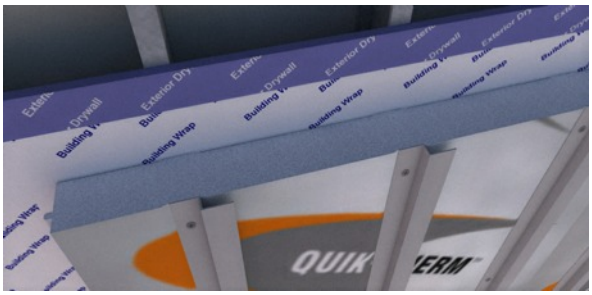
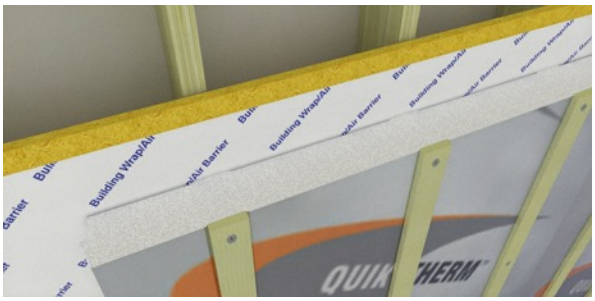
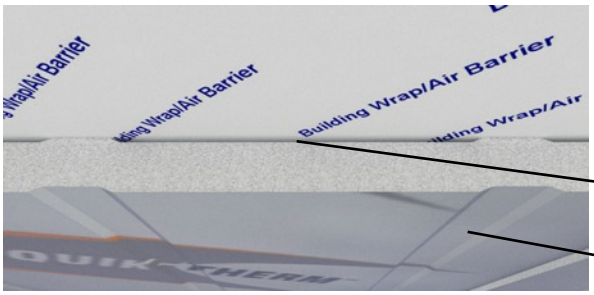
Quik-Therm Solar Dry (SDI)

SOLAR DRY







Quik-Therm Solar Dry Insulation (SDI) is a patent pending high performance tongue and groove continuous rigid insulation system. SDI is manufactured from superior closed-cell, lightweight and resilient Type 2 high density expanded polystyrene (EPS) covered with advanced metallic polymer facers.

Solar Dry is effectively impervious, however it is neither an air nor vapour barrier. On the inboard side of SDI are drying cavities that occupy ~75% of the surface. These cavities allow walls to drain, dry and disperse moisture.

On the outboard side, furring materials such as wood or steel are mechanically fastened through SDI panels directly to framing members. The location for furring is identified by shallow depressions.

As per 9.27.2.2 Minimum Protection From Precipitation Ingress, a code compliant rain screen is achieved provided the furring creates a minimum 3/8" (10 mm) void between SDI and the chosen cladding material.

3/16" deep x 13" wide channels
allow walls to breathe, dry and drain

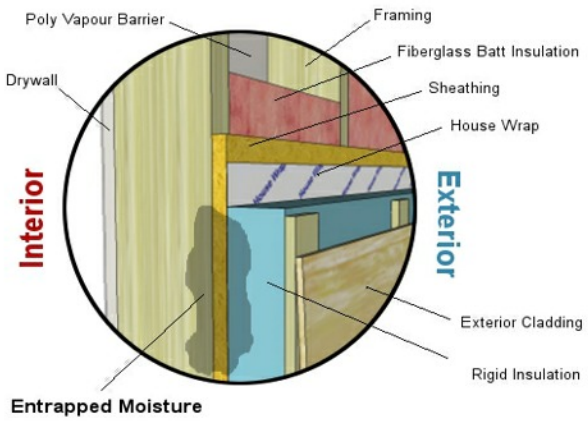
3.5" channels every 16" help to
pre-align furring over wall studs
(3/4" thick x 3.5" wide furring strips recommended)

Features & Highlights

- 4 IN 1 INSULATION SYSTEM - Drying plane, rain screen, exterior weather barrier and high performance insulator.
- NO DOUBLE VAPOUR BARRIER - SDI walls drain, dry and disperse moisture. 3/16" (5 mm) deep by 13" wide pebbled grooves on the inboard side of SDI provide a drying cavity that covers ~75% of walls.
- ENERGY MODELED & TESTED TO ASTM C1363 - The effective (Eff.) R-value of SDI will vary dependent on the type of framing i.e.: wood or steel. Higher Eff. R-values will be achieved with wood vs. steel.
- INHERENT RAIN SCREEN - Combined, furring materials and SDI become an effective and durable rain screen system. To qualify as a rain screen, a 3/8" (10 mm) air gap between insulation panels and the interior side of cladding materials must be maintained.
- PRE-MEASURED STUD SPACING - 3.5" wide depressions every 16" O.C. determine furring locations.
- CONTINUOUS INSULATION - No Thermal Bridging through framing members. Panel thicknesses range from 1.5" to 5.5" thick by 4' wide x 8' long, with tongue and groove connections. Tongue and groove connections provide panel support, ease of alignment, and increased productivity.
- SECOND PLANE OF PROTECTION - Prevention of moisture ingress as per 9.27.3.
- RUGGED AND DURABLE - Does not easily chip, crack or break.
- ENVIRONMENTALLY RESPONSIBLE - SDI has no thermal drift and its R-value will remain stable over its entire service life. SDI contains no dyes, formaldehyde, or ozone depleting blowing agents. SDI may contain up to 15% recycled content.
- REDUCES ON-SITE MATERIAL AND LABOUR COSTS - SDI installs in about half the time of conventional foam board insulations and furring methods.
- SUPERIOR ACOUSTICS - Batt insulation plus SDI equals quiet walls.

Thermal Performance Testing and Moisture Control

SOLAR DRY



Moisture management is the single most important factor in the design and construction of sustainable buildings and mold control.

National Research Council Canada

The rainscreen principle specifies two complementary lines of defence to control rain penetration. For effective performance, the first line of defence must be designed to minimize rainwater passage into the wall. As well, interior moisture transported through the envelope by vapour diffusion, air leakage, and heat flow must be controlled. Failure to do so can lead to moisture overload and deterioration.

Air and Vapour Control

Solar Dry walls should be designed to meet the minimum ratio of outboard to inboard thermal resistance listed in Table 9.25.5.2 of the code. A vapour permeable / air barrier membrane is recommended between exterior sheathings and SDI.

Architectural Testing Inc. (ATI)

Architectural Testing Inc. (ATI) / Intertek a Canadian accredited laboratory tested Quik-Therm to ASTM C1363-05 Standard Test Method for Determination of the Steady State Thermal Performance of Building Assemblies.

ASTM C1363 Effective R-Value Testing & Energy Modelling

ASTM C1363 - ATI / Intertek. Engineering and Energy Modeling - Morrison Hershfield and/or ASHRAE

Wall Assembly Description	Eff. R-Value
C1363 - Drywall, 2x4 empty wood cavity (16" O.C.), OSB, 1" MPI*	8.3
Modelled - Drywall, 2x4, empty wood cavity (16" O.C.), 1.5" SDI	10.75
Modelled - Drywall, 2x4 wood frame (16" O.C.), R-12 fiberglass, 1.5" SDI	20.55
Modelled - Drywall, 2x6 wood frame (16" O.C.), R-20 fiberglass, 1.5" SDI	26.55
C1363 - Drywall, 2x4 empty wood cavity (16" O.C.), OSB, 2" SDI	13.2
C1363 - Drywall, 2x4 wood frame (16" O.C.), R-12 fiberglass, 2" SDI	22.1
Modelled - Drywall, 2x6 wood frame (16" O.C.), R-20 fiberglass, 2" SDI	28.3
Modelled - Drywall, steel framing (16" O.C.), R-20 fiberglass, exterior drywall, 2" SDI, cladding	18.5
Modelled - Drywall, empty steel cavity (16" O.C.), exterior drywall, 4" SDI, cladding	19.6
Modelled - Pre-Eng. Steel Building – R-27 fiberglass, 2" QT-MPI*	27
Modelled - Steel Frame (Pre-Eng.)	5
C1363 - Drywall, empty steel frame cavity, 1" QT-MPI*, 3-1/2" concrete wall	9.75
C1363 - 3.5" concrete wall, 1" QT-MPI*	5.89

NOTE: Substitute mineral wool insulation for fiberglass - add an effective R-1 to the assembly.

* MPI = Quik-Therm Multi-Purpose Insulation (Solar Dry without flutes). ASTM C1363 results confirmed the presence of shallow flutes of "Solar Dry" does not significantly affect the thermal resistance of the assembly.

Typical Physical Properties

Property		Test Method
R-Value Testing	Type 1	ASTM C1363
Nominal Density (pcf)	Type 2 - 1.4	ASTM D1622-03
Compressive Strength (psi, 10% deformation)	19.7	ASTM D1621-04a
Water Vapour Transmission (perms)	<1.0	ASTM E96
Flame Spread	250	CAN/ULC - S102.2
Smoke Developed	410	CAN/ULC - S102.2

CCMC (Canadian Construction Materials Center) Listing: Type 1 13393-L and Type 2 13457-L.