ICC EVALUATION SERVICE®

ICC-ES Listing Report

ESL-1624

Issued August 2024

This listing is subject to renewal in August 2025.

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CSI: DIVISION: 07 00 00 – THERMAL AND MOISTURE PROTECTION
Section: 07 42 63 – Fabricated Wall Panel Assemblies

Product Certification System:

The ICC-ES product-certification system includes evaluating evidence in support of test data provided by the listee to verify compliance with applicable codes and standards. The system also involves factory inspections, and assessment and surveillance of the listee's quality system.

Product: **EXOSHELL Exterior Wall Panel System**

Listee: **NORTHSTAR TECHNOLOGIES GROUP, INC.**

Evaluation: EXOSHELL Exterior Wall Panel System consists of a single layer of $^1/_4$-inch thick Strongwell® HS Armor Panel Glass Fiber Reinforced Polymer pultruded Ballistic sheathing attached directly to a Glass Fiber Reinforced Polymer pultruded Structural Frame Assembly made with 6-inch deep Strongwell® EXTREN® profiles. The frame and sheathing are sealed and coated with FlameOFF® Fire Barrier Paint (ESR-3874). EXOSHELL Exterior Wall Panel System was evaluated to the following standards:

- ASTM E84-20, Standard Test Method for Surface Burning Characteristics of Building Materials, ASTM International.
- ASTM E119-20, Standard Test Methods for Fire Tests of Building Construction and Materials, ASTM International.
- ASTM E2768-11 (Reapproved 2018), Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30 min Tunnel Test), ASTM International.
- NFPA 268-17, Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Energy Source, National Fire Protection Association.
- NFPA 285-19, Standard Fire Test Method for the Evaluation of Fire Propagation Characteristics of Exterior Non-load-bearing Wall Assemblies Containing Combustible Components, National Fire Protection Association.

Findings:

1) EXOSHELL Exterior Wall Panel System, consists of single layer of $^1/_4$-inch thick of Strongwell® HS Armor Panel Glass Fiber Reinforced Polymer pultruded Ballistic sheathing panel coated with FlameOFF® Fire Barrier Paint at minimum 17 mils theoretical dry film thickness (DFT), has a flame spread index (FSI) of 25 or less and a smoke-developed index (SDI) of 450 or less, based on testing in accordance with ASTM E84, as referenced in the applicable sections of the following code sections:

- 2024, 2021, 2018 and 2015 *International Building Code*®
  Applicable Section: 803.1.2 (2015 IBC Section 803.1.1)
- 2024, 2021, 2018 and 2015 *International Residential Code*®
  Applicable Section: R302.9

2) The assembly described in ICC Design No. TMP-1624-01, with the EXOSHELL Exterior Wall Panel System as a component of the wall assembly, complies with the conditions of the acceptance described in ASTM E119, as referenced in the applicable sections of the following code editions:

- 2024, 2021, 2018 and 2015 *International Building Code*®
  Applicable Section: 703.2

- 2024, 2021, 2018 and 2015 *International Residential Code®*
  Applicable Section: R302

3) EXOSHELL Exterior Wall Panel System, consists of single layer of $^1/_4$-inch thick of Strongwell® HS Armor Panel Glass Fiber Reinforced pultruded Ballistic sheathing panel coated with FlameOFF® Fire Barrier Paint at minimum 17 mils DFT, has a flame spread index (FSI) of 25 or less and a smoke-developed index (SDI) of 450 or less, and as determined for the initial 10 minute test period. During the subsequent 20-minute test period, the flame front did not progress more than 10.5 ft (3.2 m) beyond the centerline of the burners when tested in accordance with ASTM E2768.

4) EXOSHELL Exterior Wall Panel System, consists of a single layer of $^1/_4$-inch thick of Strongwell® HS Armor Panel Glass Fiber Reinforced Polymer pultruded Ballistic sheathing panel attached directly to a Glass Fiber Reinforced Polymer pultruded structural frame assembly made with 6-inch deep Strongwell® EXTREN® profiles and all coated with FlameOFF® Fire Barrier Paint at minimum 17 mils DFT, when exposed to a radiant heat flux of 12.5 kW/m^2 for a 20-min period in the presence of a spark ignition source, did not exhibit sustained flaming, when tested in accordance with NFPA 268.

5) The EXOSHELL Exterior Wall Panel System assembly described in ICC Design No. TMP-1624-02 complies with the conditions of the acceptance described in NFPA 285.

Identification:

1. The ICC-ES mark of conformity, electronic labeling, or the listing report number (ICC-ES ESL-1624) along with the name, registered trademark, or registered logo of the listee must be included in the product label.
2. In addition, each panel must be identified by a stamp or label on the panel that includes the name of the report holder (Northstar Technologies Group, Inc.), identification of the manufacturing facility and production date or lot number.
3. The report holder's contact information is the following:

   NORTHSTAR TECHNOLOGIES GROUP, INC.
   9201 COCKLESHELL COURT, UNIT 10
   BONITA SPRINGS, FLORIDA 34135
   (239) 977-9784

Installation: The EXOSHELL Exterior Wall Panel must be installed in accordance with the Northstar Technologies Group, Inc. published installation instructions and applicable codes.

Conditions of listing:

1. The listing addresses only conformance with the standards and code sections noted above.
2. Approval of the product's use is the sole responsibility of the local code official.
3. The listing applies only to the materials tested and as submitted for review by ICC-ES.
4. EXOSHELL Exterior Wall Panel are manufactured under a quality control program with inspections by ICC-ES.

ICC Design No. TMP-1624-01

ESL-1624

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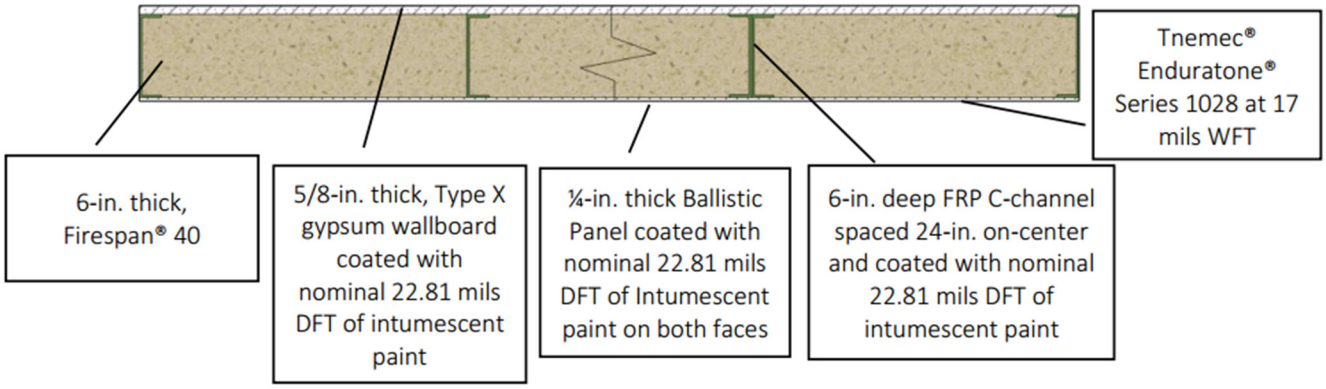
Applicant: NORTHSTAR TECHNOLOGIES GROUP, INC.

Product: EXOSHELL Exterior Wall Panel System

Standard: ASTM E119 (UL 263)

Assembly Rating: 1-hour

Load: Non-load bearing



COMPONENTS OF CONSTRUCTION:

Framing – The framing comprised 6-inches deep Strongwell® EXTREN® Glass Fiber-reinforced Polymer pultruded C-channels spaced 24-inch (609.6 mm) on-center, with back-to-back C-channels at every other stud. Horizontal blocking using the 6-in. (152.4 mm) deep C-channel was installed within the stud cavities, with one row positioned 48-$^{13}/_{16}$-in. (1219.2 mm) from the bottom edge and a second row at 96-$^{13}/_{16}$-in. (2438.4 mm) from the bottom edge.

Exterior Sheathing – The furnace-exposed side of the wall assembly utilized ¼-in. (6.35 mm) thick, 4 ft. (1219.2 mm) x 8-ft. (2438.4 mm) Strongwell® HS Armor Panel Glass Fiber Reinforced Polymer pultruded Ballistic sheathing panels installed horizontally. The sheathing was affixed to the 6-in. (152.4 mm) deep EXTREN C-channel studs with a ¼-in. (6.35 mm) bead of Scotch-Weld Epoxy adhesive and #14 – 1 ½-in. (38.1 mm) long, self-drilling TEK screws spaced 12-in. (304.8 mm) on-center. The heads of the TEK screws were treated with Scotch-Weld epoxy adhesive and sanded flat post-drying. Exposed panel seams were backed by the studs, treated with Scotch-Weld epoxy adhesive and sanded flat post-drying, which were then coated with FlameOFF® Fire Barrier Paint at a nominal 22.81 mils dry-film thickness (DFT).Both sides of the sheathing received a FlameOFF® Fire Barrier Paint coating at nominal 22.81 mils DFT. Additionally, the FlameOFF® Fire Barrier Paint coating was top-coated with nominal 17 mils WFT of Tnemec Enduratone Series 1028.

Stud Cavity Insulation – The stud cavity insulation comprised Owens Corning Thermafiber® FireSpan® 40 insulation, with batt dimensions of 6-in. (152.4 mm) thick x 24-in. (609.6 mm) wide x 48 in. (1219.2 mm) long. The insulation, with a nominal density of 4 lbs/ft^3 (64 kg/m^3), was friction-fit between each cavity before installation of the interior sheathing.

Interior Sheathing – The side of the wall assembly not exposed to the furnace was sheathed using $^5/_8$-in. (15.8 mm) thick, 4 ft. (1219.2 mm) x 10-ft. (3048 mm) panels of Type X gypsum wallboard (GWB) conforming to ASTM C1396. The GWB must be oriented vertically with sheathing seams back by framing. The GWB was secured to the EXTREN C-channel using #6 – 1-$^5/_8$-in. (25.4 mm) long, Type W coarse thread with bugle head drywall screws. The screws were spaced 8-in. on-center in the field and 12-in. on-center around the perimeter. The interior sheathing must be coated on the outside face with nominal 22.81 mils DFT of FlameOFF® Fire Barrier Paint.

ICC Design No. TMP-1624-02

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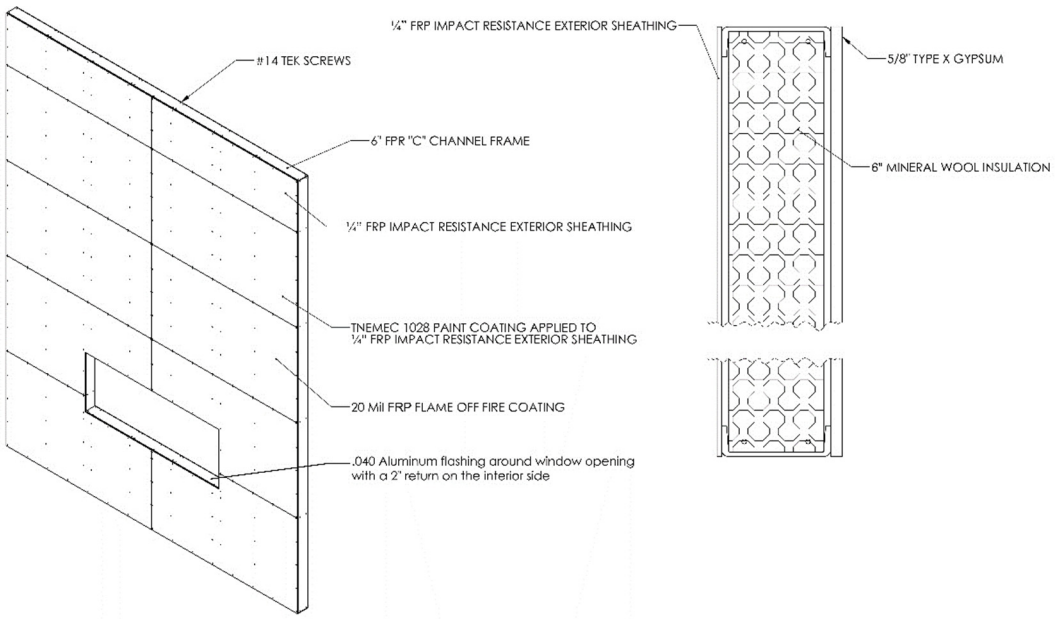
Applicant: NORTHSTAR TECHNOLOGIES GROUP, INC.

Product: EXOSHELL Exterior Wall Panel System

Standard: NFPA 285

COMPONENTS OF CONSTRUCTION:



WALL COMPONENTS	MATERIALS
Framing	The wall assembly framing comprised Strongwell® EXTREN Series 500, Olive Green, 6-inch deep glass fiber-reinforced polymer pultruded plastic C-channel with $1^5/_8$-inch (41.2 mm) leg, 4-inch (101.6 mm) overall thickness. Stud spacing was 24 inches (609.6 mm), with lateral bracing every 4 feet (1219.2 mm) vertically. Framing components were fastened using #14 – 1 ½-in.(38.1 mm) TEK screws.
Interior Sheathing	The interior sheathing of the wall assembly must be cladded with one-layer $^5/_8$-inch thick (15.9 mm), Type X gypsum wallboard, conforming to ASTM C1396. The gypsum wallboard must be fastened to the 6-inch deep EXTREN C-channel using No. 6 x 1¼-inch long (31.8 mm) bugle head, Type S drywall screws, with nominal spacing of 8-inches (203 mm) around the board perimeter and 12-inch (305 mm) in the field. The gypsum wallboard joints must be back by framing. The joints and fastener heads must receive a Level 2 finish using joint tape and joint compound in accordance with ASTM C840 or GA216.
Floorline Insulation	Minimum 4-in. thick (101.6 mm) mineral wool safing pieces, with a nominal density of 4 lbs/ft^3 (64 kg/m^3) must be installed per the manufacturer's installation instructions to fit into each stud cavity at each floor line.
Exterior Sheathing	One layer of Strongwell® HS Armor Panel Glass Fiber Reinforced Polymer pultruded Ballistic sheathing panel nominal ¼-inch thick, must be secured to the framing using a ¼-inch (6.35 mm) bead of Scotch-Weld Epoxy adhesive, then fastened with No. 14 x 1½ -inch (38.1 mm) long, self-drilling TEK screws. Fasteners are spaced 12-inch (304.8 mm) on center in the field and along the perimeter of the panel. After allowing time to dry, the heads of the TEK screws were treated with Scotch-Weld epoxy adhesive and sanded flat. The sheathing panel joints must be backed by framing. The sheathing panel joints were treated with Scotch-Weld epoxy adhesive and sanded flat.
Cavity Insulation	The stud cavity insulation must be installed with Owens Corning® Thermafiber® Fiberspan® 40, with batts measuring 6-in. (152.4 mm) thick x 24-in. (609.4 mm) wide x 48-in. (1219.2 mm) long and a nominal density of 4 lbs/ft^3 (64 kg/m^3).
Intumescent Paint	The exterior sheathing and C-channel must be coated with FlameOFF® Fire Barrier Paint (FBP) (ESR-3874) following field application practices. The minimum dry film thickness (DFT) applied to the wall assembly was approximately 22.81 mils.
Window Opening	The window header was covered with 24-gauge (0.0239-in.) aluminum flashing. It had a $6\ ^7/_8$ -in. (174.6 mm) wide leg and a 2-in. leg. The 2-in.(50.8 mm) leg was attached to the studs through the interior GWB using $1\ ^1/_4$ -in. (31.75 mm) self-drilling drywall screws spaced 8-in. (203.2 mm) o.c. The $6\ ^7/_8$-in. (174.6 mm) wide leg spanned the wall assembly depth and was secured to the stud framing using No. 8- ½ -in.(215.9 mm) long, self-drilling, pancake head screws spaced a max of 10-in. (254 mm) on the header and sill, and a max of 8-in. (203.2 mm) on the jambs.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pcf = 16.01 kg/m^3.