

R2+[®] BASE

Commercial Grade Insulating Nail Base for Above-Grade Walls

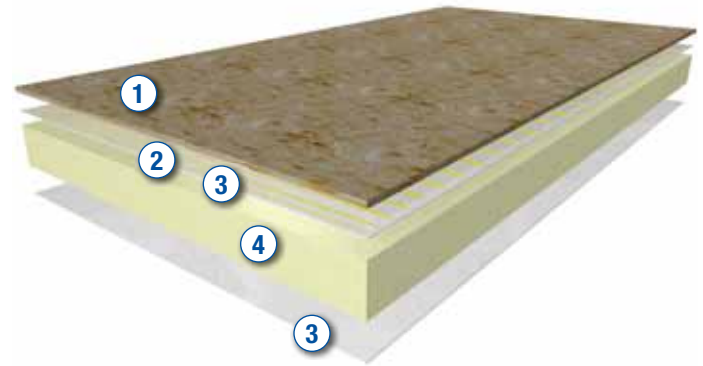


Description

R2+ BASE is an insulating nail base designed for use in commercial construction above-grade wall applications. The product consists of a coated-glass-faced rigid polyisocyanurate insulation board of various thicknesses factory-laminated to a 5/8" fire-treated plywood facer. R2+ BASE is provided in 4' X 8' boards which are erected and fastened in place using common wood working tools and techniques. R2+ BASE provides continuous insulation and a nail base in one installation. The product is ideal for use under common thin-veneer cladding systems such as stucco, corrugated metal and fiber cement siding. R2+ BASE incorporates a kiln-dried, fire-treated plywood, making it a friendly surface for CCW's membrane air barriers. R2+ BASE has been fire-tested to NFPA 285 and passes this tough test in many wall assemblies. CCW provides R2+ BASE Insulating Nail Base, R2+ accessories and CCW air/vapor barrier membranes for a complete wall weatherization system.

Features/Benefits

- Passes NFPA 285 in many wall assemblies, including WRB membrane and practical window details
- Simple solution to providing continuous insulation under thin veneer cladding systems
- Incorporates APA-TECO Rated Exposure Fire-treated Plywood - provides improved dimensional stability and fire performance
- Provides sheathing, nail base and thermal barrier in one installation
- High R-value per inch – enables thinner board to be used, while still meeting code requirements
- Meets wall assembly continuous insulation (ci) requirements prescribed by Building Code
- Multiple thicknesses available to provide fine-tuned R-value
- Factory-controlled thickness and composition
- Requires no special tools or equipment for installation – cut to size and fasten boards in place with standard woodworking tools and techniques
- Manufactured in multiple plants across the U.S. – ready product availability and LEED[®] regionally sourced material
- FSC-certified wood available
- Part of a full weatherization system by CCW – takes the guesswork out of installation procedures and product compatibility



- 1 Fire-Treated Plywood
- 2 Laminating Adhesive
- 3 Coated Glass Facer
- 4 Closed-cell Polyisocyanurate Foam Core

Properties of Coated-Glass-Faced Polyiso Insulation

Property	Method	Results – Grade 2
Compressive Strength	ASTM D 1621	20 psi*
Long-term Thermal Resistance (R-value) 15-Yr Weighted Average [units: °F•ft ² •h/ Btu]	ASTM C 1289/CAN/ ULC S-770	6.0/inch
Flame Spread Index**	ASTM E 84	<75
Smoke Developed Index	ASTM E 84	<450
Water Vapor Permeance (1" thickness)	ASTM E 96 A	<1 Perm
Water Absorption	ASTM C 209	<0.1% vol.
Dimensional Stability	ASTM D 2126	2% max. linear change (7 days)
Edge	—	Square
Service Temperature	—	-100°F to 250°F

*Also available in 25 psi compressive strength

**Flame spread index of the fire-treated plywood is 25 or less

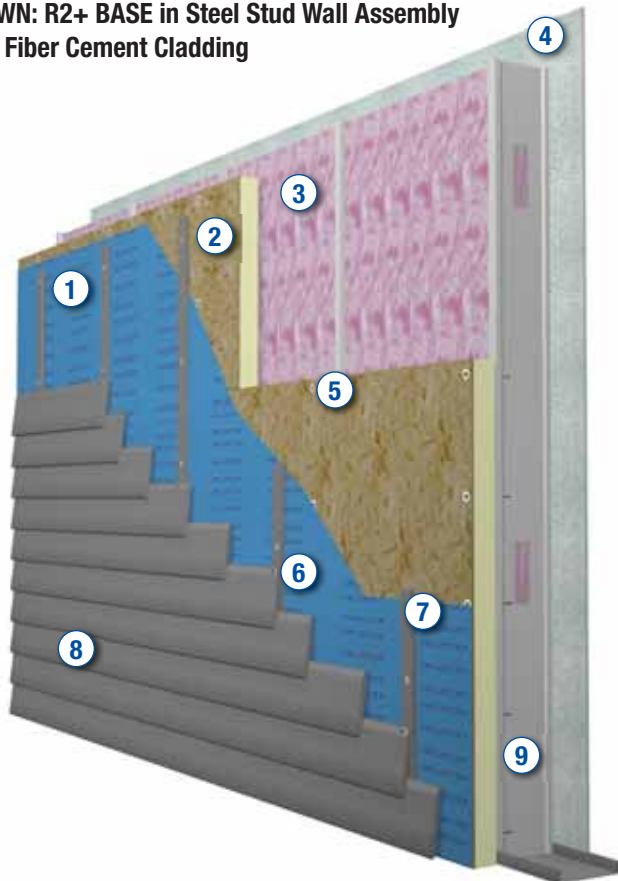


Component of CCW's NFPA 285 tested wall assemblies

R2+[®] BASE

Commercial Grade Insulating Nail Base for Above-Grade Walls

SHOWN: R2+ BASE in Steel Stud Wall Assembly with Fiber Cement Cladding



- ① CCW Membrane Air Barrier
- ② R2+ Base Commercial Grade Insulating Nail Base
- ③ Stud Cavity Insulation
- ④ Interior Finish
- ⑤ Approved Fasteners and Spacing (Into Studs)
- ⑥ Furring Strips and Siding Fastened to Plywood Nail Base
- ⑦ Furring Strip to Provide Drainage Space Behind Siding
- ⑧ Fiber Cement Siding or Other Thin Veneer Non-Combustible Cladding
- ⑨ Steel Stud

Installation

Inspection:

- Wall surfaces shall be sound, dry, plumb and free of irregularities that would prevent snug fastening of R2+ BASE to substrate.
- Studs shall be sound, dry plumb. Studs shall be spaced and braced laterally according to code and project requirements.

Erecting R2+ Base Panels:

- Provide separation of the edge of R2+ BASE from concrete at grade with pressure-treated lumber sill plate, sill gasket or non-permeable flashing material.
- Begin at base of wall from firm, permanent support.
- Fasten R2+ BASE with proper fasteners and spacing to accommodate the design. Fasten R2+ BASE to the structure using SIPs fasteners or similar hardware driven into steel studs, wood studs, concrete or CMU substrate. Fastening shall be approved by a structural engineer, as the fastening method must be sufficient to secure both the weight of the R2+ BASE and the weight of the cladding for the project conditions.

- Apply R2+ BASE horizontally in a running bond pattern using maximum board lengths to minimize number of joints. Offset R2+ BASE board joints minimum 6". R2+ BASE may be also be applied vertically if required.
- Pre-cut R2+ BASE to fit openings and projections. Stagger vertical joints and corners. Stagger insulation and sheathing board joints minimum 6". R2+ BASE boards can be cut with a table saw and other standard wood-working tools.
- Allow a minimum 1/8" and maximum 1/4" gaps between boards (to accommodate hygric movement of wood). Fasten boards tightly to provide a flush, level surface.

WRB and Cladding:

- After installation, R2+ base shall be covered with a CCW membrane air barrier, or with an approved water resistive barrier (WRB) by others. Cladding can be secured by fastening into the fire-treated plywood face of R2+ BASE. If stucco, cultured stone or other thin, adhered veneer is installed over R2+ BASE, follow APA guidelines to prevent cracking of cladding.

Limitations

- Not structural – R2+ BASE cannot be used for bracing or adding shear strength to walls.
- Not intended as a wear-resistant or traffic-resistant surface – cover with approved cladding system.
- Combustible, not rated for permanent exposure. Must be covered with approved cladding or thermal barrier.
- Do not use on exterior side of below-grade construction, on plaza decks or in areas where contact with ponding water is expected.
- In termite-infested areas, maintain separation of R2+ BASE from grade according to code requirements.
- Do not leave exposed to sunlight longer than 60 days without installation of WRB.
- Do not install CCW membrane air barriers over plywood surface if wood moisture content is 20% or higher.

Storage

Keep product clean and dry during storage to facilitate installation. Store R2+ BASE pallets in an area protected from moisture and direct sunlight. For outdoor storage, cover pallets with breathable, waterproof tarpaulins and elevate pallets above ground level a minimum of 4".

Packaging

R2+ BASE is provided in 4' X 8' boards with 5/8"-thick fire-treated plywood. R2+ BASE is also available with 3/4" plywood on special order. CCW R2+ BASE boards are stacked on 4' X 8' pallets and double-packaged in a UV-resistant polyethylene bag.

R2+ BASE 4' X 8' Boards, Square Edge

Thickness			R-value	Grade	PCS/Pallet	SQ FT/Pallet	BD FT/Pallet	LB/SQ FT	Weight/Pallet
ISO	PLY	TOT							
1"	0.625"	1.625"	6.6	20 psi	28	896	896	1.85	1,658
1"	0.625"	1.625"	6.6	25 psi	28	896	896	1.85	1,658
1.5"	0.625"	2.125"	9.6	20 psi	21	672	1,008	1.93	1,298
1.5"	0.625"	2.125"	9.6	25 psi	21	672	1,008	1.93	1,298
2"	0.625"	2.625"	12.7	20 psi	18	576	1,152	2.01	1,159
2"	0.625"	2.625"	12.7	25 psi	18	576	1,152	2.01	1,159
2.5"	0.625"	3.125"	15.9	20 psi	14	448	1,120	2.09	938
2.5"	0.625"	3.125"	15.9	25 psi	14	448	1,120	2.09	938
3.0"	0.625"	3.625"	19.1	20 psi	12	384	1,152	2.18	835
3.0"	0.625"	3.625"	19.1	25 psi	12	384	1,152	2.18	835



Component of CCW's NFPA 285 tested wall assemblies

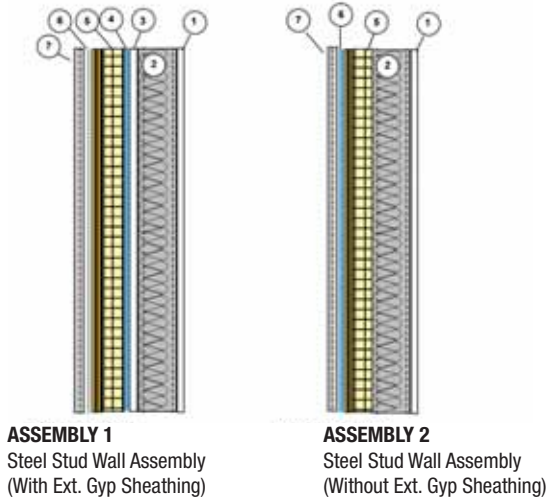
Codes and Compliances

- ASTM C 1289 Type V
- 2012 International Energy Conservation Code Table C402.2 Opaque Thermal Envelope Requirements and Section C402.4.1.2.1 Air Barrier Materials
- International Building Code Chapter 26, Plastic Foam Insulation

- 2010 ASHRAE 90.1 Table 5.5.1 through Table 5.5.8 Building Envelope Requirements by Climate Zone and Section 5.4.3.1.3 Acceptable Air barrier Materials and Assemblies
- Passes NFPA 285 full wall burn test in several configurations. Summary of approved assemblies appears in Figures 3 and 4 and in Tables 1 and 2.

Figure 3

R2+ BASE Steel Stud Wall Systems

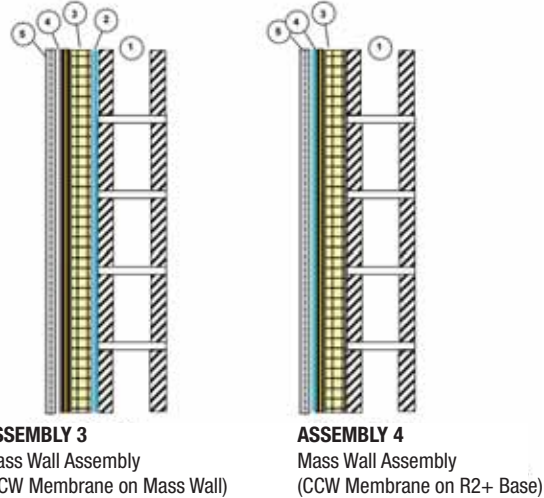


ASSEMBLY 1
Steel Stud Wall Assembly
(With Ext. Gyp Sheathing)

ASSEMBLY 2
Steel Stud Wall Assembly
(Without Ext. Gyp Sheathing)

Figure 4

R2+ BASE Mass Wall Systems



ASSEMBLY 3
Mass Wall Assembly
(CCW Membrane on Mass Wall)

ASSEMBLY 4
Mass Wall Assembly
(CCW Membrane on R2+ Base)

Table 1

NFPA 285 Walls - R2+ BASE Steel Stud Wall Systems

Layer	Assembly 1	Assembly 2
1. Base Wall System	Steel studs minimum 3 5/8" depth, minimum 25 gauge at a maximum of 24" o.c with lateral bracing every 4' vertically. Layer of 5/8"-thick Type X or 1/2"-thick Type C gypsum wallboard on interior.	
2. Stud Cavity Insulation	Fiber glass, mineral wool, Bayer EcoBay™ CC or BASF® Walltite spray foam up to depth of stud or none	
3. Ext. Gypsum Sheathing	1/2" or 5/8" exterior grade	None
4. Membrane Air Barrier over Exterior Gypsum Sheathing	Fire Resist Barritech VP, Fire Resist Barritech NP, Fire Resist 705FR OR none*	N/A
5. Insulating Nail Base	R2+ BASE, minimum 1 5/8", maximum 3 5/8" thick	
6. WRB over Insulating Nail Base	Tyvek™ Commercial Wrap or other mechanically attached building wrap*	Fire Resist Barritech VP, Fire-Resist Barritech NP, Fire-Resist 705FR*
7. Exterior Cladding	MCM cladding that has successfully passed NFPA 285, Fiber cement siding**, Sheet metal cladding**, Portland cement stucco and lath minimum 3/4" thickness*** OR thin brick/cultured stone bonded with thin set adhesive***	

*Consult CCW for approval of other WRB products

**Fiber Cement Siding and Sheet Metal cladding require furring, shims or other method to provide minimum 1/4" space between cladding and CCW membrane air barrier

***Stucco and adhered thin veneer require paper-backed lath or building wrap as a slip sheet between cladding and CCW membrane air barrier

Table 2

NFPA 285 Walls - R2+ BASE Mass Wall Systems

Layer	Assembly 3	Assembly 4
1. Base Wall System	Cast-in-place concrete, tilt-up concrete or concrete masonry unit (CMU)	
2. Membrane Air Barrier on Exterior side of Mass Wall	Fire Resist Barritech VP, Fire Resist Barritech NP, Fire Resist 705FR*	None
3. Insulating Nail Base	R2+ BASE, minimum 1 5/8", maximum 3 5/8" thick	
4. WRB over Insulating Nail Base	Tyvek® Commercial Wrap or other mechanically-attached building wrap*	Fire Resist Barritech VP, Fire Resist Barritech NP, Fire Resist 705FR*
5. Exterior Cladding	MCM cladding that passed NFPA 285, Fiber cement siding**, Sheet metal cladding**, Portland cement stucco and lath minimum 3/4" thickness*** OR thin brick/cultured stone bonded with thin set adhesive***	

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**Fiber Cement Siding and Sheet Metal cladding require furring, shims or other method to provide minimum 1/4" space between cladding and CCW membrane air barrier

***Stucco and adhered thin veneer require paper-backed lath or building wrap as a slip sheet between cladding and CCW membrane air barrier

Note: Not all approved materials and products are shown in Tables 1 & 2. Consult CCW for full NFPA 285 engineering analysis.