ROK-ON™
Building Systems

ROK-ON™ Building Systems Overview

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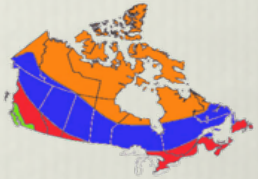
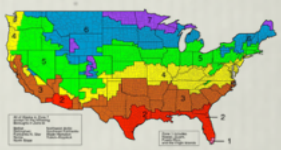
The Times Have Changed:
Construction Industry Trends

Significant Trends in the Construction Industry

- Enormous pressure on margins across the entire supply chain.
  - Competition is fierce. Price selling, not value selling has become the norm.
  - Skilled labor is becoming more and more difficult to find. As a result, labor rates have increased at a time when pricing pressure is at it's greatest.

- New code mandates around energy, fire, and health performance are making construction more complex.
  - 2015 IECC energy codes essentially require continuous insulation outside the wall in addition to cavity insulation to meet the requirements.
  - Recent fires around the world are leading to a push towards non-combustible external wall assemblies and steel framing.
  - Mold has replaced asbestos as the most litigated issue in construction.
  - These trends will continue to make construction more complex and expensive, yet these costs are having to be absorbed by the GC.





Significant Trends in the Construction Industry

- Moisture management is being code mandated, increasing the use of rainscreen assemblies in walls.
  - Air/water barriers increasingly being added to sheathing (DensElements®, Zip Wall®, Dow Thermax®)
  - Rainscreen cladding attachments systems and installation can cost more than the cost of the rest of the wall. (Knight® Wall System) (~$20 psf)

- Prefabrication is gaining momentum.
  - Lack of skilled workers for on-site construction.
  - Results in better quality of construction.
  - Significant reduction of construction timeline increasing ROI for GC and building owner.

- Building code requirements for fire, energy and moisture management will continue to evolve.
  - Ongoing pressure on the supply chain to provide affordable solutions.

ROK-ON™ Building Systems
A Materials Science Company

As our company looked at the emerging trends, our approach was to design building systems around the needs, not around existing products or manufacturing.

- Product manufacturers *are* addressing the new code changes, but most are doing so by adding layers to their existing products.
  - They are unwilling to obsolete their manufacturing infrastructure or large profit centers.
  - As a result, they are adding layers to existing products to meet the codes.
  - This is adding additional costs and labor to the building envelope that is hard to pass off to the end user, creating even more margin pressure across the entire supply chain.

Our goal was to simplify the construction process, with products that can exceed the codes, can be installed in a fraction of the time, at a lower cost than traditional assemblies.

Better – Faster –Lower Cost

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Our Answer:

ROK-ON™ Structural Insulated Sheathing




Current Solutions

- Complex multiple-layered assemblies.
- Multiple trips around building to install.
- Difficult to prefabricate.
- Expensive cladding attachment systems.
- None alone can meet fire and energy requirements.

Zip Wall®

- Only good to 3 stories.
- Does not meet updated fire codes.
- Relies upon cladding for fire performance.

Roxul®

- Mineral Wool is not a nail base.
- Requires multiple layers.
- Cladding attachment systems can cost $20 psf installed.

Dow Thermax®

- Not Structural.
- Requires multiple layers.
- Cladding attachment systems can cost $20 psf installed.

EIFS

- Up to 11 layers/trips around building.
- Relies upon stucco for fire performance.
- Poor long-term performance.

ROK-ON™ Structural Insulated Sheathing (SIS)

ROK-ON™ Fiberglass Reinforced Ceramic Cement board (FRCC) is laminated to an insulated core to produce a structural insulated sheathing.

- Non-combustible
- Will not rot
- Will not support mold or mildew
- Water resistant
- Impact resistant
- Bug-proof

- Installed using normal tools and trades
- Attaches directly to framing
- Impact resistance makes it ideal for prefabrication
- Structurally very strong
- Accepts and holds fasteners
- Accepts direct applications of most architectural finishes

Current Solutions

1. Framing
   - Typically 18 ga. or less.

1. Sheathing (DensGlass®, OSB, etc.)
   - Needs protection from fire, water or both.

2. Air/Water Barrier (Soprema®, Tyvek® etc.)
   - Lots of options. Peel and Stick/ Fluid Applied.

3. Insulation (Foam, Mineral Wool)
   - Codes mandating use of CI to meet requirements.
   - None provide a base for attachment of cladding forcing the use of a cladding attachment system.

4. Cladding Attachment System (Knight®)
   - Typically from expensive materials - stainless.
   - Expensive.
   - Time consuming to install.

Most wall assemblies are made from dissimilar materials, from different companies, which require multiple layers to install. This increases the cost and time to completion. Multiple trips around building increases scaffolding/crane time expense.

EXPENSIVE - TIME CONSUMING

ROK-ON™ Structural Insulated Sheathing

1. Framing
   - Strength of panel can potentially reduce steel gauge or depth needed.

1. Attaches directly to framing in lieu of traditional sheathing
   - Non-combustible. Water resistant

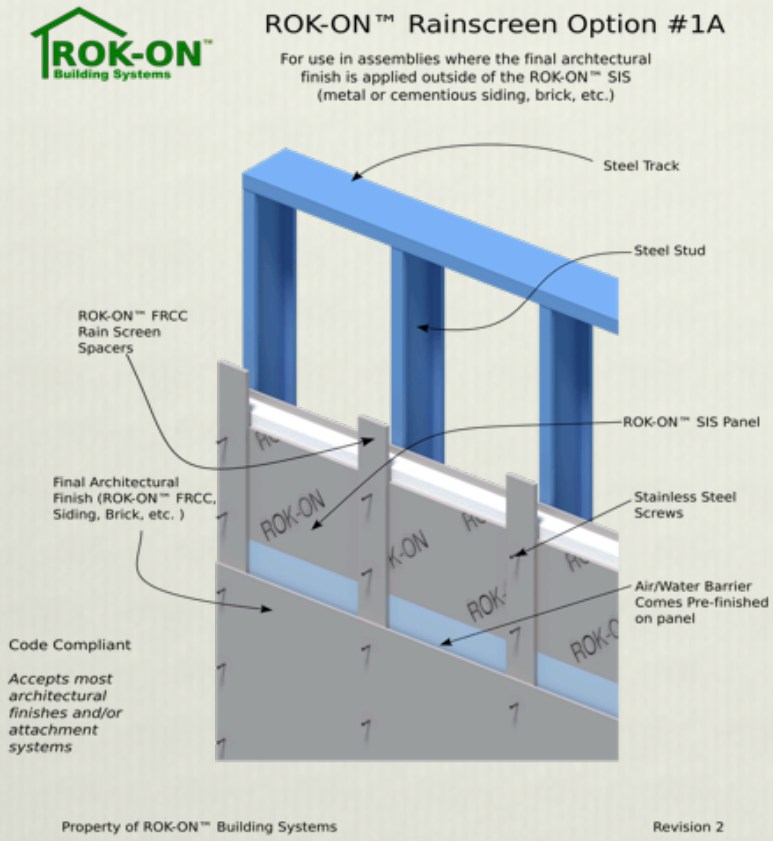
2. Panel is already insulated.
   - R-10.5.

3. Unlike conventional systems, the structural sheathing is on the outside of the assembly.
   - Impact resistant. Perfect for Prefabrication.
   - Adds significant strength to wall.

4. The panel accepts direct applications of architectural finishes
   - Can accept and hold fasteners for cladding/brackets
   - Can be finished directly with stone or brick veneers, stucco, etc.

Better – Faster – Lower Cost

ROK-ON™ Structural Insulated Sheathing



Requires no special tools or trades to install.

Attaches directly to framing.

Eliminates multiple trips around the building to install code compliant envelope.

Better – Faster – Lower Cost

Fully tested to meet all applicable 2015 IBC building codes.

NFPA 285 - exceeded criteria by 30% 0 flame/0 smoke. /ASTM E 84 – 0 flame/0 smoke / ASTM E136 – non combustible.
ASTM E 119 – 2-hour rated rainscreen assembly.

IBC Code Compliance

Chapter 7 – Fire resistant rated construction
Chapter 16 – Structural transverse wind loads resistance
Chapter 26 Types I-IV (non combustible)

Energy Standards Performance

Exceeds 2015 IECC and ASHRAE 90.1 for energy performance. Eliminates thermal bridging. A typical panel is 2.75” thick, and provides R10.5.

Structural Capability. ROK-ON™ can help reduce the steel gauge needed for construction.

Dew point remains outside the wall cavity. 9 layers of moisture protection in the system. Superior water resistance.

Tremendous architectural flexibility. ROK-ON™ can accept direct application of finishes (stone or brick veneer, metal panels, stucco, etc.)

Full Quality Control

$10 million per occurrence product liability policy in place.

ROK-ON™ Structural Insulated Sheathing
Fire Performance

- Fire code compliance is becoming more important as buildings go up and not out.
- Recent construction fires of large multi-family structures in California, New Jersey and Calgary are forcing more stringent fire codes across the board
- ROK-ON™ SIS is superior in fire performance.
- Low heat transfer protects framing members in case of a fire.
- ROK-ON™ Rainscreen assembly (with battens) compartmentalizes and prevents the lateral spread of a fire.
- Fully tested to ASTM, UL, and CAN/ULC standards. Fully code compliant.

Benefits for the *Architect*

- Completely developed exterior wall system that can help the architect provide their client with a superior building envelope at a price that is among the lowest cost alternatives in the marketplace.

- The system can take weeks or months off the construction cycle leading to earlier occupancy. The increased revenue can actually help offset the cost of the envelope leading to a lower overall cost and better ROI for the client.

- The system exceeds the 2015 ICC IBC and IRC codes, with superior performance. Fully tested to meet all of the applicable building codes in North America.

- Design flexibility. ROK-ON™ can accept most exterior finishes with little or no modification to existing plans.

- Significant projects in place. Passed the test of the owner, architect, builder, and code officials.
  - These include projects for companies like Skanska, Mortenson, PCI, Bouten, the Dept. of Defense and more.
  - Financial models are proven.

- Completely developed details.

Benefits for the *Building Owner*

- *<u>Less steps directly allows for quicker occupancy</u>* for the building owner, regardless of the building type.
  - For a full-service hotel, getting in just 60 days early can offset the cost of the entire envelope!
  - Quicker occupancy significantly increases the ROI.
- Other Benefits
  - Better energy performance leading to reduced energy costs over time. (Typical R29 vs. R20)
  - Lower overall maintenance costs.
  - Competitively priced to EIFS, (among the lower cost alternatives) with *much* better performance.
  - Architectural flexibility in design.
  - Tremendous fire performance.

Benefits for the *GC / Builder*

- Large potential labor savings.
  - Less steps means lower labor costs to install relative to competing systems.
  - With modular construction, able to convert $65/hr. union labor to $20/hr. factory cost. (Chicago market)
- Scaffolding costs can be eliminated, or significantly reduced.
  - Scaffold installation and rental can add as much as $4 - $5 psf to install external wall assembly.
  - ROK-ON's™ fewer steps leads to faster completion and significant savings.
  - With a prefabricated wall, scaffolding can be eliminated altogether.
- Can take weeks / months away from the construction cycle.
  - Can lead to better ROI.
  - Allows flexibility in "critical path" timelines.
- Can be constructed and pre-finished in a modular environment. Better quality control.
- The system performance will lead to fewer call-backs and maintenance.

Traditional EIFS system
(Took weeks just to install the scaffolding)

ROK-ON™ prefabricated walls being installed
(Expansion completely enclosed in 4 working days)

LAM Research® Expansion
Portland, Oregon

- Skanska Construction project.
- Prefabricated wall assemblies by Performance Contracting Inc.
- Scheduled Completed April 2017

- Red iron structural frame with 18 ga. curtain wall. ~17,000 sq. ft. of wall.
- Full brick and metal siding exterior.
- 1-hour fire rated assembly required.
- Prefabricated wall assemblies constructed off-site, with air/water barrier installed – Ready to finish
- Wall assemblies were up 22'+ high and 10' to 12' wide. Easily transported and craned into place.
- Total prefabricated wall assembly installation - 7 days. (including some on-site fabrication) 4 days to enclosure!
- ROK-ON™ SIS had over two times the fastener pull-out requirement for wind loading than required for the metal siding. Allows siding to be attached to ROK-ON™ rather than the frame, speeding up completion.
- 50% better energy efficiency - R30 vs. R20.

Residential Construction
Southwest Georgia

Completed by SSGNA

868 sq. ft.

Designed as "Net Zero" structure

- ROK-ON™ structural insulated sheathing installed as exterior walls and roof sheathing of project.
- Flexible wall designs can enable "house in a box" business model.
- Extremely repeatable.
- ROK-ON™ 's strength allows for easy transportation to job site.
- Extremely fast construction cycle.
- Superior performance - Net Zero, non-combustible, will not rot, will not support mold, impact resistant and bug-proof!
- Accepted direct applications of stucco finishes (stucco/veneers/siding/etc.)

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ROK-ON™ Qualifications




ROK-ON™ Qualifications

- All of our products are fully tested to meet the 2015 edition of the IBC codes. 72 separate ASTM tests completed. Fully code compliant.
- We own and operate our own manufacturing plants with significant capacity to meet growth needs.
- We have a fully integrated quality control process in our plants.
- Our products come with a 20-year warranty.
- We provide ***a $10 million per-occurrence product liability insurance,*** a requirement for most projects***.***
- We have passed the due diligence with architects/engineers, building code officials, GC's, and owners on significant commercial and residential projects, across North America
- We provide in-house engineering and technical support with both a structural engineer and architect on staff.

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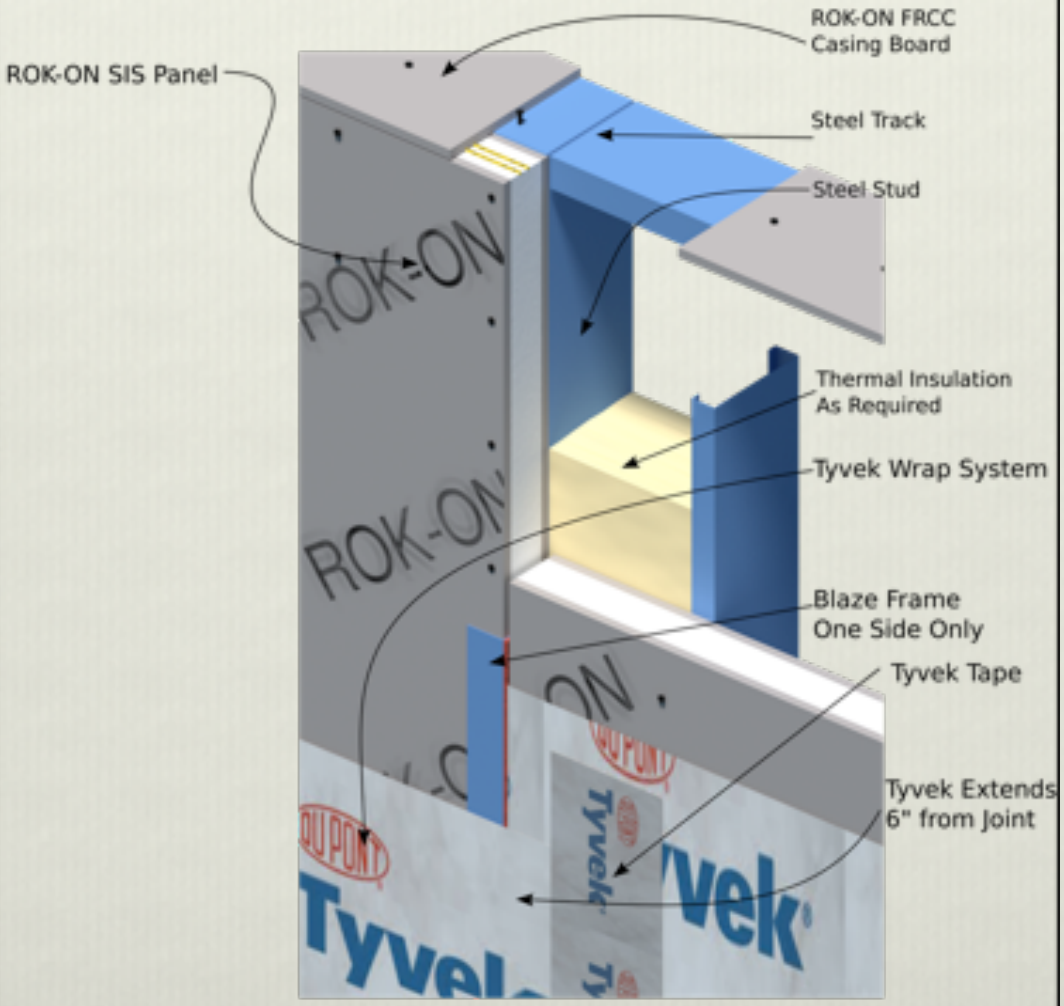
ROK-ON Assembly to Assembly Joint Details

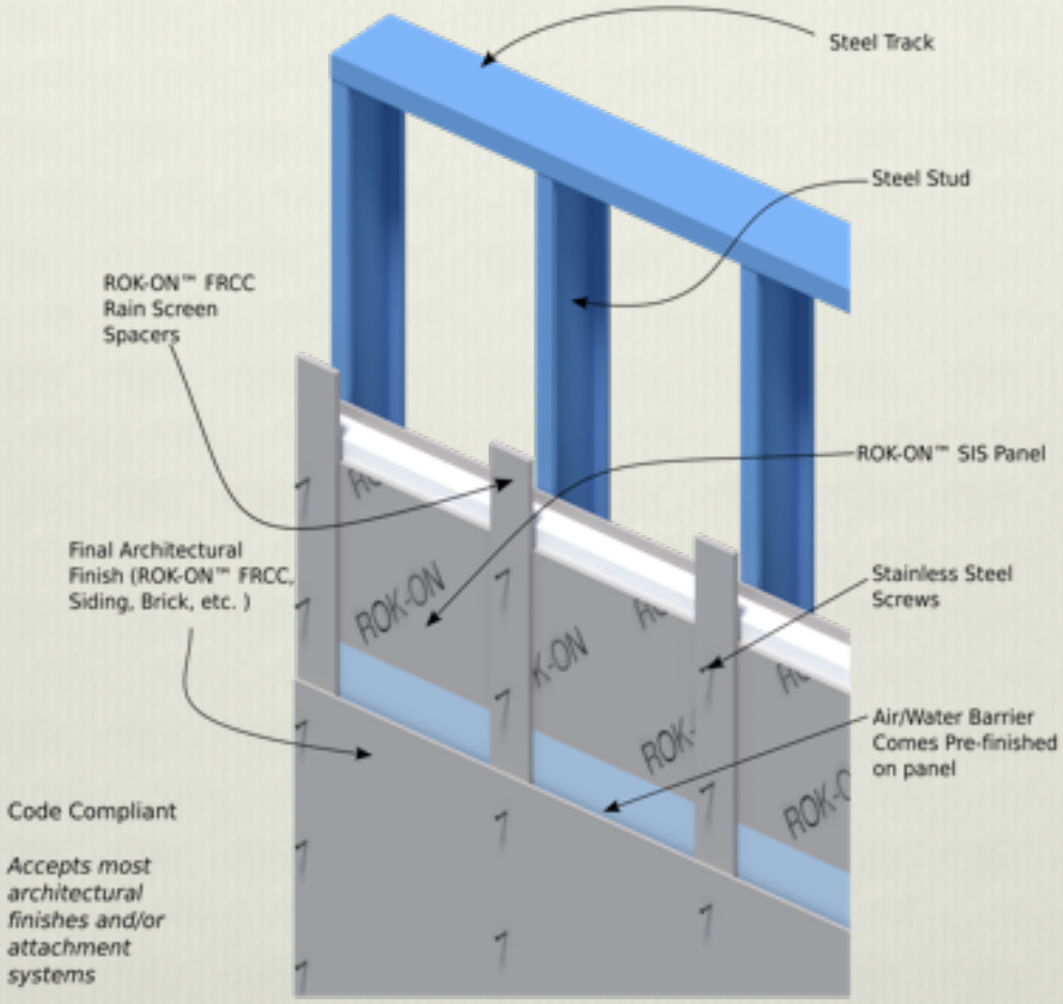
Tyvek® for Demonstration only



Revison 3

ROK-ON™ Rainscreen Option #1A

For use in assemblies where the final archtectural finish is applied outside of the ROK-ON™ SIS (metal or cementious siding, brick, etc.)



Code Compliant

Accepts most architectural finishes and/or attachment systems