQUIDARMOR APPLICATION THICKNESS & WIDTH.
3. VERIFY WITH ENGINEER THAT ATTACHMENT METHOD ADEQUATE FOR WEIGHT OF CLADDING.



# THERMAX™ wallsystem

details by 









APPLIED

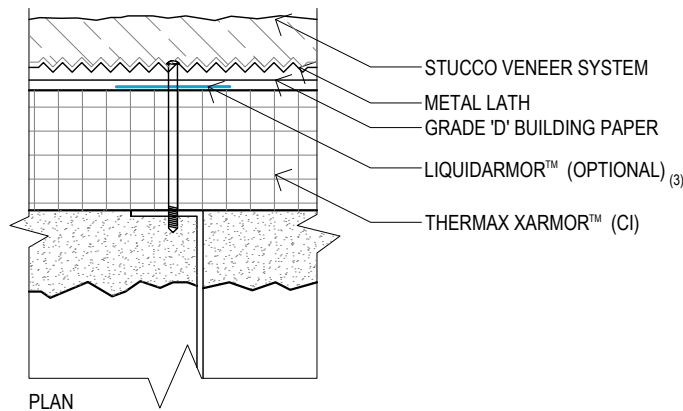
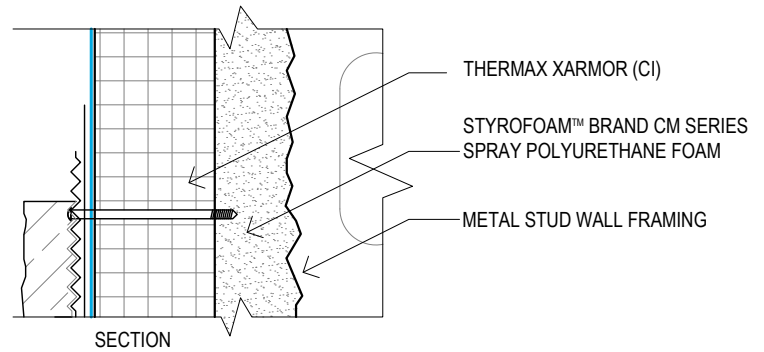
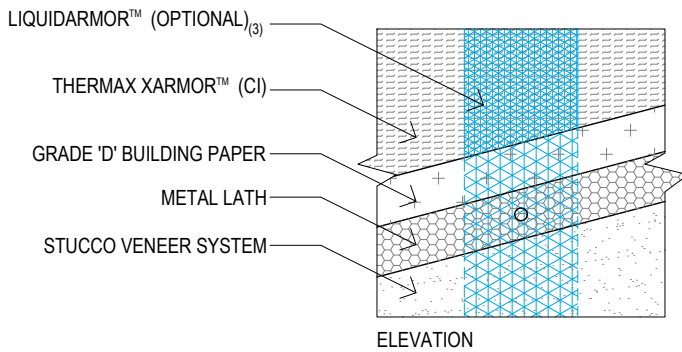
## Sealing Lath

### Design Intent

1. Use lath surface mounted over the rigid insulation and fastened to the structure.
2. Seal penetrations of lath attachment using LIQUIDARMOR™ to maintain continuous air and water barrier at the face of the rigid insulation.

### Key

	LIQUIDARMOR over object		STUCCO
	LIQUIDARMOR behind object		METAL LATH
	THERMAX XARMOR™ (section)		BUILDING PAPER
	THERMAX XARMOR (elevation)		STYROFOAM™ BRAND CM SERIES SPF

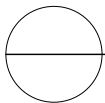
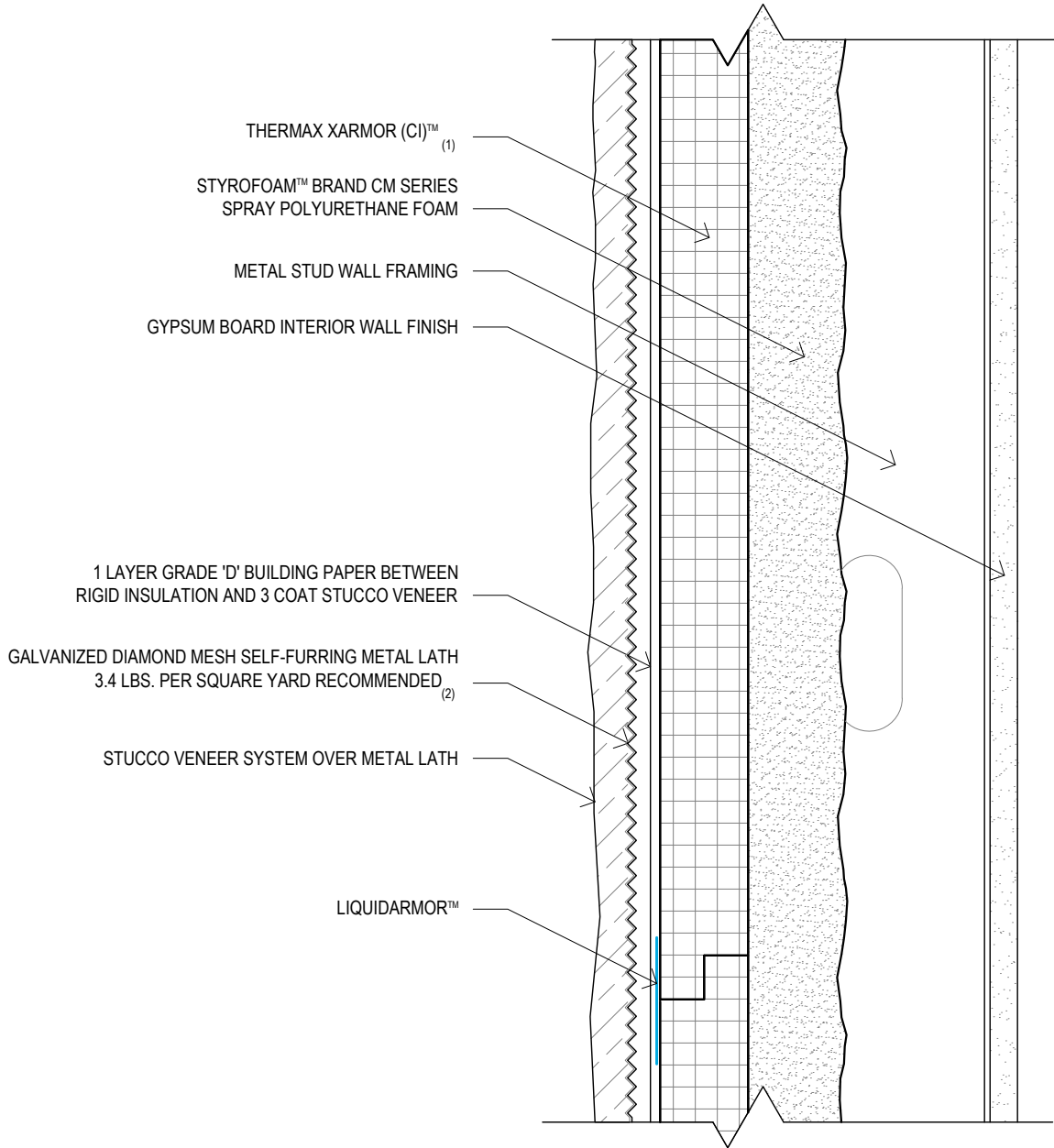


## SEALING LATH FASTENERS

TWS-A03 *COLOR FOR VISUAL CLARIFICATION ONLY*

### MINIMUM REQUIREMENTS

1. SEE DETAIL TWS-G02 FOR MIN. LIQUIDARMOR APPLICATION THICKNESS & WIDTH.
2. SEE DETAIL TWS-A02 FOR FASTENING & MAX INSULATION THICKNESS REQUIREMENTS, AND VERIFY ATTACHMENT WITH ENGINEER TO ENSURE ADEQUACY FOR CLADDING WEIGHT REQUIREMENTS.
3. LIQUIDARMOR REQUIRED AS SEAM TREATMENT OVER INSULATION BOARD JOINTS IF USING THE THERMAX WALL SYSTEM AS AIR AND WATER BARRIER, BUT OPTIONAL BEHIND LATH FASTENING.



### TYPICAL EXTERIOR WALL WITH STUCCO

TWS-A04 *COLOR FOR VISUAL CLARIFICATION ONLY*

#### MINIMUM REQUIREMENTS

1. THERMAX INSULATION SHIP-LAPPED HORIZONTAL EDGE (ON 1.5" AND GREATER THICKNESS) SHOULD BE LAYERED IN A SHINGLE-LAP FASHION (AS SHOWN) TO PROMOTE WATER SHEDDING AND PREVENT MOISTURE INTRUSION AT HORIZONTAL INSULATION JUNCTURES.
2. APPLY DIAMOND MESH LATH WITH LONG DIMENSIONS PERPENDICULAR TO STUD FRAMING AND ATTACH WITH GALVANIZED STEEL SCREWS OF TYPE & LENGTH SUITABLE FOR MIN. 2/3" PENETRATION OF STEEL STUD SYSTEM.
3. MIN. ADHESION OF LIQUIDARMOR ONTO EACH FACE OF THERMAX BASED ON DETAIL TWS-G02.

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Illustrations are not intended to replace the need for design by appropriate professionals such as architects or engineers.

**STYROFOAM™ Brand Spray Polyurethane Foam** contains isocyanate, hydrofluorocarbon blowing agent and polyol. Read the instructions and (Material) Safety Data Sheet ((M)SDS) carefully before use. Wear protective clothing (including long sleeves), gloves, goggles and proper respiratory protection. Supplied air or an approved air-purifying respirator equipped with an organic vapor sorbent and a P100 particulate filter is required to maintain exposure levels below ACGIH, OSHA, WEEL or other applicable limits. Provide adequate ventilation. Contents under pressure. STYROFOAM™ Brand SPF should be installed by a trained SPF applicator.

**CAUTION:** When cured, these products are combustible and will burn if exposed to open flame or sparks from high-energy sources. Do not expose to temperatures above 240°F (116°C). For more information, consult (Material) Safety Data Sheet ((M)SDS), call Dow at 1-866-583-BLUE (2583) or contact your local building inspector. In an emergency, call 1-989-636-4400 in the U.S. or 1-519-339-3711 in Canada.

**GREAT STUFF PRO™** Insulating Foam sealant and adhesive products contain isocyanate and a flammable blowing agent. Read all instructions and (Material) Safety Data Sheet ((M)SDS), carefully before use. Eliminate all sources of ignition before use. Cover all skin. Wear long sleeves, gloves, and safety glasses or goggles. Not for use in aviation, or food/beverage contact, or as structural support in marine applications. Provide adequate ventilation or wear proper respiratory protection. Contents under pressure. Not to be used for filling closed cavities or voids such as behind walls and under tub surrounds.

**CAUTION:** When cured, these products are combustible and will burn if exposed to open flame or sparks from high-energy sources. Do not expose to temperatures above 240°F (116°C). For more information, consult (Material) Safety Data Sheet ((M)SDS), call Dow at 1-866-583-BLUE (2583) or contact your local building inspector. In an emergency, call 1-989-636-4400 in the U.S. or 1-519-339-3711 in Canada.

#### **Dow Polyurethane Foam Insulation and Sealant**

**CAUTION:** When cured, these products are combustible and will burn if exposed to open flame or sparks from high-energy sources. Do not expose to temperatures above 240°F (116°C). For more information, consult (Material) Safety Data Sheet ((M)SDS), call Dow at 1-866-583-BLUE (2583) or contact your local building inspector. In an emergency, call 1-989-636-4400 in the U.S. or 1-519-339-3711 in Canada.

**CAUTION:** This product is combustible and shall only be used as specified by the local building code with respect to flame spread classification and to the use of a suitable thermal barrier. For more information, consult (Material) Safety Data Sheet ((M)SDS), call Dow at 1-866-583-BLUE (2583) or contact your local building inspector. In an emergency, call 1-989-636-4400 in the U.S. or 1-519-339-3711 in Canada.

#### **LIQUIDARMOR™**

Read the instructions and (Material) Safety Data Sheets ((M)SDS) carefully before use. It is recommended that spray applicators and those working in the spray area wear eye protection. Contact with exposed skin may cause skin discoloration and dryness. Gloves are recommended for prolonged exposures. Ensure adequate ventilation during spray applications.

#### **THERMAX™ Brand Polyisocyanurate Insulation**

**CAUTION:** This product is combustible and shall only be used as specified by the local building code with respect to flame spread classification and to the use of a suitable thermal barrier. For more information, consult (Material) Safety Data Sheet ((M)SDS), call Dow at 1-866-583-BLUE (2583), or contact your local building inspector. In an emergency, call 1-989-636-4400.

#### **STYROFOAM™ Extruded Polystyrene Foam Insulation**

**CAUTION:** This product is combustible. Protect from high heat sources. A protective barrier or thermal barrier may be required as specified in the appropriate building code. For more information, consult (Material) Safety Data Sheet ((M)SDS), call Dow at 1-866-583-BLUE (2583) or contact your local building inspector. In an emergency, call 1-989-636-4400 in the U.S. or 1-519-339-3711 in Canada.

**WARNING:** Rigid foam insulation does not constitute a working walkable surface or qualify as a fall protection product.

Building and/or construction practices unrelated to building materials could greatly affect moisture and the potential for mold formation. No material supplier including Dow can give assurance that mold will not develop in any specific system.

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