





WHY CHOOSE R-STUD®?

Higher limiting wall heights	R-stud's have a higher limiting wall height than a generic steel stud of the same gauge/thickness. This translates into the ability of the designer to use either a lighter gauge R-stud than a generic stud or to space the studs at 24" on center instead of 16" on center. Simply enter the desired wall height and load factors into our on-line stud calculator and see the difference between an R-stud and a generic (SSMA type) stud.
Thermal Performance	With more emphasis being put on building performance, R-stud is the only steel stud that provides a 40 percent reduction in thermal bridging over the generic steel stud. See our thermal performance test conducted by RDH Building Sciences here .
Lower Sound Transmission	Acoustical tests prove R-stud's performance to be significantly higher than generic steel studs. R-stud eliminates the need for extra layers of gypsum or resilient channel to attain STC (sound transmission class) This translates into lower cost of construction and because the wall assembly takes up less space (less gypsum and/or RC) there is more marketable square footage in the buildings that use R-stud.
More Sustainable	R-stud is eco-friendly from production through construction. R-studs are made from 34 percent recycled steel. They provide superior strength with thinner gauge steel, meaning 18 percent less raw material compared to a generic steel stud. When a generic steel framing stud needs to be 16" o.c., the R-stud allows for 24" o.c. Walls built with R-studs use less gypsum and still get better STC ratings than with a traditional steel framing stud. Less waste on the jobsite because the contractor is cutting less gypsum. Fewer deliveries of gypsum board. Less taping. Fewer screws. Fewer inspections. Less fatigue for the drywall installers. Faster delivery of the project. <u>LBC Red-List free</u> .
Lean Construction	The use of the R-stud embraces the Lean construction approach. When R-studs are used on a building there are less studs needed to be delivered to the job site, walls are built faster due to less studs needed, less gypsum needed for walls and subs can install utilities faster because of the large supplemental flanges built into each stud. And there will be less wasted material to dispose or recycle. All these features help any construction job meets its Lean goals.
Cost	In almost all cases, R-stud wall assemblies save money, add floor plate, reduce schedule. By using lighter gauge studs, increasing floor plate, reducing "layers", increasing stud spacing. R-stud offer greater spanning capacity at thinner gauges. This also adds thermal and acoustical benefits that are over and above the increased performance provided by the stud design itself.







Code Compliance Research Report CCRR-1073

Re-Issue Date: 01-01-2017
Renewal Date: 01-01-2018

Valued Quality. Delivered.

DIVISION: 05 00 00 – METALS
Section: 05 40 00 – Cold-Formed Metal Framing

DIVISION: 09 00 00 – FINISHES
Section: 09 22 16.13 – Non-Structural Metal Stud Framing

REPORT HOLDER:
R-Stud, LLC
16869 SW 65th Avenue
Lake Oswego, OR 97035
(503) 462-3990
www.rstud.com

REPORT SUBJECT:
R-Stud Steel Framing Members

1.0 SCOPE OF EVALUATION

This Research Report addresses compliance with the following Codes:

- 2015 and 2012 *International Building Code* (IBC)
- 2015 and 2012 *International Residential Code* (IRC)

R-Stud has been evaluated for the following property:

- Structural

2.0 USES

R-Stud cold-formed steel framing members (studs and tracks) recognized in this report are used for framing of interior non-loadbearing wall assemblies that are gypsum wallboard sheathed.

3.0 DESCRIPTION

3.1 General:

3.1.1 The R-Stud members that are recognized in this report are limited to the products whose designations are found in Table 1.

3.1.2 R-Stud steel framing members are fabricated from Nonstructural Grade 50 (NS50) in accordance with ASTM A1003 steel specifications. Members have a minimum protective coating of G40 galvanization conforming to ASTM A653.

3.1.3 R-Studs are available in steel thicknesses of 0.0230 in. and 0.0347 in. for framing members in

depths of 3-5/8 in. and 6 in., respectively. See Figure 1 for profile details.

3.1.4 Track thicknesses and widths correspond to the stud dimensions. See Table 2 for recognized product designations.

3.1.5 Studs are manufactured with web openings, spaced every 12 in. on center throughout the stud length and shall not be located within 1 in. of the end of the stud. Web openings are as indicated in Figure 2.

3.1.6 Fasteners for attachment of gypsum wall board to 3-5/8 in. framing shall be #6 by 1-5/8 in. long, bugle-head phosphate fine thread drywall screws. For 6 in. framing, fasteners shall be #6 by 1-5/8 in. long, bugle-head zinc tek point drywall screws. All drywall screws shall comply with ASTM C1002. Fasteners are spaced a maximum of 12 in. on center for 24 in. stud spacing.

3.1.7 Gypsum wallboard shall be Georgia Pacific ToughRock Fireguard 5/8 in. thick Type X gypsum, manufactured complying with ASTM C1396.

3.2 Performance Characteristics:

3.2.1 R-Stud members recognized in this report are used in interior non-loadbearing wall assemblies, and shall be limited to interior installations where the superimposed axial load is zero pounds.

3.2.2 Allowable design loads shown in Table 2 were established by using test data obtained from testing of composite walls (i.e. gypsum wallboard-sheathed walls) conducted in accordance with ICC-ES AC86.

3.2.3 Non-loadbearing wall heights are limited by the lesser of the following: wall deflection; shear strength, web crippling strength, or flexural strength of the stud.

4.0 INSTALLATION

R-Stud framing members must be installed in accordance with the manufacturer's published installation instructions, the applicable Code, and this Research Report. The manufacturer's published installation instructions and this Research Report must be strictly adhered to, and a copy of the instructions must be available on the jobsite during installation.

CERTIFICATE OF COMPLIANCE

Certificate Number 20180601-R39364
Report Reference R39364-20180530
Issue Date 2018-JUNE-01

Issued to: R-Stud LLC
10580 Donald Rd NE,
PO Box 501
Donald OR 97020

**This is to certify that
representative samples of**

FRAMING MEMBERS

channel-shaped steel studs designated "R-Stud" and
channel-shaped steel track designated "R-Track" intended
for use in wall assemblies..

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety:
Additional Information:

UL 263 - Fire Tests of Building Construction and Materials
See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's
Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program
UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please
contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



Construction and assembly of details for the 2 hour fire resistance evaluation of R-stud steel framing studs in accordance with UL263.

This plan provides for the testing of U425-type construction with the R-stud steel framing assembly supporting the gypsum wallboard membranes.

Result: PASSED

- Lighter (less steel)
- Stronger (greater LWH)
- Quieter (higher STC)
- Warmer (less thermal bridging)



















REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Order No. 102332762

Date: November 6, 2015

REPORT NO. 102332762CRT-001f

SOUND TRANSMISSION LOSS TEST AND CLASSIFICATION ON A WALL ASSEMBLY #6

RENDERED TO

SAGE MANUFACTURING, LLC
16869 SW 65th #303
LAKE OSWEGO, OR 97035

INTRODUCTION

This report gives the results of a Sound Transmission Loss test and the determination of the Sound Transmission Class on a wall assembly #6. The test wall was constructed by Intertek using materials supplied by the client. The materials were received at the laboratory on October 16 and November 2, 2015. The materials appeared to be in a new, unused condition.

AUTHORIZATION

Signed Intertek Quotation No. Qu-00650720.

TEST METHOD

The specimen was tested in accordance with the American Society for Testing and Materials designation ASTM E90-2009, "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions", and classified in accordance with the American Society for Testing and Materials designation ASTM E413-2010, "Classification for Rating Sound Insulation".

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program. Measurement uncertainty budgets have been determined for applicable test methods and are available upon request.



MINERAL WOOL (Thermafiber, Roxul)



R-stud®

1 + 1 Type X GWB

Thermafiber/Roxul

50 STC



R-stud®

1 + 2 Type X GWB

Thermafiber/Roxul

52 STC



R-stud®

2 + 2 Type X GWB

Thermafiber/Roxul

55 STC

FIBERGLASS (Owens Corning)

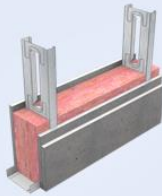


R-stud®

1 + 1 Type X GWB

Owens Corning

49 STC

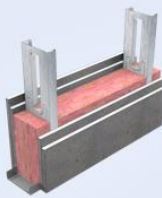


R-stud®

1 + 2 Type X GWB

Owens Corning

51 STC



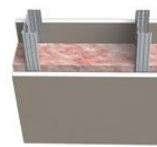
R-stud®

2 + 2 Type X GWB

Owens Corning

54 STC

FIBERGLASS (Owens Corning)

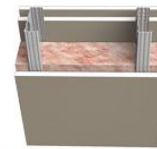


***conventional stud**

1 + 1 Type X GWB

Owens Corning

41 STC



***conventional stud**

1 + 2 Type X GWB

Owens Corning

44 STC



***conventional stud**

2 + 2 Type X GWB

Owens Corning

45 STC

TO Mr. Patrick Lucas
EMAIL Patrick@rstud.com
R-stud, LLC
16869 SW 65th Ave. #303
Lake Oswego, OR, 97035

10935.000
R-stud Thermal Testing

DATE February 13, 2017

REGARDING **Thermal Performance Testing of the R-stud Steel Stud System**

Dear Mr. Lucas,

RDH Building Science Inc. (RDH) is pleased to provide you with this report for thermal performance testing of the R-stud system using a guarded hot plate apparatus.

1 Introduction

1.1 RDH Testing Overview

It is widely understood that industry standard steel studs significantly reduce the thermal performance of a wall system using insulation in the stud cavities. R-stud LLC has developed a new stud that has improved thermal performance.

RDH Building Science Inc. (RDH) was retained by R-stud LLC to perform physical thermal performance testing of the R-stud thermally improved steel stud system using our modified ASTM C177 compliant large scale guarded hot plate apparatus. The purpose of the testing was to quantitatively measure the thermal performance of the components of the R-stud system with relation to steel studs typically used in the industry.

R-stud's thermally improved stud and track were tested as part of a mock-up wall assembly comprising interior gypsum board, insulation, and exterior gypsum board. Testing was also conducted on an assembly without a stud and an assembly with a standard steel stud to allow for comparison against the R-stud system. The effect of using batt insulation versus using blown insulation was also evaluated.

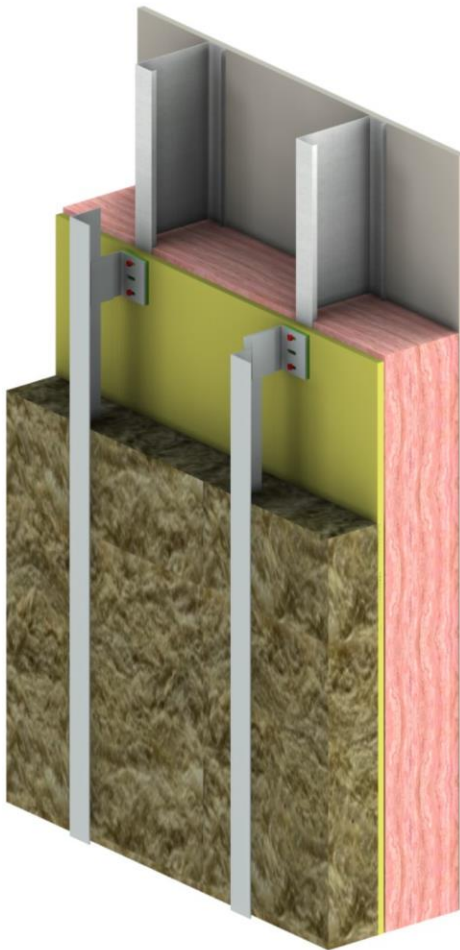
1.2 Background

A steel stud penetrating the cavity insulation layer of a wall assembly creates a significant thermal bridge because steel is approximately one hundred times more thermally conductive than insulation. ASHRAE 90.1 estimates that the effective framing/cavity R-value with 6" steel studs and a 16" on center spacing is R-7.4 when used with R-21 insulation in the cavity.

The U-value of an assembly containing thermal bridges can, in a general sense, be predicted using the following equation (ISO 10211, ISO14683)

$$U = \frac{\sum (\Psi \cdot L) + \sum (\chi \cdot n)}{A_{Total}} + U_o$$

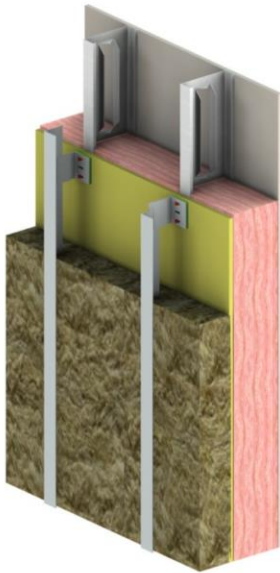
Thermal Performance of Nvelope System with R-19 Batt



Presented to:

SFS Group USA
1045 Spring Street
Wyomissing, PA 19610

3.2 Case 2: Clear Field Thermal Performance of Split Insulated Steel Stud Assemblies with Nvelope System with R-19 Batt and R-studs



The thermal transmittance U-value results of the Nvelope System with the R-stud steel stud backup wall with R-19 batt, as shown in Figure 4, are presented in Table 2.

The results include the same conditions as Case 1 for direct comparison. This includes the spacing of the clips ranging from 24" to 48" vertically and 16" o.c. horizontally. The same varying levels of exterior mineral wool insulation (R-4.2 per inch) are presented. The results include 6" (152 mm) R-stud steel studs spaced at 16 o.c. and ½" exterior sheathing and interior drywall. "Effective" R-values are given in Table C.2 in Appendix C.

Figure 4: Case 2: Split Insulated Steel Stud Wall Assembly with Vertical Girts and R-19 batt insulation with R-stud slotted steel studs

Table 2: Thermal Transmittance U-values for Split Insulated Steel Stud Wall with Nvelope System and R-19 Batt Insulation in Stud Cavity and R-studs (Case 2)

Exterior Insulation Thickness (in)	Exterior Insulation Nominal R-Value ³ hr-ft ² ·°F/BTU (m ² K/W)	Interior Insulation Nominal R-Value hr-ft ² ·°F/BTU (m ² K/W)	Effective Assembly U-Value BTU/hr-ft ² ·°F (W/m ² K)		
			24" Vertical Clip Spacing	36" Vertical Clip Spacing	48" Vertical Clip Spacing
1.5	R-6.3 (1.11)	R-19 (3.35)	0.051 (0.291)	0.050 (0.285)	0.050 (0.283)
2	R-8.4 (1.48)	R-19 (3.35)	0.048 (0.271)	0.046 (0.263)	0.046 (0.26)
3	R-12.6 (2.22)	R-19 (3.35)	0.043 (0.243)	0.041 (0.233)	0.040 (0.23)
4	R-16.8 (2.96)	R-19 (3.35)	0.039 (0.221)	0.037 (0.209)	0.036 (0.204)

³Indicates nominal R-value of the exterior insulation only. Air films, sheathings add an approximate nominal R-2.3 to the assembly. This additional thermal resistance is included when assessing the effectiveness of the system.



mödfacade

modern facades

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