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ROK-ON™ Structural Insulated Sheathing Structural Properties

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This document is a summary of the test results conducted on the ROK-ON™ Structural Insulated Sheathing (SIS) conducted by the University of Texas under the command of Professor Cheng Yu, PhD (Member of the AISI Committee on Framing Standards). Actual test reports are available upon request.

0.1. ROK-ON™ Description

ROK-ON™ structural insulated sheathing is a 2.75” thick laminated panel comprised of an inner sheet of a 6mm fiberglass reinforced ceramic cement board (FRCC), an outer sheet of a 12mm FRCC board, laminated using adhesive to a 2” EPS core. The panel is non-combustible, will not rot, will not support mold or mildew, is water resistant, impact resistant and bug-proof. It is cut and installed using normal tools and trades and contains no harmful ingredients.

ROK-ON™ SIS is attached directly to wood or steel framing, cement, or cement block and can be used as a structural element for shear and wind loading.

0.2. Testing Summary

The following tests were completed by the University of North Texas to the ASTM standards referenced in the 2015 IBC Building code for structural performance.

- ASTM E 564-06 “Standard Practice for Static Load Test for Shear Resistance of Framed Walls for Buildings.”
- ASTM E 2126-11 “Standard Test Methods for Cyclic (Reversed) Load Test for Shear Resistance of Vertical Elements of the Lateral Force Resisting Systems for Buildings.”
- ASTM E72-15 “Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.”

0.3. General Design Considerations

ROK-ON™ SIS may be used to resist transverse wind loads and may be used as components of conventional light framed walls for resisting shear loads when considering the tested results of ROK-ON™ SIS in relation to the load and resistance design parameters outlined in the 2015 IBC and IRC codes.

0.4. ROK-ON™ Design Considerations Based on Testing

- Out of plane movement is restrained and should be prevented in the design of shear walls.
- The connection of the wall tracks to the diaphragms is such that it will be able to transfer the loads stated in this document.
- Anchors preventing lift shall be installed on the corner ends of the wall design.
- Transverse loading has the ROK-ON™ panel in compression.
- The results are given in “ULTIMATE values and not in “design” values.

0.5. Transverse Load

The test setup and procedure for the transverse load tests followed the ASTM E72-15 “Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.”

Test Assembly	Stud	Track	ROK-ON™ Panel	ROK-ON™ Screw	Drywall Screw
A	350S150-33	350T150-43	Panel on compression side of frame	Flat Head #12x3 1/2” 6” spacing on tracks 12” spacing on studs	Flat Head #6x1 5/8” -12” spacing on studs and tracks
B	350S150-43	350T150-43	Panel on compression side of frame	Flat Head #12x3 1/2” 6” spacing on tracks 12” spacing on studs	Flat Head #6x1 5/8” -12” spacing on studs and tracks
D	550S150-43	550T150-43	Panel on compression side of frame	Flat Head #12x3 1/2” 6” spacing on tracks 8” spacing on studs	Flat Head #6x1 5/8” -12” spacing on studs and tracks

The average ULTIMATE value for the Transverse load according to the particular frame assemblies are the following:

A	350S150-33 350T150-33	183.1 lbs./ft.
B	350S150-43 350T150-43	261.2 lbs./ft.
D	550S150-43 550T150-43	517.2 lbs./ft.

0.6. Shear Loads

The test setup and procedure for the monotonic loads was conducted to the ASTM E 564-06 “Standard Practice for Static Load Test for Shear Resistance of Framed Walls for Buildings.”

The test setup and procedure for the cyclic tests was conducted to the ASTM E 2126-11 “Standard Test Methods for Cyclic (Reversed) Load Test for Shear Resistance of Vertical Elements of the Lateral Force Resisting Systems for Buildings.”

The test assembly is as follows:

Test Protocol	Stud	Track	Framing Connection	Drywall Screw	ROK-ON™ Screw
Monotonic/ Cyclic	50 KSI 350S162-33	50 KSI 350T150-43	#10×3/4” modified truss head screws	#6×1 5/8” drywall screws spaced 12” o.c.	12×3 1/2” SDS screws spaced 4” on tracks, 12” on studs

06.1. Monotonic Loading:

The procedure of the monotonic tests was in accordance with ASTM E564-06 “Standard Practice for Static Load Test for Shear Resistance of Framed Walls for Building”

The average ULTIMATE value for the Monotonic according to the testing is 831 lbs./ft.

For perspective the published DensGlass® Fireguard® ULTIMATE VALUES FOR sheathing are 540 lb./ft. (1/2”) and 640 lb./ft. (5/8”) on 18-gauge framing.

0.6.2. Cyclic Loading:

The cyclic tests used the CUREE protocol specified in ASTM E2126-11 “Standard Test Methods for Cyclic (Reversed) Load Test for Shear Resistance of Vertical Elements of the Lateral Force Resisting Systems for Buildings”

The average ULTIMATE value for the Cyclic Shear test is 943 lbs./ft.

0.6. Disclaimer

The information provided in this document is in agreement with physical testing conducted on ROK-ON™ SIS and is provided as an aid for the design team, but by no means substitutes professional designs or details for actual construction and thus all responsibility of its use relies solely on the design team.

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