Important Notice

In August 1, 2013, PABCO® Gypsum, a division of PABCO® building products, LLC acquired the QuietRock® business and operations from Serious Energy, Inc. Serious Energy, Inc. corporate structure and legal name changed through the years from Quiet Solution, Inc. to Serious Materials, Inc to Serious Energy, Inc. The acquisition of the QuietRock® business by PABCO® Gypsum includes the products, technical data, test reports and other intellectual property. For the avoidance of confusion, references to “Quiet Solution”, “Serious Materials”, or “Serious Energy” used within test reports, in general, should be understood as references to PABCO® Gypsum as of August 1, 2013.
FOR: Serious Materials, Inc.
Sunnyvale, CA

ON: PRF-016-06 QuietRock ES and 5/8" Type X Gypsum,
Staggered Wood Stud Wall, 16" on Center with R-19
Fiberglass

CONDUCTED: 14 April 2010

TEST METHOD

Unless otherwise designated, the measurements reported below were made with all facilities and
procedures in explicit conformity with the ASTM Designations E90-09 and E413-04, as well as
other pertinent standards. Riverbank Acoustical Laboratories has been accredited by the U.S.
Department of Commerce, National Institute of Standards and Technology (NIST) under the
National Voluntary Laboratory Accreditation Program (NVLAP) for this test procedure (NVLAP
Lab Code: 100227-0). A description of the measuring technique is available separately.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the client as PRF-016-06 QuietRock ES and 5/8" Type X
Gypsum, staggered wood stud wall, 16" on center with R-19 fiberglass. The overall dimensions
of the specimen as measured were nominally 4.27 m (168 in.) wide by 2.74 m (108 in.) high and
171 mm (6.75 in.) thick. The specimen was installed by the manufacturer directly into the
laboratory's 2.74 m (9 ft) by 4.27 m (14 ft) wood-lined steel frame and was sealed on the
periphery (both sides) with dense mastic.

The description of the specimen was as follows: The specimen consisted of a staggered two-by-
four wood stud wall on two-by-six wood top and bottom plates with a layer of R-19 fiberglass
batt insulation in the shared cavity. One side of the wall was covered with a single layer of 5/8"
QuietRock ES board and the other side was covered with a single layer of 5/8" Type X Gypsum.
A more detailed description of the wall assembly appears in the sections below.

Floor Ceiling Plates and Vertical Framing: The wall had two 140 mm (5.5 in.) wide by 38 mm
(1.5 in.) thick and 4.27 m (168 in.) long SPF wood plates and two 140 mm (5.5 in.) wide by 38
mm (1.5 in.) thick and 2.67 m (105.125 in.) long SPF verticals perimeter framing. Plates and
vertical framing were attached to the top and bottom of the test frame with 64 mm (2.5 in.) long
Type W screws on 610 mm (24 in.) centers. The total weight of the framing was 33 kg (72.75
lbs).
Serious Materials, Inc.

14 April 2010

Studs: Twenty (20) pieces of SPF wood 2 x 4's, actual 38 mm (1.5 in.) by 89 mm (3.5 in.) were cut to nominal 2.67 m (105 in.) long. Each row of ten (10) studs was spaced on nominal 405 mm (16 in.) centers attached to the two-by-six wood plates using 89 mm (3.5 in.) long Type W screws. The second row of studs was staggered from the first row with an offset of 8 inches. The total weight of the studs was 86.1 kg (190 lbs).

Insulation: Unfaced R-19 fiberglass insulation measuring 159 mm (6.25 in.) thick and 387 mm (15.25 in.) wide by 2.36 m (93 in.) high was installed in the cavities formed by the plates and studs. The side of the insulation was slit a nominal 102 mm (4 in.) deep to accommodate the offset row of studs. The total weight of the insulation was 14.7 kg (32.5 lbs).

Gypsum Wallboard: A layer of 16 mm (0.625 in.) thick QuietRock ES was applied to the studs vertically on one side. The board was attached to the studs with 41 mm (1.625 in.) long Type W bugle head drywall screws at 305 mm (12 in.) on center. A layer of 16 mm (0.625 in.) thick Type X Gypsum Board was applied to the studs vertically on the other side. The board was attached to the studs with 41 mm (1.625 in.) long Type W bugle head drywall screws at 305 mm (12 in.) on center. Total weight of the QuietRock ES as measured was 154.5 kg (340.5 lbs.). Total weight of the gypsum board as measured was 127.5 kg (281 lbs.). All joints and seams were staggered for each board layer application. Joints were sealed with QuietSeal 350 acoustical caulk and metal taped. Screw heads were covered with metal tape.

The weight of the specimen as measured was 418 kg (921.5 lbs.), an average of 35.7 kg/m² (7.3 lbs/ft²). The transmission area used in the calculations was 11.7 m² (126 ft²). The source and receiving room temperatures at the time of the test were 24°C (75±1°F) and 51±1% relative humidity. The source and receive reverberation room volumes were 178 m³ (6,298 ft³) and 177 m³ (6,255 ft³), respectively.
TEST RESULTS

Sound transmission loss values are tabulated at the eighteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages. The precision of the TL test data is within the limits set by the ASTM Standard E90-09.

<table>
<thead>
<tr>
<th>FREQ.</th>
<th>T.L.</th>
<th>C.L.</th>
<th>DEF.</th>
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<tr>
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</table>

STC=55

ABBREVIATION INDEX

FREQ. = FREQUENCY, Hertz (cps)
T.L. = TRANSMISSION LOSS, dB
C.L. = UNCERTAINTY IN dB, FOR A 95% CONFIDENCE LIMIT
DEF. = DEFICIENCIES, dB<STC CONTOUR (SUM OF DEF = 32)
STC = SOUND TRANSMISSION CLASS

Tested by Marc Scially
Experimentalist

Approved by David L. Moyer
Laboratory Manager
SOUND TRANSMISSION REPORT
RAL - TL10-120

TRANSMISSION LOSS (dB)

FREQUENCY (Hz)

STC = 55

TRANSMISSION LOSS
SOUND TRANSMISSION LOSS CONTOUR

This report shall not be reproduced except in full, without the written approval of RAL.
The results reported above apply only to the specific sample submitted for measurement. No responsibility is assumed for performance of any other specimen.
Appendix to ASTM E90 Sound Transmission Loss Test

Serious Materials, Inc.

Product Description: PRF-016-06 QuietRock ES and 5/8" Type X Gypsum, Staggered Wood Stud Wall, 16" on Center with R-19 Fiberglass

Additional Frequency Data for Transmission Loss Testing

As requested by the client, transmission loss (TL) values were calculated at additional test frequencies. Although the measurements were made in accordance with the procedures described in ASTM E90-09, they do not qualify as part of the standard. Since the results are representative of the test environment only, they are unofficial and intended for research and development guidelines rather than for commercial purposes. The transmission loss values at the additional frequencies were as follows:

<table>
<thead>
<tr>
<th>1/3 Octave Center Frequency (Hz)</th>
<th>Sound Transmission Loss (dB)</th>
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