 Specification Document

• ROK-ON™ Structural Fiberglass Reinforced Ceramic Cement Sheathing (FRCC)
• ROK-ON™ Structural Insulated Sheathing (SIS)
• ROK-ON Structural Insulated Panels (SIP)

1.01 Summary:

Section includes:
ROK-ON™ Fiberglass Reinforced Ceramic Cement Sheathing (FRCC),
ROK-ON™ Structural Insulated Sheathing (SIS)
ROK-ON™ Structural Insulated Panels (SIP)

Related Sections:

1.02 System Description:

ROK-ON™ FRCC is a structural sheathing made from a proprietary formulation of fiberglass reinforced magnesium oxide ceramic cement. Unlike OSB, the product is fire resistant, won’t support mold or mildew, is water resistant, bug-proof, freeze/thaw, and impact resistant. ROK-ON™ FRCC can be used as a structural sheathing, skirting, or as backer board for tile, counter tops etc. and competes directly with OSB, DensGlass®, Cement Board, Drywall, and Hardie® Plank, depending on the application.

It accepts direct applications of stucco, brick, stone, paint etc. No build-up. It requires no special tools or construction methods. It is fully tested, safe to use, silicate free, hyper-allergenic, inert, has no off gassing, is recyclable, and green.

ROK-ON™ Structural Insulated Sheathing (SIS) is made by laminating an EPS core between 6mm and 12mm ROK-ON™ FRCC which is attached directly to the exterior wall framing. It is a high impact structural sheathing that can be finished directly, with no additional build-up. In most cases can be used as a nail base for exterior finishes. It can be used both above and below grade.

ROK-ON™ Structural Insulated Panels are made by laminating an insect resistant EPS core between two 12mm sections of ROK-ON™ FRCC to create a Structural Insulated Panel (SIP), for the complete wall assembly. It can be used above and below grade.

Both insulated systems incorporate all of the properties of ROK-ON™ FRCC, yet provide superior insulation and value compared to competing systems.
1.03 References:

ROK-ON™ Fiberglass Reinforced Ceramic Cement Sheathing (FRCC)
ASTM E 136-09 Combustibility
ASTM E 84-05 Surface Burning Characteristics
   ANSI 2.5
   NFPA 255
   UBC 8-1
   UL 723
CAN/ULC S124 Surface Burning over Foam Plastics
ASTM C1185-08 ICC-ES-AC386 Flexural Strength
ASTM C666 Freeze / Thaw Cycling
ASTM 473-07 Humid Deflection
ASTM C1186 Dimension and tolerance
ASTM C1185-08 ICC-ES-AC386 Moisture Movement
ASTM C1185-08 ICC-ES-AC386 Water Absorption
ASTM E96/E96M Water Vapor Transmission
ASTM D1037-99 ICC-ES-AC386 Nail Pull Through
ASTM D2394 ICC-ES-AC386 Compression Indentation
ASTM D1037-99 ICC-ES-AC386 Lateral Nail Resistance
ASTM D1037-99 ICC-ES-AC386 Falling Ball Impact
ASTM E 119-08A Wall Panel fire endurance (per assembly)
ASTM E72-05 Structural Wall Assembly (Steel and Wood Stud)

ROK-ON™ Structural Insulated Sheathing (SIS)
ASTM E 136-09 Combustibility (15 min over foam plastics)
ASTM E 84-05 Surface Burning Characteristics
   UL 723
   UBC 8-1
   NFPA 255
ASTM E84-10 B Surface Burning Characteristics over foam plastics
   CAN/ULC S101
ASTM D1037-99 ICC-ES-AC386 Nail Pull Through
ASTM D1037-99 ICC-ES-AC386 Lateral Nail Resistance
ASTM D2559 Adhesive test
ASTM C271/C272 Foam Test
NFPA 285 Multi Story Fire Test

ROK-ON™ Structural Insulated Panels (SIP)
ASTM E 136-09 Combustibility (15 min over foam plastics)
ASTM E 84-05 Surface Burning Characteristics
ASTM E84-10 B Structural Insulated panel surface burning 6.5” core
ASTM E119-10A Structural Insulated panel fire endurance 6.5” core
ASTM E564/ E72 Structural Insulated panel load 4x8 6.5” core
ASTM E564/ E72 Structural Insulated panel load 4x8 8.5” core
ASTM E564/ E72 Structural Insulated panel load 4x9 6.5” core
1.03 References: (cont’d)

ASTM E564/ E72 Structural Insulated panel load 4x9 8.5” core
ASTM D1037-99 ICC-ES-AC386 Nail Pull Through
ASTM D1037-99 ICC-ES-AC378 Lateral Nail Resistance
ASTM D2559 Adhesive test
ASTM C271/C272 Foam Test

Material Data Sheet – ROK-ON™ FRCC/ Panel Systems

1.04 System Description:

Physical Properties –

**ROK-ON™ FRCC**

**BIOLOGICAL PROPERTIES:**
Rating of 0 fungus. Incubated for 28 days (ASTM G21-96)
Fungus Resistance of 10 out of 10. Incubated for 28 days (ASTM D3273)
Non-Asbestos
No known carcinogen.
Non-Toxic dust when cut.

**MECHANICAL PROPERTIES:** (ASTM E-96)
Water Resistant, even submerged will not damage the board.

**WATER ABSORPTION** (ICC-ES AC 386, ASTM C1185-08)
29.80%

**MOISTURE MOVEMENT:** (ICC-ES AC 386, ASTM C1185-08)
0.02%

**WATER VAPOR TRANSMISSION** (ASTM E-96 / E-96M-05)
2.46 Perms

**HUMIDIFIED DEFLECTION**
Requirement <0.3125 in. Achieved. 053in.

**FREEZING / THAWING:** (ASTM C 666-B), E-96
25 cycles requirement, Result 50 cycles tested with no damage

**FLEXURAL STRENGTH:** (ICC-ES AC386, ASTM C1185-08)
Dry Parallel Requirement 580 Psi Achieved 1576 Psi
Dry Perpendicular Requirement 580 Psi Achieved 2251Psi
Wet Parallel Requirement 580 Psi Achieved 1291 Psi
Wet Perpendicular Requirement 580 Psi Achieved 2041 Psi
Physical Properties – FRCC Cont’d

FLEXURAL STRENGTH: (ASTM C1325-04, ASTM C947-03)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Requirement</th>
<th>Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Parallel</td>
<td>750 Psi</td>
<td>1910 Psi</td>
</tr>
<tr>
<td>Wet Parallel</td>
<td>750 Psi</td>
<td>1763 Psi</td>
</tr>
<tr>
<td>Dry Perpendicular</td>
<td>750 Psi</td>
<td>1880 Psi</td>
</tr>
<tr>
<td>Wet Perpendicular</td>
<td>750 Psi</td>
<td>1934 Psi</td>
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</table>

NAIL-HEAD PULL THROUGH RESISTANCE OF 125 LB. ASTM D1037-06A, C1325-08

<table>
<thead>
<tr>
<th>Condition</th>
<th>Requirement</th>
<th>Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Parallel</td>
<td>&gt;90 lb</td>
<td>292 lb</td>
</tr>
<tr>
<td>Wet Parallel</td>
<td>&gt;90 lb</td>
<td></td>
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</tbody>
</table>

LATERAL NAIL RESISTANCE (ASTM D1037-99) ICC-ES AC378

<table>
<thead>
<tr>
<th>Depth</th>
<th>Requirement</th>
<th>Achieved</th>
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</thead>
<tbody>
<tr>
<td>Dry 3/8&quot;</td>
<td>90 lb</td>
<td>196 lb</td>
</tr>
<tr>
<td>Wet 3/8&quot;</td>
<td>90 lb</td>
<td>113 lb</td>
</tr>
<tr>
<td>Dry 1/2&quot;</td>
<td>90 lb</td>
<td>261 lb</td>
</tr>
<tr>
<td>Wet 1/2&quot;</td>
<td>90 lb</td>
<td>157 lb</td>
</tr>
<tr>
<td>Dry 3/4&quot;</td>
<td>90 lb</td>
<td>337 lb</td>
</tr>
<tr>
<td>Wet 3/4&quot;</td>
<td>90 lb</td>
<td>209 lb</td>
</tr>
</tbody>
</table>

IMPACT RESISTANCE, COMPRESSION INDENTATION: ICC-ES AC386, ASTM D2394-05

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>1250 Psi at 0.05 in</td>
<td>1736 Psi at 0.05 in</td>
</tr>
</tbody>
</table>

SHEAR BOND STRENGTH: ICC-ES AC386, ANSI A118.1

<table>
<thead>
<tr>
<th>Condition</th>
<th>Requirement</th>
<th>Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Set Strength</td>
<td>&gt; 50 Psi</td>
<td>53.7 Psi</td>
</tr>
<tr>
<td>Latex Portland Strength</td>
<td>&gt; 50 Psi</td>
<td>58.6 Psi</td>
</tr>
</tbody>
</table>

CHEMICAL PROPERTIES:
Will not react with salty water.
Will not react with bleach.
Contains no heavy metal salts.
Will be damaged if in contact with Hydrochloric Acid

FIRE TEMPERATURE RAISE AND FLAMING ASTM E136-09A
Rated non-combustible, temperature rise within norm and no flaming on all samples.

SURFACE BURNING CHARACTERISTICS: ASTM E-84-05
Flame Spread: 0
Smoke: 0
Test specimens never ignited. Class A rating

THERMAL PROPERTIES:
Thermal resistance $m^2K/W$ 0.46
Calculated R-Value 1.5 per $\frac{1}{2}$ inch of thickness.

TRANSVERSE LOAD Positive Pressure: ASTM E72-05

<table>
<thead>
<tr>
<th>Material</th>
<th>Load (PSF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4'x8' w/ 2x4 Steel Studs</td>
<td>237 PSF</td>
</tr>
<tr>
<td>4'x8' w/ 2x6 Wood Studs</td>
<td>260 PSF</td>
</tr>
</tbody>
</table>
**Physical Properties – FRCC Cont’d**

TRANSVERSE LOAD Negative Pressure: ASTM E72-05

- 4’x8’w/ 2x4 Steel Studs: 102 PSF
- 4’x8’ w/ 2x6 Wood Studs: 201 PSF

WET RACKING SHEAR (per assembly) ASTM E72-05

- 4’x8’w/ 2x4 Steel Studs: 7,494 LBS  936.7 PLF
- 4’x8’ w/ 2x6 Wood Studs: 5,270 LBS  658.6 PLF

QUALITY CONTROL - Manufactured under approved QC program with inspections by IAS accredited inspection agency (Intertek). Warnock Hershey Certified.

**Physical Properties –**

**ROK-ON™ SIS**

SURFACE BURNING CHARACTERISTICS: ASTM E-84-10B (30 min)
- Flame Spread: 0
- Smoke: 0
- Over foam plastic
- Test specimens never ignited.

FIRE TEMPERATURE RAISE AND FLAMING ASTM E136-09A
- Rated non-combustible, temperature rise within norm and no flaming on all samples. 30 minute test.

MULTI-STORY FIRE TEST NFPA 285 (40 min test)
- The assembly met and exceeded all requirements of the standard.

LATERAL NAIL RESISTANCE (ASTM D1037-99) ICC-ES AC378

- Dry 3/8” depth: Requirement 90 lb  Achieved 196 lb
- Wet 3/8” depth: Requirement 90 lb  Achieved 113 lb
- Dry 1/2” depth: Requirement 90 lb  Achieved 261 lb
- Wet 1/2” depth: Requirement 90 lb  Achieved 157 lb
- Dry 3/4” depth: Requirement 90 lb  Achieved 337 lb
- Wet 3/4” depth: Requirement 90 lb  Achieved 209 lb

NAIL-HEAD PULL THROUGH RESISTANCE OF 125 LB. ASTM D1037-06A, C1325-08

- Requirement >90 lb  Achieved 292 lb

QUALITY CONTROL - Manufactured under approved QC program with inspections by IAS accredited inspection agency (Intertek). Warnock-Hershey Certified.
**Physical Properties – ROK-ON™ SIP**

SURFACE BURNING CHARACTERISTICS: ASTM E-84-10 B (30 min)
Flame Spread: 0
Smoke: 0
Over foam plastic - Test specimens never ignited.

FIRE TEMPERATURE RAISE AND FLAMING ASTM E136-09A
Rated non-combustible, temperature rise within norm and no flaming on all samples.

LATERAL NAIL RESISTANCE (ASTM D1037-99) ICC-ES AC378
Dry 3/8” depth: Requirement 90 lb Achieved 196 lb
Wet 3/8” depth: Requirement 90 lb Achieved 113 lb
Dry 1/2” depth: Requirement 90 lb Achieved 261 lb
Wet 1/2” depth: Requirement 90 lb Achieved 157 lb
Dry 3/4” depth: Requirement 90 lb Achieved 337 lb
Wet 3/4” depth: Requirement 90 lb Achieved 209 lb

NAIL-HEAD PULL THROUGH RESISTANCE OF 125 LB. ASTM D1037-06A, C1325-08
Requirement >90 lb Achieved 292 lb

TRANSVERSE FLEXURAL LOAD: ASTM E72-02 / E564
4’x8’w/ 6.5” EPS Core 161 PSF
4’x8’ w/ 8.5” EPS Core 188.7 PSF

ULTIMATE AXIAL LOAD: ASTM E72-02 / E564
4’x8’w/ 6.5” EPS Core 55,741 LBS
4’x8’ w/ 8.5” EPS Core 66,246 LBS.

ULTIMATE SHEAR: ASTM E 72-02 / E564
4’x8’w/ 6.5” EPS Core 10,869 LBS.
4’x8’ w/ 8.5” EPS Core 10,863 LBS.
(per assembly)

ALLOWABLE SHEAR: ASTM E 72-02 / E564
4’x8’w/ 6.5” EPS Core 453 PLF
4’x8’ w/ 8.5” EPS Core 377 PLF

ULTIMATE TRANSVERSE FLEXURAL LOAD: ASTM E72-02 / E564
4’x9’w/ 6.5” EPS Core 182 PSF
4’x9’ w/ 8.5” EPS Core 224 PSF

ULTIMATE AXIAL LOAD: ASTM E72-02 / E564
4’x9’w/ 6.5” EPS Core 43,247 LBS
4’x9’ w/ 8.5” EPS Core 51,888 LBS.
Physical Properties – ROK-ON™ SIP Cont’d

FIRE RESISTANCE ASTM E119-08A
4’X8’ W/6.5” EPS CORE PER ASSEMBLY 2-Hour Fire Rating
4’X9’ W/6.5” EPS CORE PER ASSEMBLY 2-Hour Fire Rating

QUALITY CONTROL
Manufactured under approved QC program with inspections by IAS accredited inspection agency. (Intertek) Warnock-Hershey Certified.

1.05 Submittals

Product Data

- Material Data Sheets ROK-ON™
- Material Data Sheets Foam Mfg.
- Material Data Sheets Adhesive Mfg.
- Test Results - Intertek
- ROK-ON™ SIP Installation and Reference Manual
- ROK-ON™ Product Brochure
- ROK-ON™ Warranty document

1.06 Quality Assurance

ROK-ON™ has earned the right to have the Warnock Hershey Mark from Intertek. It is stamped on every board produced. The Warnock Hersey Mark (WH) is North America’s leading product safety and performance mark for building and construction products.

This certifies ROK-ON™ as non-combustible (ASTM-136) and that it has passed Intertek’s stringent independent quality control specifications. All ROK-ON LLC products are subject to a quality audit process by Intertek that is monitored quarterly. Product must meet specifications above to be stamped by Intertek.
1.07 Delivery Storage and Handling

Ordering: Comply with manufacturer’s ordering instructions and lead-time requirements to avoid construction delays.

Off-load products from truck and handle using forklift or other means to prevent damage.

All ROK-ON™ products should be stored horizontally and shall be fully supported in storage and prevented from contact with the ground. Stack on pallets or on supports at a maximum of four feet on center.

All products shall be fully protected from weather. Protect against exposure to rain, water, dirt, mud, and other residue that may affect performance. Cover with breathable protective wraps. Products shall be stored in a protected area.

Wear approved eye protection and dust mask when cutting.

1.08 Warranty

ROK-ON™ is warrantied against product defects and workmanship for a period of 20 years. Warranties concerning the installation of the material are solely the responsibility of the applicator / contractor. See warranty information.

PART 2 - PRODUCTS

2.01 Manufacturers, suppliers, and Certified Distributors.

ROK-ON™. 1033 B Ave #125 Coronado, Ca. 92118 775-750-2142

SIS/SIP Plant Addresses:

Ensenada, Mexico
Km 103.7 Carretera Ensenada – Tecate
Lomas De Sauzal
Ensenada, BC 22760 Mexico

Calgary, Alberta Canada
9500 Endeavor SE
Calgary, Alberta
T3H 3C8
Distributors:

Energeo Construction Solutions
717 Florida Ave.
Panama City, Florida 32401
850-625-3061

Shell Building Systems
3867 Cornell Dr.
Oceanside, Ca. 92506
760-994-8369

Code Building Systems
9500 Endeavor SE
Calgary, Alberta Canada
T3H 3C8
403-200-4684

Permanent Building Solutions
60 Woodlake Ct.
Edmonton, Alberta Canada
T8A4C1
587-336-3888

2.02 Materials

SIS consist of the following:
1. 12mm ROK-ON™ FRCC.
2. 6mm ROK-ON™ FRCC
3. Certified EPS core complying with ASTM C 578 standard. (Third party foam mfg.to supply testing documents)
4. Adhesives shall be in conformance with ICC ES A05 – Acceptance criteria for sandwich panel.

SIPS consist of the following:
5. 12mm ROK-ON™ FRCC.
6. Certified EPS core with insect resistant treatment, complying with ASTM C 578 standard. (Third party foam mfg.to supply testing documents)
7. Adhesives shall be in conformance with ICC ES A05 – Acceptance criteria for sandwich panel.
2.03 Panel Types

ROK-ON™ SIS (4’x8’)

- Thickness: 2.75”
- Weight: 120 lbs
- EPS Core (1# Density): 2”
- R-Value: R-10

ROK-ON™ SIP

4’x8’

- Thickness: 6.5”
- Weight: 150 lbs
- EPS Core (1# Density): 5.5”
- R-Value: R-24

4’x8’

- Thickness: 8.0”
- Weight: 170 lbs
- EPS Core (1# Density): 7.5”
- R-Value: R-32

2.04 FABRICATION - FASTENERS

Connection and Fastenings

ROK-ON™ accepts common fasteners. Pneumatic tools are recommended. See ROK-ON™ product guides for specifications.

ROK-ON™ Panels are connected to steel frame using 3 1/2" # 12 Galvanized Self-Tapping Counter-sinking screws w/ Nibs. See Installation guidelines for screw pattern, window, and opening details.

ROK-ON™ SIP panels are put together using lumber or steel plates and splines. Panel joints must be structurally fastened to ensure integrity of the system. 2.5” Galvanized “T” Nails, 3” 10 D Hot Dipped Galvanized Nails and / or 3” bugle head ACQ screws every 6” on center, industrial foam adhesives and suitable adhesives/caulking fasten and seal wall sections. Please read over the manual and attached drawings or consult manufacturer for instructions.
Part 3 - EXECUTION

3.01 Job Conditions

ROK-ON™ FRCC and SIS systems can be installed over steel or wood studs, above or below grade. See ROK-ON™ FRCC or SIS installation details.

3.02 Installation

Refer to the Manufacturer’s latest recommendations guidelines for installation, fastening, cutting, finishing, and maintenance.

Contact ROK-ON™ for questions
Richard Chase
262-893-8082

END