DuPont™ Thermax™ Wall System
Detail Sets

OVERVIEW & CONTENTS

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

*Other system detail sets available at building.dupont.com

NAVIGATING

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For any TWS job
For jobs using masonry claddings, including:
- Brick
- Stone
- CMU Veneer
For jobs using rainscreen claddings, including:
- MCM, metal panels
- Terra Cotta
- Fiber Cement Panels
For jobs using applied or adhered claddings, including:
- Stucco
- Adhered Stone
# DuPont™ Thermax™ Wall System

## General Considerations

## Detailing Recommendations

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*A former product of The Dow Chemical Company.*
**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 WILL SEAL & COMPLETE CONTINUITY OF THE 4 CONTROL LAYERS.

2. CONTINUOUS INSULATION THICKNESS TO BE DETERMINED TO MINIMIZE CONDENSATION POTENTIAL AND COMPLY WITH ENERGY CODE.

**ASTM STANDARDS**

- DUPONT THERMAX™ XARMOR™ (CI)*
  - ASTM C518 R-6.5 @ 1"
  - ASTM C1289 TYPE I CLASS 2
  - ASTM E84 CLASS A
- THERMAX™ XARMOR™ (CI) + DUPONT LIQUIDARMOR™ FLASHING @ SEAMS
  - AIR BARRIER PER ASTM E2357, ASTM E283
  - WATER BARRIER PER ASTM E331
  - CLASS 1 VAPOR RETARDER PER ASTM E96

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**CLADDING-NEUTRAL SYSTEM | ISOMETRIC**

1. BREACHES TO EXTERIOR INSULATION FACER MUST BE SEALED WITH LIQUIDARMOR™ FLASHING. MIN. WIDTH AND THICKNESS APPLIED ON FACER AROUND BREACH BASED ON DETAIL TWS-G02.

2. GAPS GREATER THAN 1/4" MUST BE FILLED USING GREAT STUFF PRO™ GAPS & CRACKS* OR OTHER APPROVED SEALANT PRIOR TO FLASHING THE INSULATION.

3. SHIPLAP EDGE AVAILABLE FOR INSULATIONS 1.5" THICK & GREATER, MUST BE INSTALLED AS SHOWN ABOVE FOR SUPERIOR WATER SHEDDING.

4. INSULATION JOINTS TO BE SEALED WITH LIQUIDARMOR™ FLASHING 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. SEE DETAIL TWS-G02 SYSTEM OPTIONS FOR PRODUCT OPTIONS.

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**MINIMUM REQUIREMENTS**

- BREACHES TO EXTERIOR INSULATION FACER MUST BE SEALED WITH LIQUIDARMOR™ FLASHING. MIN. WIDTH AND THICKNESS APPLIED ON FACER AROUND BREACH BASED ON DETAIL TWS-G02.

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- SEE DETAIL TWS-G02 SYSTEM OPTIONS FOR PRODUCT OPTIONS.

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**CLADDING-NEUTRAL SYSTEM | SECTION**

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

TWS-G01.2
**Design Intent**

1. The basis of design for the DUPONT™ THERMAX™ WALL SYSTEM uses DUPONT™ THERMAX XARMOR™ (CI)* and DUPONT™ LIQUIDARMOR™ CM, LT, or QS FLASHING. Other configurations are acceptable.
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.

**System Options**

(THERMAX™) Brand Continuous Insulation

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

(B) Sealant Materials

1. DUPONT™ LIQUIDARMOR™ CM FLASHING*
   - 50 +/-5 WET MILS THICK
   - 2” WIDTH MIN.
2. DUPONT™ LIQUIDARMOR™ LT FLASHING*
   - 30 +/-5 WET MILS THICK
   - 1” WIDTH MIN.
3. DUPONT™ LIQUIDARMOR™ QS FLASHING*
   - 50 +/-5 WET MILS THICK
   - 2” WIDTH MIN.
4. Compatible Tape Alternative
   - See current list at building.dupont.com

(C) Exterior Gypsum Sheathing (optional) (6)
May be required for the following UL hourly rated assemblies:
1. 1 HR (WOOD) - U026, U0326, U330, U354, U355
2. 1 HR (METAL) - U460, U454, V482, W417
3. 2 HR (METAL) - U424, U425, V499

(D) Stud Cavity Insulation

1. DUPONT APPROVED SPRAY FOAM (3)
   - MAX 1.5” THICK
2. BASF SPRAYTITE 81206
3. Empty (no insulation) (3, 4)
4. Batt

(E) Stud / Substrate

1. Load Bearing Metal Stud
2. Non Bearing Metal Stud
3. Wood Stud
4. CMU / Mass Wall

**Minimum Requirements**

1. Insulation joints to be sealed with 2” width (centered over joint) LIQUIDARMOR™ CM FLASHING @ 50 +/-5 WET MILS
   - or Min. 2” width (centered over joint) LIQUIDARMOR™ QS FLASHING @ 50 +/-5 WET MILS
   - or Min. 1” width (centered over joint) LIQUIDARMOR™ LT FLASHING @ 30 +/-5 WET MILS
   - or Min. 4” width compatible tape.
2. Fasteners and washers along board joints must be completely covered with LIQUIDARMOR™ FLASHING and sealant.
3. Max 1.5” thick. 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. Follow manufacturer’s installation instructions.
4. Exterior Gypsum sheathing is not required to meet water resistive & air barrier requirements, but may be required for hourly rated wall assemblies or other project specifics.
**Fastening Guidelines**

### Design Intent
1. Secure Dupont Thermax Insulation to building structure.
2. Use fasteners evaluated by Dupont'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-resistant and air barriers.

### Fastener Recommendations

#### Framed Walls
- TRUFAST® Walls (formerly Rodenhouse Inc.) Thermal Grip® ci Washer, prong or flat, or equivalent 2" diameter washer with solid cap design (no keyholes)

#### CMU / Concrete
- TRUFAST® Walls Thermal Grip® ci Washer with tap-con or masonry screw

#### CMU / Concrete (requires flashing)
- TRUFAST® Walls Plasti-Grip® PMF, Ramset T3 Insulfast

### 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 insulation must be sealed with Liquid Armor® flashing applied over top of fastener.
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.

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**RECOMMENDED FASTENERS**

2" Diameter Solid Cap Without Keyholes
No additional sealing required

**OTHER FASTENERS**

Require Dupont Liquid Armor® Flashing applied over top of fastener.

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**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
DESIGN INTENT

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

COMPATIBILITY RECOMMENDATIONS

1. CONCRETE & CMU APPLICATIONS: ENSURE ADEQUATE DUPONT™ LIQUIDARMOR™ FLASHING THICKNESS IS APPLIED FOR PROPER ADHESION TO AGGREGATE.
2. CHEMICALLY COMPATIBLE ADHESIVE TECHNOLOGIES WITH DUPONT™ 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.

MINIMUM REQUIREMENTS

1. OVERLAP OF SEALANT ADHESION ON ANY TRANSITION FROM FACE OF INSULATION ONTO ADJACENT MATERIALS MUST USE LIQUIDARMOR™ FLASHING OR DUPONT™ DURAGARD™ CM TRANSITION FLASHING 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 ≥ 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™ FLASHING REQUIRED BASED ON DETAIL TWS-G02 ONTO FACE OF INSULATION AND FACE OF OTHER SUBSTRATE. FIG. 2, 4 MIN WIDTH OF DURAGARD™ CM FLASHING TO ALLOW MIN. 2" ADHESION ON BOTH SUBSTRATES.
5. SEE DETAIL TWS-G02 “SYSTEM OPTIONS” FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.
### Design Intent
1. ALL PENETRATIONS MUST BE SEALED TO MAINTAIN INTEGRITY OF 4 CONTROL LAYERS AND PREVENT MOISTURE INTRUSION.
2. IF USED, SPRAY FOAM SHOULD BE INSTALLED AFTER ALL MAJOR PENETRATIONS (CONDUIT, UTILITIES, PLUMBING, ETC.) TO PROVIDE SECONDARY LAYER OF AIR SEALING.

### Recommended Sealants
1. GREAT STUFF PRO™ GAPS & CRACKS INSULATING FOAM SEALANT FOR GAPS LESS THAN 3", WITH DUPONT™ LIQUIDARMOR™ FLASHING APPLIED OVER TOP
2. LIQUIDARMOR™ FLASHING FOR GAPS LESS THAN 1/4"

### MINIMUM REQUIREMENTS
1. PENETRATION TO BE SEALED WITH LIQUIDARMOR™ FLASHING USING REQUIREMENTS IN DETAIL TWS-G02.
2. GAPS IN INSULATION GREATER THAN 1/4" MUST BE FILLED WITH GREAT STUFF PRO™ GAPS & CRACKS OR OTHER APPROVED SEALANT PRIOR TO FLASHING.
3. IF PENETRATION IS THROUGH AN HOURLY RATED ASSEMBLY, SEPARATE FIRE STOP ASSEMBLY WILL BE REQUIRED.
4. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.
DESIGN INTENT

1. MAINTAIN INTEGRITY OF 4 CONTROL LAYERS BY PATCHING AS APPROPRIATE.
2. USE RESPECTIVE PATCHING TECHNIQUE, DICTATED BY SIZE OF DAMAGED AREA.

SEALANT OPTIONS

ONE COMPONENT FOAM
- GREAT STUFF PRO™ GAPS & CRACKS*
- GREAT STUFF PRO™ WINDOW & DOOR*

FLUID APPLIED
- DUPONT™ LIQUIDARMOR™ LT* FLASHING AND SEALANT
- DUPONT™ LIQUIDARMOR™ CM* FLASHING AND SEALANT

FACER DAMAGE IN SURFACE:
FLATTEN FOIL FACER. SEAL SURFACE OF DAMAGE WITH LIQUIDARMOR™ (1) FLASHING AND SEALANT.

PARTIAL OR FULL DEPTH HOLE 3" OR LESS ACROSS:
INFILL HOLE WITH GREAT STUFF PRO™ GAPS & CRACKS BEFORE SEALING WITH LIQUIDARMOR™ FLASHING AND SEALANT.
IF GREAT STUFF PRO™ FOAM EXPANDS TO A POINT THAT WILL IMPACT AIR GAP, CUT FLUSH TO FACE AFTER CURED AND SEAL WITH LIQUIDARMOR™ (1) FLASHING AND SEALANT.

PARTIAL OR FULL DEPTH HOLE LARGER THAN 3" ACROSS:
CUT FOAM TO RECTANGULAR SHAPE AND INFILL WITH MATCHING INSULATION PATCH. SEAL EDGES OF PATCH WITH GREAT STUFF PRO™ GAPS & CRACKS BEFORE SEALING WITH LIQUIDARMOR™ FLASHING AND SEALANT.
IF GREAT STUFF PRO™ FOAM EXPANDS TO A POINT THAT WILL IMPACT AIR GAP, CUT FLUSH TO FACE AFTER CURED AND SEAL WITH LIQUIDARMOR™ (1) FLASHING AND SEALANT.

MINIMUM REQUIREMENTS

1. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & RECOMMENDATIONS.
2. THERMAX™ XARMOR™ INSULATION MUST BE COVERED WITHIN 180 DAYS. CLADDING NOT SHOWN IN DETAIL. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER INSULATION EXPOSURE LIMITS.
3. SEE DETAIL TWS-G03 "FASTENING GUIDELINES" FOR RECOMMENDED ATTACHMENT.
MINIMUM REQUIREMENTS

1. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, AND SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.
2. DUPONT™ LIQUIDARMOR™ CM* NOT ACCEPTABLE OVER CONTROL JOINT.
3. BREACHES TO INSULATION MUST BE SEALED PER DETAIL TWS-G06 "PATCHING INSULATION".
4. SEE DETAIL TWS-G03 "FASTENING GUIDELINES" FOR RECOMMENDED ATTACHMENT.

* A former product of The Dow Chemical Company.
DESIGN INTENT

1. ALLOW UP TO 50% MOVEMENT OF EXPANSION JOINT.
2. MAINTAIN CONTINUITY OF AIR AND WATER BARRIERS ACROSS EXPANSION JOINT USING TRANSITION MEMBRANE.

TRANSITION MEMBRANE RECOMMENDATIONS

- SILICONE TRANSITION STRIP* WITH DUPONT™ LIQUIDARMOR™ LT* FLASHING AND SEALANT TO SEAL EDGES TO FACE OF INSULATION.
- DUPONT™ DURAGARD™ CM TRANSITION FLASHING NOT TO BE USED IN THIS APPLICATION.

*OTHER EXPANSION TRANSITION MEMBRANES MAY BE USED. DESIGNER IS RESPONSIBLE FOR SELECTING EXPANSION TRANSITION MEMBRANE AND VERIFYING MATERIAL & ADHESION COMPATIBILITIES.

MINIMUM REQUIREMENTS

1. TRANSITION MEMBRANE MUST BE CAPABLE OF BRIDGING JOINT WITH UP TO 50% MOVEMENT AND SEALED TO FACE OF INSULATION.
2. CONFIRM WITH MATERIAL MANUFACTURERS ON ADHESION COMPATIBILITY.
3. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, AND SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.
4. THERMAX XARMOR™ INSULATION MUST BE COVERED WITHIN 180 DAYS. CLADDING NOT SHOWN IN DETAIL. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER INSULATION EXPOSURE LIMITS.
5. BREACHES TO INSULATION MUST BE SEALED PER DETAIL TWS-G06 "PATCHING INSULATION".
6. SEE DETAIL TWS-G03 "FASTENING GUIDELINES" FOR RECOMMENDED ATTACHMENT.
MINIMUM REQUIREMENTS

1. OPTIONAL - MIN. 3" WIDTH OF LIGHT GAUGE METAL STRAPPING, MIN 16" ABOVE GRADE, TO ACT AS NAILING BASE FOR TERMINATION BAR.

2. DURAGARD™ CM TRANSITION FLASHING HELD BACK ½" - 1" FROM FRONT EDGE. INSTALL PER INSTALLATION GUIDELINES. 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. DUPONT™ THERMAX™ INSULATION 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.

7. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.
MINIMUM REQUIREMENTS

1. OPTIONAL - 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, POLYETHELENE-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 TM INSULATION NOT INTENDED FOR USE BELOW GRADE; MIN. 25 PSI STYROFOAM TM TYPE IV (PER ASTM C578) EXTRUDED POLYSTYRENE (XPS) TO BE USED WHEN INSULATING BELOW GRADE.
6. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.
**Design Intent**

1. Use DuPont™ LiquidArmor™ Flashing or Duragard™ CM Flashing to transition the air & water resistive barrier from the face of the DuPont™ Thermax™* Insulation into all jamb, sills, & window heads prior to installation of punch windows & window receptors.
2. Sealants 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 DuPont flashing products for enhanced air and moisture sealing.

**General Recommendations**

1. Window sealant compatibility should be verified for long-term adhesion to DuPont flashing.
2. Blocking can be used to provide added rigidity and a nailing base at jamb, sills, & heads.
3. A double stud is recommended at jamb to allow for greater flexibility with cladding terminations around windows & doors.

**Minimum Requirements**

1. LiquidArmor™ to be installed 3” onto face of insulation and min. 3” into rough opening (sill, jamb, & header) or 1” past primary air/water seal of window, whichever is greater.
2. Acceptable blocking types to bridge raw edge of insulation around punch opening: dimensional lumber, OSB / plywood sheathing, or metal angle trim (also known as "L" angle or "shiny 90") (shown).
3. See detail TWS-G02 "System Options" for other system configurations & requirements.
5. Duragard™ CM flashing seams & edges to be sealed with LiquidArmor™.

*A former product of The Dow Chemical Company.
**LIQUIDARMOR™ FLASHING**

**OR**

**DURAGARD™ CM FLASHING**

**WOOD BLOCKING**

**BACKER ROD & SEALANT**

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**DUPONT™ LIQUIDARMOR™ FLASHING**

**OR DUPONT™ DURAGARD™ CM TRANSITION FLASHING**

**DUPONT™ THERMAX™ XARMOR™ INSULATION**

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**PUNCH WINDOW SILL | SECTION**

**LIQUIDARMOR™ FLASHING OR DURAGARD™ CM FLASHING**

**THERMAX™ XARMOR™ INSULATION**

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**PUNCH WINDOW JAMB | PLAN**

**LIQUIDARMOR™ FLASHING OR DURAGARD™ CM FLASHING**

**THERMAX™ XARMOR™ INSULATION**

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**PUNCH WINDOW HEAD | SECTION**

**LIQUIDARMOR™ FLASHING**

**OR DURAGARD™ CM TRANSITION FLASHING**

**BACKER ROD & SEALANT**

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**DUPONT THERMAX XARMOR INSULATION**

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**PUNCH WINDOW | ELEVATION**

**LIQUIDARMOR™ FLASHING OR DURAGARD™ CM FLASHING**

**THERMAX™ XARMOR™ INSULATION**

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**THERMAX™ XARMOR™ INSULATION**

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**MINIMUM REQUIREMENTS**

1. **LIQUIDARMOR™** TO BE INSTALLED 3" ONTO FACE OF INSULATION AND MIN. 3" INTO ROUGH OPENING (SILL, JAMB, & HEADER) OR 1" PAST PRIMARY AIR/WATER SEAL OF WINDOW, WHICHEVER IS GREATER.

2. ACCEPTABLE BLOCKING TYPES TO BRIDGE RAW EDGE OF INSULATION AROUND PUNCH OPENING: DIMENSIONAL LUMBER (SHOWN), OSB / PLYWOOD SHEATHING, OR METAL ANGLE TRIM (ALSO KNOWN AS "L" ANGLE OR "SHINY 90").

3. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS & REQUIREMENTS.

4. SEE DETAIL TWS-G25 "DURAGARD™ CM FLASHING PUNCH WINDOW SEQUENCING" FOR DURAGARD™ CM FLASHING ELEVATION.

5. **DURAGARD™ CM FLASHING SEAMS AND EDGES TO BE SEALED USING LIQUIDARMOR™.**

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**GENERAL RECOMMENDATIONS**

1. WINDOW SEALANT COMPATIBILITY SHOULD BE VERIFIED FOR LONG-TERM ADHESION TO DUPONT FLASHING.

2. BLOCKING IS PREFERRED TO PROVIDE ADDED RIGIDITY AND A NAILING BASE AT JAMBS, SILLS, & HEADS.

3. A DOUBLE STUD IS RECOMMENDED AT JAMBS TO ALLOW FOR GREATER FLEXIBILITY WITH CLADDING TERMINATIONS AROUND WINDOWS & DOORS.

---

**DESIGN INTENT**

1. USE DUPONT™ LIQUIDARMOR™ FLASHING OR DURAGARD™ CM FLASHING TO TRANSITION THE AIR & WATER RESISTIVE BARRIER FROM THE FACE OF THE DUPONT™ THERMAX™ INSULATION INTO ALL JAMBS, SILLS, & WINDOW HEADS PRIOR TO INSTALLATION OF PUNCH WINDOWS & WINDOW RECEPOTORS.

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 DUPONT FLASHING PRODUCTS FOR ENHANCED AIR AND MOISTURE SEALING.

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**PUNCH WINDOW NO SPF**

W/ WOOD BLOCKING
**DESIGN INTENT**

1. Use DUPONT™ LIQUIDARM™ FLASHING OR DURAGARD™ CM FLASHING to transition the air & water resistant barrier from the face of the DUPONT™ 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 DUPONT FLASHING products for enhanced air and moisture sealing.

**GENERAL RECOMMENDATIONS**

1. Window sealant compatibility should be verified for long-term adhesion to DUPONT FLASHING.
2. Blocking can be used to provide added rigidity and a nailing base at jambs, sills, & heads.
3. A double stud is recommended at jambs to allow for greater flexibility with cladding terminations around windows & doors.

**MINIMUM REQUIREMENTS**

1. Sealant to be installed 3" onto face of insulation and min. 3" into rough opening (sill, jamb, & header) or 1" past primary air/water seal of window, whichever is greater.
2. Acceptable blocking types to bridge raw edge of insulation around punch opening: dimensional lumber, OSB / plywood sheathing, or metal angle trim (also known as "L" angle or "Shiny 90") (shown).
3. See detail TWS-G02 "SYSTEM OPTIONS" for other system configurations, and for spray foam and sealant options & requirements.
4. See detail TWS-G25 "DURAGARD™ CM FLASHING PUNCH WINDOW SEQUENCING" for DURAGARD™ CM FLASHING ELEVATION.
5. DURAGARD™ CM FLASHING SEAMS AND EDGES TO BE SEALED WITH LIQUIDARM™.

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*Registered professional to review before construction.*

DUPONT PERFORMANCE BUILDING SOLUTIONS | 1-866-583-2583 | MAY 2021: REFERENCE MOST RECENT AT BUILDING.DUPONT.COM
MINIMUM REQUIREMENTS

1. LIQUIDARMOR™ TO BE INSTALLED MIN. 3" ONTO FACE OF INSULATION AND MIN. 3" INTO ROUGH OPENING (SILL, JAMB, & HEADER) OR 1" PAST PRIMARY AIR/WATER SEAL OF WINDOW, WHICHERER IS GREATER.

2. ALL FLANGE PENETRATIONS TO BE THROUGH SELF-SEALING DUPONT 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, USE 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.

6. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS & REQUIREMENTS & DETAIL TWS-25 FOR DURAGARD™ CM FLASHING DETAILS.

7. DURAGARD™ CM FLASHING SEAMS AND EDGES TO BE SEALED WITH LIQUIDARMOR™.
MINIMUM REQUIREMENTS

1. LIQUIDARMOR™ TO BE INSTALLED MIN. 3" ONTO FACE OF INSULATION AND MIN. 3" INTO ROUGH OPENING (SILL, JAMB, & HEADER) OR 1" PAST PRIMARY AIR/WATER SEAL OF WINDOW, WHICHERVER IS GREATER.

2. ALL FLANGE PENETRATIONS TO BE THROUGH SELF-SEALING DUPONT 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, USE 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.

6. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS AND DETAIL TWS-25 FOR DURAGARD™ ELEVATION.

7. DURAGARD™ CM FLASHING SEAMS AND EDGES TO BE SEALED WITH LIQUIDARMOR™.

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REGISTERED PROFESSIONAL TO REVIEW BEFORE CONSTRUCTION.

1-866-583-2583 | MAY 2021: REFERENCE MOST RECENT AT BUILDING.DUPONT.COM
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 INSULATION, MUST FLASH RAW SLAB EDGE WITH DUPONT™ LIQUIDARMOR™ FLASHING & SEALANT TO MAINTAIN CONTINUITY OF CONTROL LAYERS.

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 INSULATION, OVER RAW SLAB EDGE, ONTO FACE OF INSULATION BELOW IN A SHINGLE-LAP FASHION.
2. FASTENERS USED TO SECURE INSULATION 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.
4. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.
MINIMUM REQUIREMENTS

1. INSULATION CORE (RAW EDGES) TO BE ENCAPSULATED BY FLASHING WITH MIN. ADHERENCE BASED ON DETAIL TWS-G02 ON FACE OF EACH ADJOINING BOARD.

2. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.
MINIMUM REQUIREMENTS

1. 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 GAPS 1/4" OR GREATER, INCLUDING WHERE TWO BOARDS MEET, MUST BE FILLED WITH GREAT STUFF PRO™ GAPS & CRACKS* INSULATING FOAM SEALANT PRIOR TO INSTALLATION OF ANY FLASHING MATERIALS.

3. MIN. ADHESION WIDTH OF LIQUIDARMOR™ FLASHING AND SEALANT ONTO EACH FACE OF INSULATION BASED ON DETAIL TWS-G02.

4. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.

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DUPLICON PERFORMANCE BUILDING SOLUTIONS | 1-866-583-2583 | MAY 2021: REFERENCE MOST RECENT AT BUILDING.DUPONT.COM
**DESIGN INTENT**

USE DUPONT™ 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 DUPONT™ LIQUIDARMOR™ TO SEAL FROM MOISTURE & AIR INFILTRATION.
3. **INTERIOR FACE KERF:** SEAL WITH DUPONT™ APPROVED SPRAY POLYURETHANE FOAM.

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**GENERAL RECOMMENDATIONS**

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

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**MINIMUM REQUIREMENTS**

1. **IF MAX RADIUS OF CURVATURE OR MAX INSULATION THICKNESS IS EXCEEDED, INSULATION 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 INSULATION 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 INSULATION 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 W/ LIQUIDARMOR™ FLASHING BASED ON WIDTH REQUIREMENTS FROM TWS-G02.**
5. **SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR SYSTEM CONFIGURATION, SPRAY FOAM, AND SEALANT OPTIONS & REQUIREMENTS.**

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**INSULATION THICKNESS**

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<th>MAX RADIUS OF CURVATURE WITHOUT CUTTING</th>
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<td>75 FEET</td>
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**TWS-G19**

**KERF CUT ALONG RADIUS | PLAN**

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*Registered professional to review before construction.
**Thermax Wall System**

**Parapet 1**

**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 insulation.
2. 3rd party material to transition from roofing membrane over coping to terminate on face of insulation if to be permanently exposed.
3. DUPONT™ FROTH-PAK™ CLASS A insulation at roof deck / parapet juncture to be installed prior to roof insulation & membrane.

**Minimum Requirements**
1. DUPONT™ LIQUIDARMOR™ FLASHING IS NOT ACCEPTABLE PRODUCT FOR TRANSITIONING WRB/AIR BARRIER MEMBRANE FROM FACE OF INSULATION, AROUND PARAPET CAP, ONTO ROOFING MEMBRANE.
2. LIQUIDARMOR™ FLASHING AND DUPONT™ DURAGARD™ CM TRANSITION FLASHING ARE 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 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-G22 ceiling plenum.
9. See detail TWS-G02 *system options* for other system configurations, and for spray foam and sealant options & requirements.

---

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**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 DUPONT™ THERMAX™.
2. 3RD PARTY MATERIAL TO TRANSITION FROM ROOFING MEMBRANE OVER/UNDER COPING TO TERMINATE ON FACE OF INSULATION WHEN LEFT PERMANENTLY EXPOSED.
3. DUPONT™ FROTH-PAK™ CLASS A INSULATION AT ROOF DECK / PARAPET JUNCTURE TO BE INSTALLED PRIOR TO ROOF INSULATION & MEMBRANE.

**MINIMUM REQUIREMENTS**

1. DUPONT™ LIQUIDARMOR™ FLASHING IS NOT ACCEPTABLE PRODUCTS FOR TRANSITIONING WRB/AIR BARRIER MEMBRANE FROM FACE OF INSULATION, AROUND PARAPET CAP, ONTO ROOFING MEMBRANE. TRANSITION MEMBRANES TO BE PROVIDED BY ROOFING MANUFACTURER.
2. LIQUIDARMOR™ FLASHING AND DUPONT™ DURAGARD™ CM TRANSITION FLASHING ARE 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 SHINGLE-LAP PATTERN SUCH THAT THEY COUNTER FLASH ONTO 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. SEE DETAIL TWS-G22 CEILING PLENUM REQUIREMENTS FOR EXPOSED SPF WHERE INTERIOR GYPSUM IS NOT CONTINUOUS TO BOTTOM OF ROOF DECK.
8. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.
MINIMUM REQUIREMENTS

1. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.
MINIMUM REQUIREMENTS

1. 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. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.
4. FROTH-PAK™ CLASS A MAX. 6" HEIGHT AND MAX. 2" DEPTH MAY BE LEFT EXPOSED WITHOUT ADDITIONAL THERMAL BARRIER.
MINIMUM REQUIREMENTS

1. 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.
4. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.

*DUPONT™ THERMAX™ XARMOR™ (CI)*

*A former product of The Dow Chemical Company.*
Cladding Neutral

SA Flashing Rough Opening

For Dupont™ Duragard™ CM Transition Flashing

Design Intent
1. Use Dupont™ Duragard™ CM Transition Flashing to transition the air & water resistive barrier from the face of the Dupont™ Thermax™ Insulation into all Jambs, Sills, & Window Heads prior to installation of Punch Windows & Window Receptors.
2. Sealants as specified by window manufacturer to be used as primary defense against moisture intrusion & air infiltration.
3. Window receptor to attach to blocking through Dupont Flashing products for enhanced air and moisture sealing.

General Recommendations
1. Window sealant compatibility should be verified for long-term adhesion to Dupont Flashing products.
2. Seal all seams and edges of Duragard™ CM flashing with Dupont™ Liquidarmor™ Flashing for most robust solution.

Minimum Requirements
1. Flashing to be installed 3" onto face of insulation and min. 3" into rough opening (sill, jamb, & header) or 1" past primary air/water seal of window, whichever is greater.
2. Acceptable blocking types to bridge raw edge of insulation around punch opening: dimensional lumber, OSB / plywood sheathing, or metal angle trim (also known as "L" angle or "shiny 90") (shown).
3. See detail TWS-G02 "System Options" for other system configurations, and for spray foam and sealant options & requirements.
4. Duragard™ CM Flashing seams, edges and pinholes to be sealed with Liquidarmor™ Flashing.

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DUPONT PERFORMANCE BUILDING SOLUTIONS | 1-866-583-2583 | MAY 2021: REFERENCE MOST RECENT AT BUILDING.DUPONT.COM
DuPont™ Thermax™ Wall System
Masonry Cladding

Detailing Recommendations for Jobs Using Masonry Cladding

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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.

MASONRY OVERVIEW SECTION
TWS-M01  COLOR FOR VISUAL CLARIFICATION ONLY

Thermax Wall System

Masonry Details Overview

DETAILS GUIDE
1. WALL SECTION LISTS APPLICABLE DETAILS FOR REFERENCE.
2. DETAIL NAMING SYSTEM:
   - TWS-X00.0
   - 00 - DETAIL NUMBER ON PAGE
   - G - GENERAL
   - M - MASONRY
   - TWS - DUPONT™ THERMAX™ WALL SYSTEM*
3. DETAILS AND ADDITIONAL INFORMATION AVAILABLE AT BUILDING.DUPONT.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
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FOUNDATION DETAILS
TWS-G07.1
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TWS-M04.1
TWS-M04.2
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 DUPONT membranes.

MASONRY ANCHOR RECOMMENDATIONS
EVALUATED SELF-SEALING BARREL STYLE ANCHORS
- Heckmann Pos-I-Tie® with TruFast® Walls (Formerly Rodenhouse Inc.) 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.

ANCHOR GUIDELINES ON STUD
TWS-M02 COLOR FOR VISUAL CLARIFICATION ONLY

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. Must seal gaps around all shear / plate anchors w/ Great Stuff Pro™ Insulating Foam Sealant or other approved sealant and flash using LiquidArmor™ flashing.
5. See detail TWS-G02 “SYSTEM OPTIONS” for other system configurations, and for spray foam and sealant options & requirements.
**Anchor Guidelines on CMU**

**MINIMUM REQUIREMENTS**

1. 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™ flashing.
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™ flashing can span a max. 1/4” gaps - all areas where joints between insulation 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 80 days max.
7. See detail TWS-G02 for LiquidArmor™ flashing min. application requirements and exposure limits.
8. Great Stuff Pro™ gaps & cracks may be used to adhere insulation boards to CMU substrate.
9. See detail TWS-G02 “SYSTEM OPTIONS” for other system configurations, and for spray foam and sealant options & requirements.

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**DUPONT™ GREAT STUFF PRO™ GAPS & CRACKS** (3, 5, 6, 8)

**DUPONT™ LIQUIDARMOR™ FLASHING** (5, 7)

**THERMAX XARMOR™ CI** (CAVITY CUT AT 16”X96”)

**HORIZONTAL LADDER REINFORCING** (16” O.C. VERTICALLY)

**PINTEL HOOK**

**FIGURE 1**

**ANCHOR GUIDELINES ON CMU**

TWS-M03

COLOR FOR VISUAL CLARIFICATION ONLY
MINIMUM REQUIREMENTS

1. **OPTIONAL - MIN. 3” WIDTH OF LIGHT GAUGE METAL STRAPPING, MIN. 16” ABOVE GRADE, TO ACT AS NAILING BASE FOR TERMINATION BAR.**

2. **DUPONT™ DURAGARD™ CM TRANSITION FLASHING HELD BACK 2’ - 1” FROM FACE OF FACADE. INSTALL PER INSTALLATION GUIDELINES. LIQUIDARMOR™ FLASHING 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.**

7. **SEE DETAIL TWS-G02 'SYSTEM OPTIONS' FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.**

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REGISTERED PROFESSIONAL TO REVIEW BEFORE CONSTRUCTION.

DUPONT PERFORMANCE BUILDING SOLUTIONS | 1-866-583-2583 | MAY 2021: REFERENCE MOST RECENT AT BUILDING.DUPONT.COM
**DESIGN INTENT**

1. Use Dupont™ Liquidar™ Flashing or Dupont™ Duragard™ CM transition flashing to transition the air & water resistive barrier from the face of the Dupont™ Thermax™ insulation into all jambs, sills, & window heads prior to installation of punch windows & window receptors.

2. Sealants 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 flashing membranes for enhanced air and moisture sealing.

**GENERAL RECOMMENDATIONS**

1. Window sealant compatibility should be verified for long-term adhesion to Dupont flashing.

2. Blocking can be used to provide added rigidity and a nailing base at jambs, sills, & heads.

3. A double stud is recommended at jambs to allow for greater flexibility with cladding terminations around windows & doors.

**MINIMUM REQUIREMENTS**

1. Flashing to be installed onto face of Thermax™ insulation min. 3" and min. 3" 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 metal angle trim ("shiny 90") to bridge insulation core (raw edge).

3. See Thermax™ wall system general detail set ("TWS-G") for other window options & requirements.

4. See detail TWS-G02 "System Options" for other system configurations & requirements.

5. Duragard™ CM flashing seams and edges to be sealed with Liquidar™ Flashing.

6. Duragard™ CM flashing to be held back from the front of facade by ½".
**DESIGN INTENT**

1. Use DUPONT™ LIQUIDARMOR™ FLASHER TO TRANSITION THE AIR & WATER RESISTIVE BARRIER FROM THE FACE OF THE 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.

**GENERAL RECOMMENDATIONS**

1. WINDOW SEALANT COMPATIBILITY SHOULD BE VERIFIED FOR LONG-TERM ADHESION TO DUPONT FLASHING.
2. BLOCKING CAN BE USED TO PROVIDE ADDED RIGIDITY AND A NAILING BASE AT JAMBS, SILLS, & HEADS.

**MINIMUM REQUIREMENTS**

1. SEALANT TO BE INSTALLED ONTO FACE OF INSULATION MIN. 3" AND MIN. 3" INTO ROUGH OPENING (SILL, JAMB, & HEADER) OR 1" PAST INTERIOR CAULK JOINT, WHICHERSOEVER IS GREATER.
2. SEE THERMAX™ WALL SYSTEM GENERAL DETAIL SET ("TWS-G") FOR OTHER WINDOW OPTIONS & REQUIREMENTS.
3. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS & REQUIREMENTS.

*DUPONT PERFORMANCE BUILDING SOLUTIONS | 1-866-583-2583 | MAY 2021: REFERENCE MOST RECENT AT BUILDING.DUPONT.COM*
MINIMUM REQUIREMENTS

1. FOR MIN. APPLICATION THICKNESS AND WIDTH OF LIQUIDARMOR™, SEE DETAIL TWS-G005.
2. WHERE INSULATION COUNTERFLASHES THRU-WALL FLASHING, DUPONT™ DURAGARD™ CM TRANSITION FLASHING IS 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 DURAGARD™ CM FLASHING INSTALLED ON FACE OF INSULATION, LIQUIDARMOR™ FLASHING MUST COUNTER FLASH LEADING EDGE OF DURAGARD™ CM FLASHING. DURAGARD™ CM FLASHING HELD BACK 1/2 -1" FROM FACE OF FACADE.
5. SEE THERMAX™ WALL SYSTEM GENERAL DETAIL SET (“TWS-G”) FOR OTHER EDGE OF SLAB OPTIONS & REQUIREMENTS.
6. DURAGARD™ CM FLASHING SEAMS AND EDGES SEALED WITH LIQUIDARMOR™ FLASHING.

*DUPONT LIQUIDARMOR™ FLASHING (1)
DUPONT DURAGARD™ CM TRANSITION FLASHING WITH METAL DIP EDGE (4, 6)
LIQUIDARMOR™ FLASHING (1) OR DURAGARD™ CM FLASHING OVER DUPONT™ GREAT STUFF PRO™ GAPS & CRACKS
DUPONT™ THERMAX™ XARMOR™ CI
WEEP VENT
RELIEF ANGLE
MORTAR NET
THERMAL BARRIER

EDGE OF SLAB - FACE FLASHED
TWS-M07.1 COLOR FOR VISUAL CLARIFICATION ONLY

EDGE OF SLAB - FLASHED AT SLAB
TWS-M07.2 COLOR FOR VISUAL CLARIFICATION ONLY
DuPont™ Thermax™ Wall System Rainscreen Cladding

Detailing Recommendations for Jobs Using Rainscreen Cladding

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TWS-APPLIED

4-0
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 - DUPONT™ THERMAX™ WALL SYSTEM*

3. DETAILS AND ADDITIONAL INFORMATION AVAILABLE AT BUILDING.DUPONT.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

*A former product of The Dow Chemical Company.
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™ Flashing 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.

---

### MINIMUM REQUIREMENTS

1. TABLE 2603.12.2 REFERENCED FROM INTERNATIONAL BUILDING CODE (IBC) 2018. SEE CODE FOR OTHER REQUIREMENTS.
2. SEE DETAIL TWS-G02 FOR MIN. DUPONT™ LIQUIDARMOR™ FLASHING APPLICATION THICKNESS & WIDTH.
3. VERIFY WITH ENGINEER THAT ATTACHMENT METHOD ADEQUATE FOR WEIGHT OF CLADDING.

---

**Thermax Wall System**

**Furring Fastening**

<table>
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<tr>
<th>Furring Material</th>
<th>Framing Member</th>
<th>Fastener Type and Minimum Size</th>
<th>Minimum Penetration into Wall Framing (Inches)</th>
<th>Fastener Spacing in Furring (Inches)</th>
<th>Maximum Thickness of Foam Sheathing (Inches)</th>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16&quot; o.c. furring</td>
<td>24&quot; o.c. furring</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 psf</td>
<td>11 psf</td>
</tr>
<tr>
<td>33 mil cold-formed steel stud</td>
<td>#8 screw</td>
<td>Steel thickness plus 3 threads</td>
<td>12</td>
<td>3.00</td>
<td>1.80</td>
</tr>
<tr>
<td></td>
<td>#10 screw</td>
<td>Steel thickness plus 3 threads</td>
<td>12</td>
<td>4.00</td>
<td>2.25</td>
</tr>
<tr>
<td></td>
<td>#8 screw</td>
<td>Steel thickness plus 3 threads</td>
<td>12</td>
<td>3.00</td>
<td>1.80</td>
</tr>
<tr>
<td></td>
<td>#10 screw</td>
<td>Steel thickness plus 3 threads</td>
<td>12</td>
<td>4.00</td>
<td>3.85</td>
</tr>
</tbody>
</table>

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

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.
TYPICAL CLADDING TYPES USING HAT CHANNEL

HORIZONTAL ATTACHMENT
- FIBER CEMENT PANELS
- BACKER BOARD FOR APPLIED FINISHES

VERTICAL ATTACHMENT
- FIBER CEMENT PANELS
- ACM
- MCM

NOTE: LIST NOT EXHAUSTIVE

MINIMUM REQUIREMENTS
1. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS, AND 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. "CURED" - FLASHING IS APPLIED ALONG THE STUD LINES AND CURED MIN. 24 HOURS PRIOR TO FASTENING CLADDING ATTACHMENT.
4. "WET" - FLASHING IS WET APPLIED UNDER THE ATTACHMENT SYSTEM, AND CAN BE APPLIED DIRECTLY TO THE ATTACHMENT SYSTEM BEFORE SETTING IT AND FASTENING IT TO THE WALL.
5. FLUID APPLIED FLASHING SHOWN ON FASTENERS IS APPLIED AFTER CLADDING ATTACHMENT IS FASTENED TO THE WALL.

*DUPONT™ LIQUIDARMOR™ VISIBLE (L), BEHIND (R)
COMPATIBLE TAPE VISIBLE (L), BEHIND (R)
DUPONT™ THERMAX™ XARMOR™ (CI)* (section)
THERMAX™ XARMOR™ (CI) (elevation)
TYPICAL CLADDING TYPES USING Z-FURRING

1. MCM
2. ACM
3. TERRA COTTA
4. FIBER CEMENT PANEL
5. BACKER BOARD FOR APPLIED FINISHES

NOTE: LIST NOT EXHAUSTIVE.

MINIMUM REQUIREMENTS

1. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS, AND FOR WARRANTY DIFFERENCES.
2. SEE DETAIL TWS-R02 FOR MIN FURRING REQUIREMENTS AND VERIFY ATTACHMENT WITH ENGINEER TO ENSURE ADEQUACY FOR CLADDING WEIGHT REQUIREMENTS.
3. "CURED" - FLASHING IS APPLIED ALONG THE STUD LINES AND CURED MIN. 24 HOURS PRIOR TO FASTENING CLADDING ATTACHMENT.
4. "WET" - FLASHING IS WET APPLIED UNDER THE ATTACHMENT SYSTEM, AND CAN BE APPLIED DIRECTLY TO THE ATTACHMENT SYSTEM BEFORE SETTING IT AND FASTENING IT TO THE WALL.
5. FLUID APPLIED FLASHING SHOWN ON FASTENERS IS APPLIED AFTER CLADDING ATTACHMENT IS FASTENED TO THE WALL.

*DUPONT* TM LIQUIDARMOR™ VS (CURED), CM (CURED), OR LT (WET OR CURED) FLASHING

*DUPONT* TM THERMAX™ XARMOR™ (CI)* (section)

*NOTE: VISIBLE (L), BEHIND (R)*

1. COMPATIBLE TAPE VISIBLE (L), BEHIND (R)
2. *VISIBLE (L), BEHIND (R)*
3. *VISIBLE (L), BEHIND (R)*
4. *VISIBLE (L), BEHIND (R)*
5. *VISIBLE (L), BEHIND (R)*

*CR*
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.


MINIMUM REQUIREMENTS

1. SEE DETAIL TWS-G02 “SYSTEM OPTIONS” FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.
2. SEE DETAIL TWS-R02 FOR MIN. FURRING REQUIREMENTS AND VERIFY ATTACHMENT WITH ENGINEER TO ENSURE ADEQUACY FOR CLADDING WEIGHT REQUIREMENTS.

MINIMUM REQUIREMENTS

1. SEE DETAIL TWS-G02 “SYSTEM OPTIONS” FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.
2. SEE DETAIL TWS-R02 FOR MIN. FURRING REQUIREMENTS AND VERIFY ATTACHMENT WITH ENGINEER TO ENSURE ADEQUACY FOR CLADDING WEIGHT REQUIREMENTS.
**Typical Cladding Types Using Flat Strap Furring**

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

*Note: list not exhaustive.*

**Minimum Requirements**

1. See detail TWS-G02 "System Options" for other system configurations, spray foam and sealant options & requirements, and noted warranty differences.
2. See detail TWS-R02 for min. furring requirements and verify attachment with engineer for cladding weight requirements.
3. "Cured" - flashing is applied along the stud lines and cured min. 24 hours prior to fastening cladding attachment.
4. "Wet" - flashing is wet applied under the attachment system, and can be applied directly to the attachment system before setting it and fastening it to the wall.

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*This is a former product of The Dow Chemical Company.REGISTERED PROFESSIONAL TO REVIEW BEFORE CONSTRUCTION.

DUPONT PERFORMANCE BUILDING SOLUTIONS | 1-866-583-2583 | MAY 2021: REFERENCE MOST RECENT AT BUILDING.DUPONT.COM*
**MINIMUM REQUIREMENTS**

1. SEE DETAIL TWS-G02 FOR MIN. LIQUIDARMOR™ FLASHING AND SEALANT APPLICATION THICKNESS & WIDTH.
2. SEE DETAIL TWS-G02 “SYSTEM OPTIONS” FOR COMPATIBLE TAPE AND SEALANT OPTIONS, AND NOTED WARRANTY DIFFERENCES.
3. SEE DETAIL TWS-R02 FOR MIN FURRING REQUIREMENTS AND VERIFY ATTACHMENT W/ ENGINEER TO ENSURE ADEQUACY FOR CLADDING WEIGHT REQUIREMENTS.
4. "CURED" - FLASHING IS APPLIED ALONG THE STUD LINES AND CURED MIN. 24 HOURS PRIOR TO FASTENING CLADDING ATTACHMENT.
5. "WET" - FLASHING IS WET APPLIED UNDER THE ATTACHMENT SYSTEM, AND CAN BE APPLIED DIRECTLY TO THE ATTACHMENT SYSTEM BEFORE SETTING IT AND FASTENING IT TO THE WALL.
6. FLUID APPLIED FLASHING SHOWN ON FASTENERS IS APPLIED AFTER CLADDING ATTACHMENT IS FASTENED TO THE WALL.
7. "LIQUIDARMOR™ QS (CURED) OR LT (WET)"

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**KEY**

- DUPONT™ LIQUIDARMOR™ VISIBLE (L), BEHIND (R)
- COMPATIBLE TAPE VISIBLE (L), BEHIND (R)
- DUPONT™ THERMAX™ XARMOR™ (CI)* (section)
- THERMAX™ XARMOR™ (CI) (elevation)

**TYPICAL CLADDING TYPES USING WOOD FURRING**

1. MCM
2. ACM
3. TERRA COTTA
4. FIBER CEMENT PANEL
5. BACKER BOARD FOR APPLIED FINISHES

**NOTE:** LIST NOT EXHAUSTIVE.
MINIMUM REQUIREMENTS

1. SEE DETAIL TWS-G02 FOR "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, 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. "CURED" - FLASHING IS APPLIED ALONG THE STUD LINES AND CURED MIN. 24 HOURS PRIOR TO FASTENING CLADDING ATTACHMENT.

4. VISIT KNIGHT WALL WEBSITE FOR MANUFACTURER SPECIFICS. CI AND CI-GIRT ARE REGISTERED TRADEMARKS CONTROLLED BY KNIGHT WALL SYSTEMS, INC. CI-SYSTEM, HCI-SYSTEM, AND HCI-GIRT ARE TRADEMARKS OF KNIGHT WALL SYSTEMS, INC.

* A former product of The Dow Chemical Company.

DUPONT PERFORMANCE BUILDING SOLUTIONS | 1-866-583-2583 | MAY 2021: REFERENCE MOST RECENT AT BUILDING.DUPONT.COM

REGISTERED PROFESSIONAL TO REVIEW BEFORE CONSTRUCTION.
MINIMUM REQUIREMENTS

1. DUPONT™ THERMAX™ INSULATION 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™ FLASHING ONTO INSULATION BASED ON DETAIL TWS-G02.
5. LIQUIDARMOR™ FLASHING TO BE APPLIED TO INSULATION BOARD SEAMS (NOT OVER ENTIRE INSULATION FACE). SEE DETAILS TWS-R03 THROUGH TWS-R08 FOR FURRING SEALING OPTIONS.
6. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.
7. DUPONT™ DURAGARD™ CM TRANSITION FLASHING TO BE HELD BACK FROM THE FACE OF THE CLADDING 1"-1".
DuPont™ Thermax™ Wall System
Applied / Adhered Veneer

Detailing Recommendations for Jobs Using Applied Veneers

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<td>Sealing Lath</td>
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<td>Typ. Wall</td>
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<td>Detail Number</td>
<td>Rainscreen Cladding</td>
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<td>A</td>
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*Former product of The Dow Chemical Company.
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 - DUPONT™ THERMAX™ WALL SYSTEM®
3. DETAILS AND ADDITIONAL INFORMATION AVAILABLE AT BUILDING.DUPONT.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

REGISTERED PROFESSIONAL TO REVIEW BEFORE CONSTRUCTION.
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. DUPONT™ LIQUIDARMOR™ CM* FLASHING
2. DUPONT™ LIQUIDARMOR™ QS* FLASHING
3. DUPONT™ LIQUIDARMOR™ LT* FLASHING

SEE DETAIL TWS-G02 FOR MORE OPTIONS.

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**IBC 2018: TABLE 2603.12.1**

CLADDING MINIMUM FASTENING REQUIREMENTS FOR DIRECT ATTACHMENT OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT

<table>
<thead>
<tr>
<th>CLADDING FASTENER THROUGH FOAM SHEATHING INTO:</th>
<th>CLADDING FASTENER TYPE AND MINIMUM SIZE</th>
<th>FASTENER SPACING IN FURRING (Inches)</th>
<th>MAXIMUM THICKNESS OF FOAM SHEATHING C (Inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>16&quot; o.c. furring (Inches)</td>
<td>24&quot; o.c. furring (Inches)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 psf</td>
<td>11 psf</td>
</tr>
<tr>
<td>Steel framing (minimum penetration of steel thickness plus 3 threads)</td>
<td>#8 screw into 33 mil steel or thicker</td>
<td>6</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td>#10 screw into 33 mil steel</td>
<td>6</td>
<td>4.00</td>
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<td>4.00</td>
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<td></td>
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<td>12</td>
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<tr>
<td></td>
<td>#10 screw into 43 mil steel or thicker</td>
<td>6</td>
<td>4.00</td>
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<tr>
<td></td>
<td></td>
<td>8</td>
<td>4.00</td>
</tr>
<tr>
<td></td>
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<td>12</td>
<td>4.00</td>
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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.

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MINIMUM REQUIREMENTS

1. TABLE 2603.12.1 REFERENCED FROM INTERNATIONAL BUILDING CODE (IBC) 2018. SEE CODE FOR OTHER REQUIREMENTS.
2. SEE DETAIL TWS-G02 FOR MIN. LIQUIDARMOR™ FLASHING APPLICATION THICKNESS & WIDTH.
3. VERIFY WITH ENGINEER THAT ATTACHMENT METHOD ADEQUATE FOR WEIGHT OF CLADDING.
**Design Intent**

1. USE LATH SURFACE MOUNTED OVER THE RIGID INSULATION AND FASTENED TO THE STRUCTURE.
2. SEAL PENETRATIONS OF LATH ATTACHMENT USING DUPONT™ LIQUIDARMOR™ FLASHING (OPTIONAL).

**MINIMUM REQUIREMENTS**

1. SEE DETAIL TWS-G02 FOR MIN. LIQUIDARMOR™ FLASHING 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™ FLASHING REQUIRED AS SEAM TREATMENT OVER INSULATION BOARD JOINTS IF USING THE DUPONT™ THERMAX™ WALL SYSTEM* AS AIR AND WATER BARRIER, BUT OPTIONAL BEHIND LATH FASTENING.
4. SEE DETAIL TWS-G02 "SYSTEM OPTIONS" FOR OTHER SYSTEM CONFIGURATIONS, AND FOR SPRAY FOAM AND SEALANT OPTIONS & REQUIREMENTS.

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*A former product of The Dow Chemical Company.*

**Key**

- LIQUIDARMOR™ FLASHING (OVER)
- LIQUIDARMOR™ FLASHING (BEHIND)
- DUPONT™ THERMAX XARMOR™ (CI) (SECTION)
- THERMAX XARMOR™ (CI) (ELEVATION)

**Diagram Details**

- **Elevation**
  - LIQUIDARMOR™ FLASHING (OPTIONAL)
  - THERMAX XARMOR™ (CI)
  - GRADE ‘D’ BUILDING PAPER
  - METAL LATH
  - STUCCO VENEER SYSTEM OR ADHERED STONE

- **Section**
  - THERMAX XARMOR™ (CI)
  - METAL STUD WALL FRAMING

- **Plan**
  - STUCCO VENEER SYSTEM OR ADHERED STONE
  - METAL LATH
  - GRADE ‘D’ BUILDING PAPER
  - LIQUIDARMOR™ FLASHING (OPTIONAL)
  - THERMAX XARMOR™ (CI)
MINIMUM REQUIREMENTS

1. Insulation that is ship-lapped horizontal edge 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™ flashing onto each face of insulation based on detail TWS-G02.

4. See detail TWS-G02 "System Options" for other system configurations, and for spray foam and sealant options & requirements.

*DUPONT™ THERMAX XARMOR™ (CI)* *(1)

GALVANIZED DIAMOND MESH SELF-FURRING METAL LATH 3.4 LBS. PER SQUARE YARD RECOMMENDED *(2)

STUCCO VENEER SYSTEM, OR ADHERED STONE, OVER METAL LATH

1 LAYER GRADE 'D' BUILDING PAPER BETWEEN RIGID INSULATION AND 3 COAT STUCCO VENEER

METAL STUD WALL FRAMING

GYPSUM BOARD INTERIOR WALL FINISH

DUPONT™ LIQUIDARMOR™ FLASHING

*(1) A former product of The Dow Chemical Company.

*(2) REGISTERED PROFESSIONAL TO REVIEW BEFORE CONSTRUCTION.

DUPONT PERFORMANCE BUILDING SOLUTIONS | 1-866-583-2583 | MAY 2021: REFERENCE MOST RECENT AT BUILDING.DUPONT.COM
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 DuPont 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.

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 DuPont 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.

DuPont™ 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.

DuPont™ Thermax™ Brand Polysisocyanurate 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 DuPont at 1-866-583-BLUE (2583), or contact your local building inspector. In an emergency, call 1-989-636-4400.

DuPont™ Styrofoam™ Brand 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 DuPont 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 DuPont can give assurance that mold will not develop in any specific system.

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