



# **Acoustical Wall Insulation** Design Guide

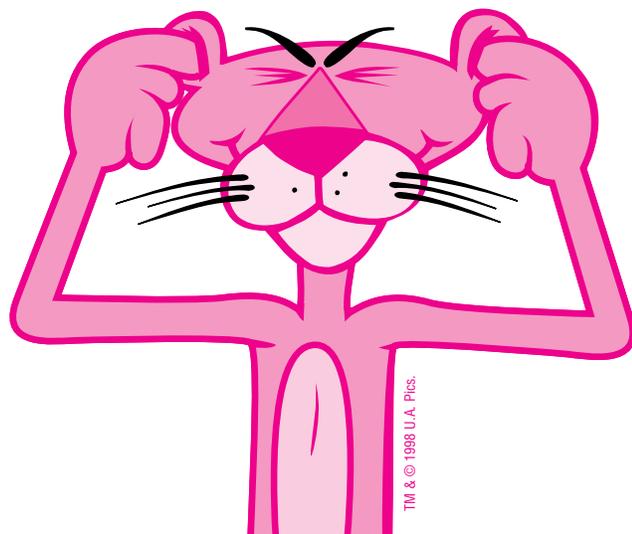


Today's lifestyle is a loud one. Our entertainment, modes of travel, time-saving conveniences and sophisticated machinery give off a tremendous amount of sound. Much of this is unwanted sound or, as it is more commonly known, noise. **Noise must be controlled to maintain a degree of comfort.** This is especially true in living and working quarters, be it at home, apartment, motel, hotel or office. That means keeping the noise from travelling from one area through a barrier (walls, floors, ceilings) into another.



Owens Corning intends this booklet to be **a guide in helping the builder, architect or contractor select the acoustical wall design that is best for a specific situation**, a wall design that includes Owens Corning FIBERGLAS PINK® Insulation. We believe the information published herein is as reliable as the present state of the acoustical testing art permits. However, as use conditions are not within its control, Owens Corning cannot be responsible for building design or construction and does not guarantee results from use of its products or the information contained herein.

<b>Construction Designs for Acoustical Control</b>	<b>3</b>
<b>Wall Design Selection Charts</b>	
■ Single Layer Wood Stud Wall	<b>9</b>
■ Single Layer Wood Stud Wall with Resilient Channels	<b>10</b>
■ Double Wood Stud Wall	<b>11</b>
■ Single Layer Staggered Wood Stud Wall	<b>13</b>
■ Single Layer Steel Stud Wall with Resilient Channels	<b>14</b>
■ Single Layer Steel Stud Wall	<b>15</b>
■ Chase Wall	<b>17</b>
■ Double Layer Steel Stud Wall	<b>18</b>
■ Unbalanced Steel Stud Wall with Resilient Channels	<b>20</b>
■ Unbalanced Steel Stud Wall	<b>21</b>
<b>Floor and Ceiling Assemblies</b>	<b>24</b>
<b>Sound Absorption Coefficients</b>	<b>25</b>
<b>Sound Transmission Loss</b>	
Exterior Walls	<b>27</b>
Exterior Doors & Windows	<b>28</b>
<b>Appendix</b>	<b>29</b>
<b>Customer Service</b>	<b>34</b>



The goal of all acoustically “efficient” systems is to create a living or working environment that is comfortable and free from distraction or unwanted external noise. While the “ideal” acoustical environment has yet to be created, several construction designs for commercial and residential installations do exist that promote an enhanced acoustical environment.

**Improving the Effective Sound Transmission Loss of Wall Constructions**

The sound transmission loss of wall constructions can be improved by increasing mass, breaking the sound vibration path and providing cavity absorption. In addition to these three methods, another alternative approach to reduce noise levels is to add sound absorbing materials to a room.

**Increasing Mass**

Heavier materials block sound better than light materials. For example, adding another layer of gypsum wallboard provides increased sound transmission loss. As a general rule, every doubling of the weight of the wall increases sound transmission loss by an additional 5-6dB. Heavier walls, however, are obviously not the most economical or most aesthetic solution to sound control requirements.

**Breaking Vibration Path**

Walls transmit sound most effectively when they can transmit vibrations from one face to another through structural elements such as metal or wood studs. Anything that can be done to interfere with the transmission of vibration between one wall surface and the other will help reduce sound transmission. One method of doing this is to stagger wood studs, reducing sound transmission through them. Metal studs are more resilient than wood studs and reduce the transmission of vibrations between one wall surface and the other. In wood stud constructions, resilient metal channels can be used between the gypsum wall board and the stud to break the vibration path.

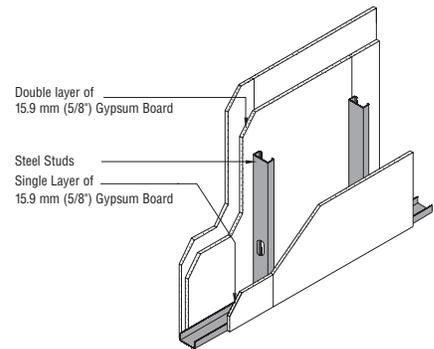
**Cavity Absorption**

The sound transmission loss of a wall can also be increased by filling the wall cavity with sound absorbing materials such as Owens Corning FIBERGLAS PINK® Insulation batts. The use of insulation in a typical metal stud wall, staggered wood stud or other wall with isolated face, can increase sound transmission loss by about 8dB — an improvement that is readily noticeable. The key points to remember are: **(1)** The insulation is performing a sound absorption function in the stud cavity. It does not add significant mass to the partition in comparison with gypsum board and stud masses.

Based on NRC Report IRC-IR-693, October 1995 “Summary Report for Consortium on Gypsum Board Walls: Sound Transmission Results”. **(2)** On average, glass fibre batts have equivalent or better STC (Sound Transmission Coefficient) acoustical performance than nominal equivalent thickness, approximately 265% higher density mineral fibre (rock/slag wool)) batts. **(3)** “The greater the fraction of the cavity filled with absorption, the higher the sound transmission loss.” “With the cavity half-filled with absorptive material, the sound transmission loss was about 5dB less than obtained by filling the cavity completely.”

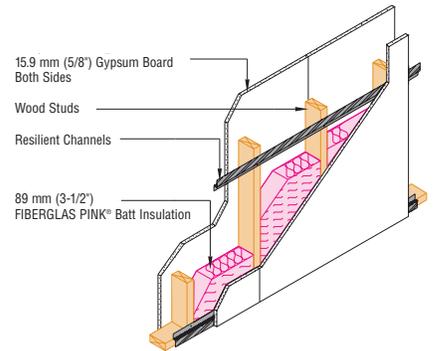
**Figure 1**

The addition of gypsum board to one surface effectively increases wall mass.



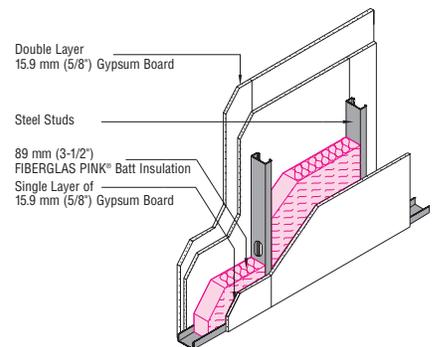
**Figure 2**

Resilient channels over wood studs break the vibration path, helping to increase sound transmission loss (STC).



**Figure 3**

Insulating wall cavities noticeably improves sound transmission loss by providing cavity absorption.



### Adding Sound Absorbing Materials To Source and Receive Areas

Another method of increasing the effective sound transmission loss between two rooms is to add sound absorbing materials to each room. By doing this, the overall noise level in each room is reduced, which results in a corresponding reduction of the sound level in any adjacent area. By adding sound absorbing materials to both the source and receive room, one can obtain a significant reduction of the noise level in the receive room. The net effect is a significant reduction in intruding noise, with no change to the separating partition.

### Detail Design and Construction Considerations

The effective acoustical performance of walls can be greatly affected by a number of design and construction details. These details include sealing the perimeter of walls, construction details of wall intersections, size and placement of windows, the location and proper installation of doors, electrical outlets, ducts, and mechanical equipment.

### Perimeter Sealing

An air seal should be used around the perimeter of the wall to effect a proper acoustical seal. A non-hardening, permanently resilient caulking such as a butyl rubber-based compound is recommended for both sides of the partition at applicable locations, such as the bottom and top plates. Joint compound and tape will seal effectively in corners if multiple layers of wallboard are properly staggered. Figure 4 provides construction details for framing sound insulation walls at ceilings and floor attachments.

### Doors

Where optimum noise control is desired, solid wood core doors should be used. Door tops and sides should be gasketed with a soft-type weather stripping. Use of threshold closures at the bottom of the door or air seals will reduce sound transmission. Sliding doors should be avoided where optimum noise control is desired. Doors opening upon hallways should not open across from one another.

### Windows

Windows normally have lower transmission loss values than the surrounding wall. Therefore, it is advantageous to reduce window area for increased noise control. Additional measures to be taken are the reduction of windows facing noisy areas and the separation of windows to reduce crosstalk. Give consideration to the use of this or insulated glass (as well as double glazing) to help reduce sound transmission. Weather stripping windows will assure that they close tightly, and thus, reduce the transmission of outside sound sources.

### Electrical

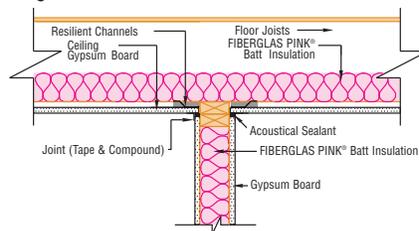
Light switches and outlets should not be constructed back-to-back. Ceiling fixtures should be surface mounted and openings around boxes should be sealed airtight. Electrical distribution panels, as well as telephones, bells, intercoms or audio built-ins should be installed on well-insulated interior walls only, and never on party or corridor walls.

**Figure 4**

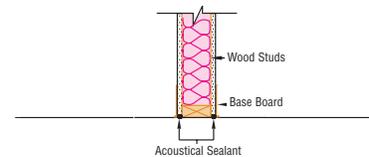
Sealing detail of sound insulating walls at ceiling and floor attachments.

### Single Layer Wood Stud Wall (single layer gypsum board each side)

#### Ceiling Attachment

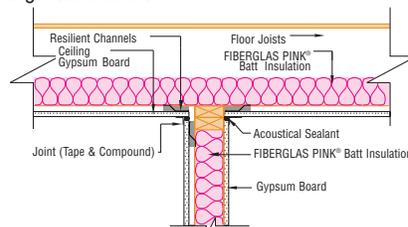


#### Floor Attachment

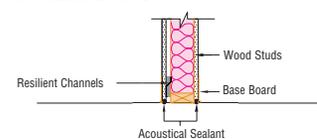


### Single Layer Wood Stud Wall with Resilient Channels on One Side (single layer gypsum board each side)

#### Ceiling Attachment



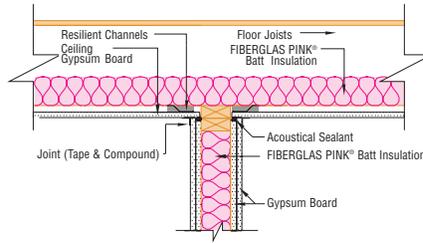
#### Floor Attachment



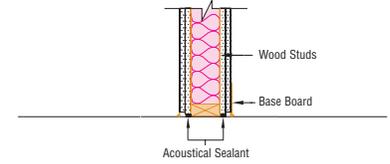
**Figure 4 (continued)**  
Sealing detail of sound insulating walls at ceiling and floor attachments.

**Single Layer Wood Stud Wall  
(double layer gypsum board each side)**

Ceiling Attachment

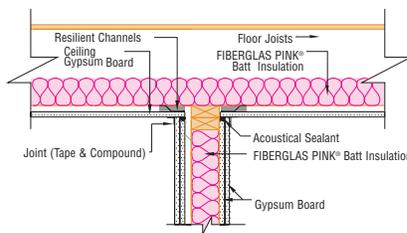


Floor Attachment

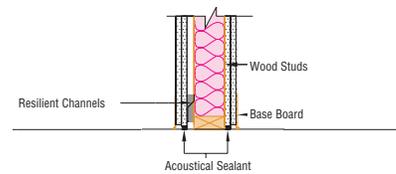


**Single Layer Wood Stud Wall with Resilient Channels on One Side  
(double layer gypsum board each side)**

Ceiling Attachment

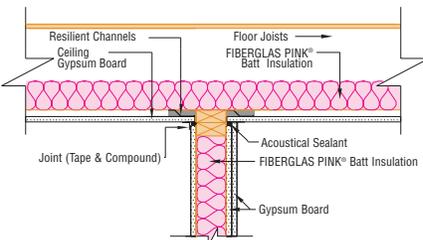


Floor Attachment

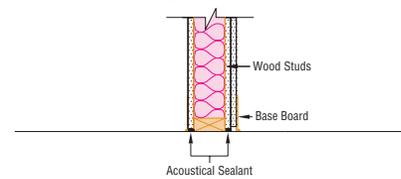


**Single Layer Wood Stud Wall  
(double layer gypsum board one side, single layer other side)**

Ceiling Attachment

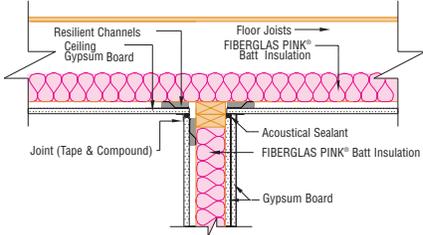


Floor Attachment

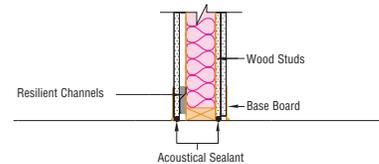


**Single Layer Wood Stud Wall with Resilient Channels on One Side  
(double layer gypsum board one side, single layer other side)**

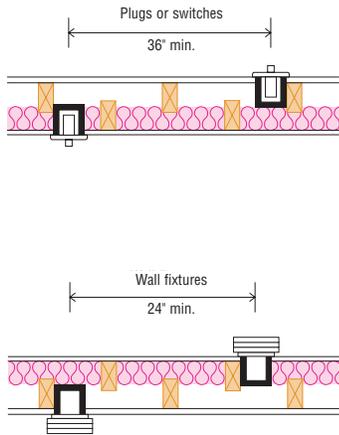
Ceiling Attachment



Floor Attachment

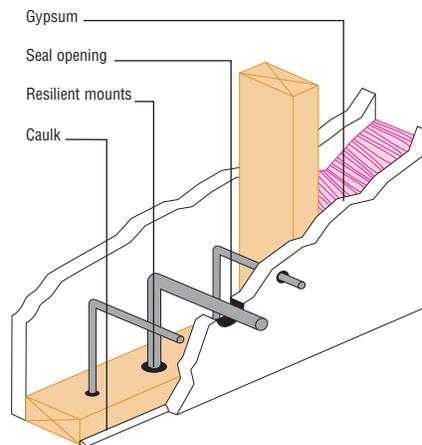


Sound can transmit between electrical outlets through wiring, separate wiring of each occupancy can minimize this problem. Vibrating equipment should be connected with flexible wiring.



### Plumbing

Pipe runs should be designed with swing arms so expansion and contraction can occur without binding, thus eliminating any unwanted sound. Also, piping should be isolated from surrounding structures with resilient mounts. Air chambers should be provided at each outlet to eliminate water hammer due to the abrupt stopping of flowing water, and consideration should be given to oversized pipes and reduced water pressure. Installation of fixtures back-to-back should be avoided. In all cases, openings made in walls and floor surfaces should be caulked to ensure optimum acoustical integrity.

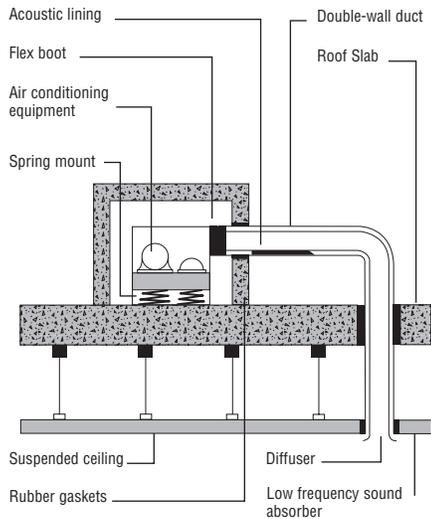


### Ducts

Duct design should be given special consideration when planning the layout of a new or retrofit construction, since ducts can easily transmit sound. Installation of sufficiently thick metal ducts, lined with sound-attenuating duct liner insulation, and the use of duct wrap materials will reduce sidewall transmission of unwanted sound, as well as reduce fan noise in the duct. The use of quality, quiet appliances, air conditioners and furnaces with well-balanced motors and fans is recommended to reduce duct carried noise and annoyance.

**Equipment Noise**

Before buying large equipment, be sure to inquire about equipment noise levels. Insist on quiet units. Whenever possible, isolate furnaces, air conditioners and HVAC units away from “quiet” areas. Also, when installing equipment likely to vibrate, use vibration isolators. Vertical ducts or ventilation risers mounted on the exterior of buildings frequently are the cause of noise complaints. Such devices often rattle in windy areas or snap, crackle and pop (owing to thermal expansion and contraction) with outdoor temperature variation. Further, the outdoor noise of aircraft, traffic, etc., are easily transmitted by the thin-wall duct and carried into the building interior. All exterior ductwork should be of double-wall construction with acoustical lining and silencers.



**What Is Impact Sound?**

Impact sound is caused by a floor or wall being set into vibration by direct mechanical contact. The sound is then radiated by the floor or wall surface. Floor vibrations may also be transmitted throughout the structure to walls and re-radiated as sound in adjoining spaces.

**Increasing Impact Noise Isolation**

In commercial constructions where a suspended ceiling is utilized, adding Fiberglas insulation to the ceiling plenum will greatly increase the impact noise isolation, as well as the airborne sound transmission loss. Resilient channels and FIBERGLAS PINK® Insulation are recommended to reduce both impact noise and airborne sound transmission. The effective impact noise isolation of the floor/ceiling assembly can also be improved

by adding sound absorptive materials to the receive room. However, the best method of improving the impact noise isolation provided by a floor/ceiling assembly is to install a carpet and pad on the floor. When a carpet and pad are placed on a floor, the impact hammers in the standard impact machine become isolated from the hard floor surface. Thus, very little impact noise is generated and transmitted to the lower or receive room. Although the IIC rating of the floor/ceiling assembly is greatly improved by adding a carpet and pad, the airborne STC values is changed very little because the carpet and pad do not add any significant weight to the floor/ceiling assembly.

### Improving Ceiling Sound Transmission Loss

The sound transmission loss of a ceiling can be improved by placing Fiberglas insulation batts on the back of the ceiling panels. This has the same effect as putting insulation in the stud cavity of a wall; however, in this case the insulation absorbs sound in the plenum area. Depending on the type of ceiling panels used, the STC can be improved by 7 to 12 points. As in the case of partitions, the effective sound transmission loss of a ceiling can also be improved by adding sound absorptive materials to both the source and receive rooms. For example, sound absorptive wall treatments could be installed in both rooms, thereby reducing the overall noise level.

### Fuzz Wall

In order to improve the two room STC value of a wall, consideration must also be given to the plenum above the dividing wall. A quick and easy way to address this is to install the "Fuzz wall" by stacking batts directly above the divider wall. For further details contact your Owens Corning representative.

### References for Fire Rating

**ULC:** Underwriters Laboratories of Canada, List of Equipment & Materials, Volume III, Fire Resistance Ratings

**UL:** Underwriters Laboratories Inc., Fire Resistance Directory 1997, Volume I

**NBC:** National Building Code of Canada, 1995, Appendix A, Table A-9.10.3.1.A

**GA:** Gypsum Association, Fire Resistance Design Manual, GA-600-97, 15th Edition

**OSUT:** The Ohio State University Engineering Experiment Station

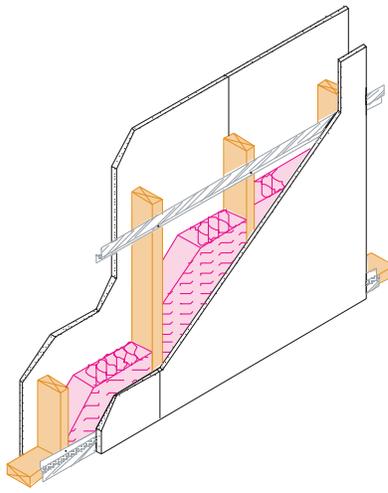
### References for Sound Transmission Coefficients (STC)

**NBC:** National Building Code of Canada, 1995, Appendix A, Table A-9.10.3.1.A

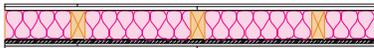
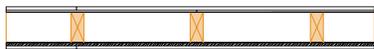
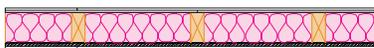
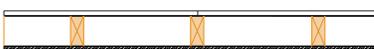
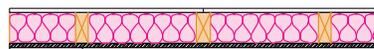
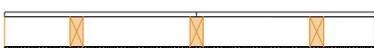
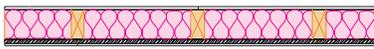
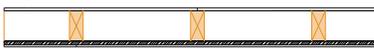
**NRC:** National Research Council of Canada, Summary Report for Consortium on Gypsum Walls: Sound Transmission Results, Internal report IRC-IR-693

**RAL:** Riverbank Acoustical Laboratories

**W & OC:** Owens Corning Fiberglas acoustical Laboratory, Granville, Ohio & Acculab Consultants in Acoustics, Columbus, Ohio

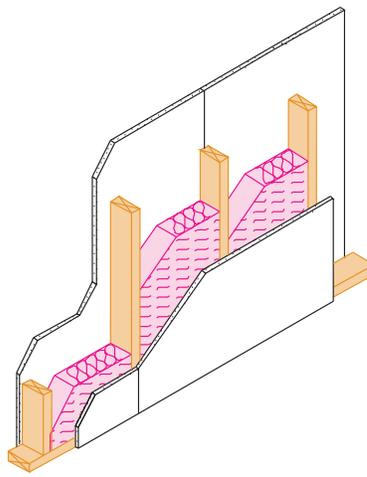


## Single Layer Wood Stud Wall with Resilient Channels

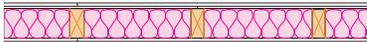
FIRE TEST NO.	FIRE RATING	TEST NO.	STC	WALL ASSEMBLY NO.	CONSTRUCTION DESCRIPTION
* OSUT-3127	1 h, L.B.	NBC-W6d	<b>55</b>	SWSR017	 <p>Single wood studs spaced 400 mm (16") o.c.; resilient channels spaced 600 mm (24") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation</p>
NBC-W6d	1 h, L.B.	NRC-TL-93-127	<b>57</b>		
	1.5h, N.L.B.	W0569	<b>56</b>		
ULC	N.A.	NBC-W6j	<b>46</b>	SWSR027	 <p>Single wood studs spaced 400 mm (16") or 600 mm (24") o.c.; resilient channels spaced 400 mm (16") or 600 mm (24") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board each side; no insulation</p>
NBC-W6j	1 h, L.B.	NRC	<b>N.A.</b>		
	1.5h, N.L.B.	W1469	<b>44</b>		
ULC	N.A.	NBC-W5c/5d	<b>49/53</b>	SWSR037	 <p>Single wood studs spaced 400 mm (16") or 600 mm (24") o.c.; resilient channels spaced 400 mm (16"); or 600 mm (24") o.c.; single layer 12.7 mm (1/2") type "x" gypsum board one side; double layer other side, one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation</p>
NBC-W5c & 5d	45 min, L.B.	NRC	<b>N.A.</b>		
	1 h, N.L.B.	W0669	<b>52</b>		
ULC	N.A.	NBC	<b>N.A.</b>	SWSR047	 <p>Single wood studs spaced 400 mm (16") o.c.; resilient channels spaced 600 mm (24") o.c.; single layer 12.7 mm (1/2") type "x" gypsum board one side; double layer other side; no insulation</p>
NBC	N.A.	NRC	<b>N.A.</b>		
	N.A.	W1469	<b>44</b>		
* OSUT-3127	1 h, L.B.	NBC-W3a/3b	<b>45/48</b>	SWSR057	 <p>Single wood studs spaced 400 mm (16") or 600 mm (24") o.c.; resilient channels spaced 400 mm (16") or 600 mm (24") o.c.; single layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation</p>
NBC-W3a & 3b	45 min, L.B.	NRC-TL-93-098	<b>50</b>		
	1 h, N.L.B.	RAL-TL-77-138	<b>50</b>		
ULC	N.A.	NRC-TL-93-122	<b>40</b>	SWSR067	 <p>Single wood studs spaced 400 mm (16") or 600 mm (24") o.c.; resilient channels spaced 600 mm (24") o.c.; single layer 15.9 mm (5/8") type "x" gypsum board each side; no insulation</p>
NBC	N.A.	NRC-TL-93-089	<b>40</b>		
	N.A.	OCF431	<b>40</b>		
ULC	N.A.	NBC-W3c	<b>43</b>	SWSR077	 <p>Single wood studs spaced 400 mm (16") o.c. or 600 mm (24") o.c.; resilient channels spaced 400 mm (16") o.c. or 600 mm (24") o.c.; single layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation</p>
NBC-W3c	45 min, L.B.	NRC	<b>N.A.</b>		
	45 min, N.L.B.	W0769	<b>46</b>		
ULC	N.A.	NBC	<b>N.A.</b>	SWSR087	 <p>Single wood studs spaced 400 mm (16") o.c.; resilient channels spaced 600 mm (24") o.c.; single layer 12.7 mm (1/2") regular gypsum board each side; no insulation</p>
NBC	N.A.	NRC	<b>N.A.</b>		
	N.A.	W0969	<b>39</b>		

Note: See references for assembly details regarding stud & drywall type, spacing of studs, fasteners and/or resilient channels, required to meet the listed STC rating for that assembly.

\* Fire rating based on referenced assembly. See Appendix for explanatory footnotes.

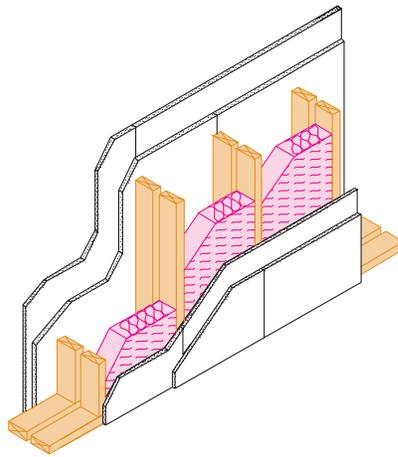


## Single Layer Wood Stud Wall

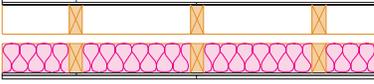
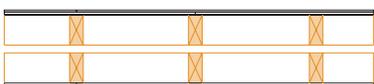
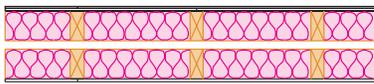
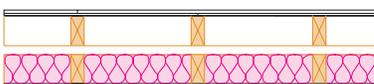
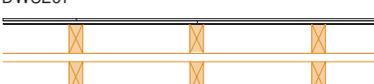
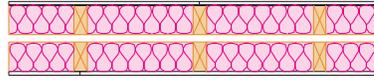
FIRE TEST NO.	FIRE RATING	TEST NO.	STC	WALL ASSEMBLY NO.	CONSTRUCTION DESCRIPTION
* UL-U305 & *UL-U309 NBC-W2b	1 h, L.B. 1 h, L.B. 1.5h N.L.B.	NBC-W2b NRC W2569	<b>38</b> <b>N.A.</b> <b>45</b>	SWS097 	Single wood studs spaced 400 mm (16") or 600 mm (24") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
ULC NBC	N.A. N.A. N.A.	NBC NRC W2469	<b>N.A.</b> <b>N.A.</b> <b>40</b>	SWS107 	Single wood studs spaced 400 mm (16") or 600 mm (24") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board one side; single layer other side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
ULC NBC	N.A. N.A. N.A.	NBC NRC W2269	<b>N.A.</b> <b>N.A.</b> <b>38</b>	SWS117 	Single wood studs spaced 400 mm (16") or 600 mm (24") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board one side; single layer other side; no insulation
* ULC-W302 NBC-W1b	45 min, L.B. 45 min, L.B. 45 min, N.L.B.	NBC-W1b NRC W2069	<b>34</b> <b>N.A.</b> <b>39</b>	SWS127 	Single wood studs spaced 400 mm (16") or 600 mm (24") o.c.; single layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
ULC-W302 NBC-W1e	45 min, L.B. 45 min, L.B. 45 min, N.L.B.	NBC-W1e NRC W2169	<b>32</b> <b>N.A.</b> <b>35</b>	SWS137 	Single wood studs spaced 400 mm (16") or 600 mm (24") o.c.; single layer 12.7 mm (1/2") type "x" gypsum board each side; no insulation
* ULC-W301 NBC-W1a	1 h, L.B. 1 h, L.B. 1 h, N.L.B.	NBC-W1a NRC OCF423	<b>36</b> <b>N.A.</b> <b>36</b>	SWS147 	Single wood studs spaced 400 mm (16") or 600 mm (24") o.c.; single layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
ULC-W301 NBC-W1d	1 h, L.B. 1 h, L.B. 1 h, N.L.B.	NBC-W1d NRC OCF424	<b>32</b> <b>N.A.</b> <b>34</b>	SWS157 	Single wood studs spaced 400 mm (16") or 600 mm (24") o.c.; single layer 15.9 mm (5/8") type "x" gypsum board each side; no insulation

Note: See references for assembly details regarding stud & drywall type, spacing of studs, fasteners and/or resilient channels, required to meet the listed STC rating for that assembly.

\* Fire rating based on referenced assembly. See Appendix for explanatory footnotes.

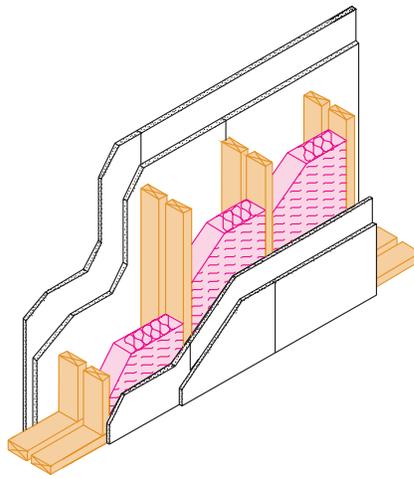


## Double Wood Stud Wall

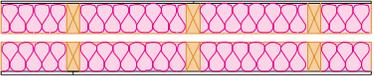
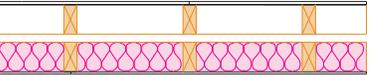
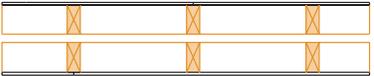
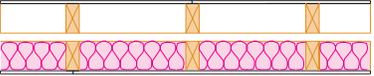
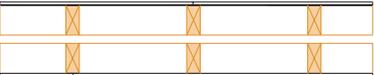
FIRE TEST NO.	FIRE RATING	TEST NO.	STC	WALL ASSEMBLY NO.	CONSTRUCTION DESCRIPTION
ULC NBC-W15e	N.A. 1 h, L.B. 1.5h, N.L.B.	NBC-W15e NRC W01480	<b>60</b> <b>N.A.</b> <b>64</b>	DWS167 	Double wood studs spaced 400 mm (16") or 600 mm (24") o.c., on separate plates set 25 mm (1") apart; double layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
ULC NBC-W15h	N.A. 1 h, L.B. 1.5h, N.L.B.	NBC-W15h NRC W01580	<b>55</b> <b>N.A.</b> <b>54</b>	DWS177 	Double wood studs spaced 400 mm (16") or 600 mm (24") o.c., on separate plates set 25 mm (1") apart; double layer 12.7 mm (1/2") type "x" gypsum board each side; no insulation
ULC NBC-W14b	N.A. 45min, L.B. 1 h, N.L.B.	NBC-W14b NRC-TL-93-271 W01080	<b>61</b> <b>62</b> <b>60</b>	DWS187 	Double wood studs spaced 400 mm (16") or 600 mm (24") o.c., on separate plates set 25 mm (1") apart; double layer 12.7 mm (1/2") type "x" gypsum board one side; single layer other side; two thicknesses, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
ULC NBC-W14D	N.A. 45min, L.B. 1 h, N.L.B.	NBC-W14D NRC W01180	<b>57</b> <b>N.A.</b> <b>57</b>	DWS197 	Double wood studs spaced 400 mm (16") or 600 mm (24") o.c., on separate plates set 25 mm (1") apart; double layer 12.7 mm (1/2") type "x" gypsum board one side; single layer other side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
ULC NBC-W14f	N.A. 45min, L.B. 1 h, N.L.B.	NBC-W14f NRC W00980	<b>51</b> <b>N.A.</b> <b>48</b>	DWS207 	Double wood studs spaced 400 mm (16") or 600 mm (24") o.c., on separate plates set 25 mm (1") apart; double layer 12.7 mm (1/2") type "x" gypsum board one side; single layer other side; no insulation
* GA-WP-3370 NBC-W13a	1 h, L.B. 1 h, L.B. 1 h, N.L.B.	NBC-W13a NRC-TL-93-266 W02985	<b>57</b> <b>56</b> <b>60</b>	DWS217 	Double wood studs spaced 400 mm (16") or 600 mm (24") o.c., on separate plates set 25 mm (1") apart; single layer 15.9 mm (5/8") type "x" gypsum board each side; two thicknesses, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation

Note: See references for assembly details regarding stud & drywall type, spacing of studs, fasteners and/or resilient channels, required to meet the listed STC rating for that assembly.

\* Fire rating based on referenced assembly. See Appendix for explanatory footnotes.

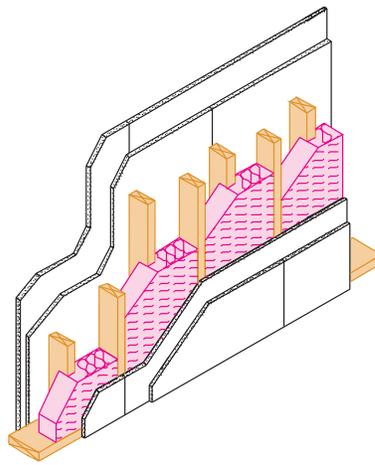


## Double Wood Stud Wall

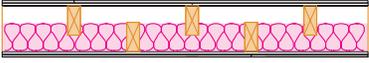
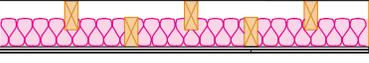
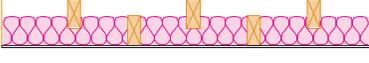
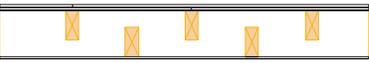
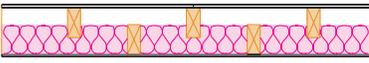
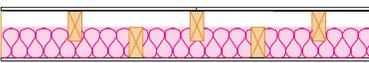
FIRE TEST NO.	FIRE RATING	TEST NO.	STC	WALL ASSEMBLY NO.	CONSTRUCTION DESCRIPTION
ULC NBC-W13b	N.A. 45min, L.B. 45min, N.L.B.	NBC-W13b NRC-TL-93-270 W2869	<b>57</b> <b>58</b> <b>59</b>	DWS227 	Double wood studs spaced 400 mm (16") or 600 mm (24") o.c., on separate plates set 25 mm (1") apart; single layer 12.7 mm (1/2") type "x" gypsum board each side; two thicknesses, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
ULC NBC-W13d	N.A. 45min, L.B. 45min, N.L.B.	NBC-W13d NRC-TL-93-279 W2969	<b>53</b> <b>53</b> <b>56</b>	DWS237 	Double wood studs spaced 400 mm (16") or 600 mm (24") o.c., on separate plates set 25 mm (1") apart; single layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
ULC NBC-W13f	N.A. 45min, L.B. 45min, N.L.B.	NBC-W13f NRC W3469	<b>45</b> <b>N.A.</b> <b>47</b>	DWS247 	Double wood studs spaced 400 mm (16") or 600 mm (24") o.c., on separate plates set 25 mm (1") apart; single layer 12.7 mm (1/2") type "x" gypsum board each side; no insulation
* GA-WP-3370 NBC-W13c	1 h, L.B. 1 h, L.B. 1 h, N.L.B.	NBC-W13c NRC-TL-93-265 OCF448	<b>54</b> <b>55</b> <b>56</b>	DWS257 	Double wood studs spaced 400 mm (16") or 600 mm (24") o.c., on separate plates set 25 mm (1") apart; single layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
GA-WP-3370 NBC-W13e	1 h, L.B. 1 h, L.B. 1 h, N.L.B.	NBC-W13e NRC-TL-93-261 GA-WP-3370	<b>45</b> <b>45</b> <b>45-49</b>	DWS267 	Double wood studs spaced 400 mm (16") or 600 mm (24") o.c., on separate plates set 25 mm (1") apart; single layer 15.9 mm (5/8") type "x" gypsum board each side; no insulation

Note: See references for assembly details regarding stud & drywall type, spacing of studs, fasteners and/or resilient channels, required to meet the listed STC rating for that assembly.

\* Fire rating based on referenced assembly. See Appendix for explanatory footnotes.

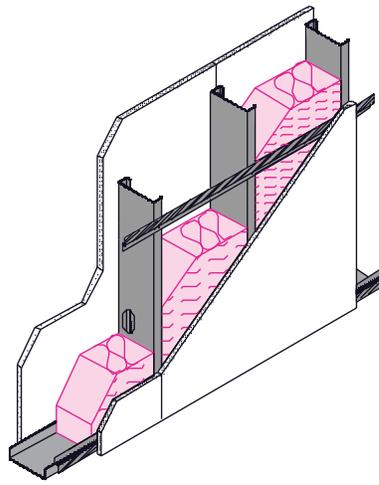


## Single Layer Staggered Wood Stud Wall

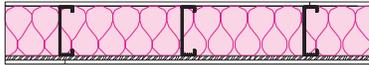
FIRE TEST NO.	FIRE RATING	TEST NO.	STC	WALL ASSEMBLY NO.	CONSTRUCTION DESCRIPTION
* UL-U340 NBC-W9b	1 h, L.B. 1 h, L.B. 1.5 h, N.L.B.	NBC-W9b NRC-TL-93-210 W4869	<b>55</b> <b>55</b> <b>55</b>	SWS277 	Staggered wood studs spaced 400 mm (16") or 600 mm (24") o.c., on common plate; double layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
ULC NBC-W9c	N.A. 45 min, L.B. 1 h, N.L.B.	NBC-W9c NRC-TL-93-436 RAL	<b>53</b> <b>53</b> <b>N.A.</b>	SWS277A 	Staggered wood studs spaced 400 mm (16") or 600 mm (24") o.c., on common plate; double layer 12.7 mm (1/2") regular gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
* UL-U340 NBC	1 h, L.B. N.A. N.A.	NBC NRC W4669	<b>N.A.</b> <b>N.A.</b> <b>52</b>	SWS287 	Staggered wood studs spaced 600 mm (24") o.c., on common plate; double layer 12.7 mm (1/2") type "x" gypsum board each side; no insulation
ULC NBC-W8b	N.A. 45 min, L.B. 1 h, N.L.B.	NBC-W8b NRC-TL-93-209 W4769	<b>50</b> <b>50</b> <b>55</b>	SWS297 	Staggered wood studs spaced 400 mm (16") or 600 mm (24") o.c., on common plate; double layer 12.7 mm (1/2") type "x" gypsum board one side; single layer other side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
ULC NBC	N.A. N.A. N.A.	NBC NRC W4569	<b>N.A.</b> <b>N.A.</b> <b>47</b>	SWS307 	Staggered wood studs spaced 400 mm (16") or 600 mm (24") o.c., on common plate; double layer 12.7 mm (1/2") type "x" gypsum board one side; single layer other side; no insulation
* OSUT-4970 NBC	1 h, L.B. N.A. N.A.	NBC NRC OC5FC	<b>N.A.</b> <b>N.A.</b> <b>51</b>	SWS317 	Staggered wood studs spaced 400 mm (16") o.c., on common plate.; single layer 12.7 mm (1/2") type "x" gypsum board each side; two thicknesses, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
ULC NBC-W7b	N.A. 45 min, L.B. 45 min, N.L.B.	NBC-W7b NRC-TL-93-247 W01486	<b>45</b> <b>47</b> <b>51</b>	SWS327 	Staggered wood studs spaced 400 mm (16") or 600 mm (24") o.c., on common plate; single layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
* UL-U340 NBC-W7a	1 h, L.B. 1 h, L.B. 1 h, N.L.B.	NBC-W7a NRC-TL-93-248 W5769	<b>47</b> <b>49</b> <b>46</b>	SWS337 	Staggered wood studs spaced 400 mm (16") or 600 mm (24") o.c., on common plate; single layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation

Note: See references for assembly details regarding stud & drywall type, spacing of studs, fasteners and/or resilient channels, required to meet the listed STC rating for that assembly.

\* Fire rating based on referenced assembly. See Appendix for explanatory footnotes.

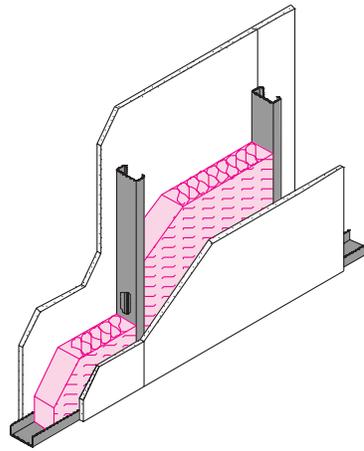


## Single Layer Steel Stud Wall with Resilient Channels

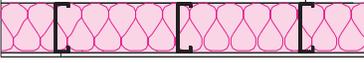
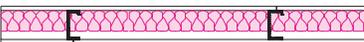
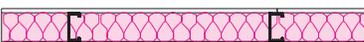
FIRE TEST NO.	FIRE RATING	TEST NO.	STC	WALL ASSEMBLY NO.	CONSTRUCTION DESCRIPTION
ULC	N.A.	NBC	N.A.	SLSSR347	 <p>Single layer wall, 152 mm (6") load-bearing steel studs spaced 400 mm (16") o.c.; resilient channels spaced 600 mm (24") o.c.; single layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 152 mm (6") thick FIBERGLAS PINK® Batt Insulation</p>
NBC	N.A.	NRC-TL-93-35	50		
		RAL-TL89-293	55		
ULC	N.A.	NBC-S12a	49	SLSSR357	 <p>Single layer wall, 92 mm (3-5/8") load-bearing steel studs spaced 400 mm (16") o.c.; resilient channels spaced 600 mm (24") o.c.; single layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation</p>
NBC	N.A.	NRC-TL-93-354	50		
	N.A.	RAL-TL90-344	54		

Note: See references for assembly details regarding stud & drywall type, spacing of studs, fasteners and/or resilient channels, required to meet the listed STC rating for that assembly.

\* Fire rating based on referenced assembly. See Appendix for explanatory footnotes.

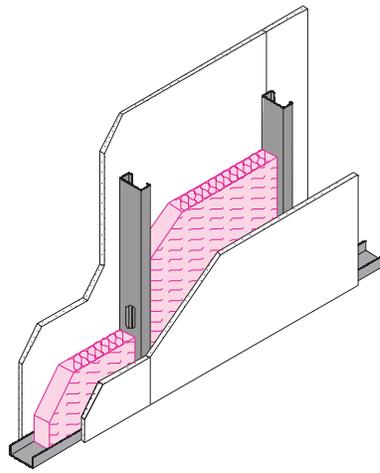


## Single Layer Steel Stud Wall

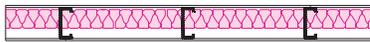
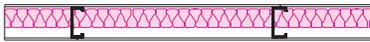
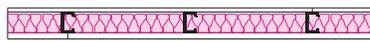
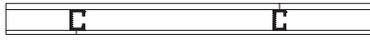
FIRE TEST NO.	FIRE RATING	TEST NO.	STC	WALL ASSEMBLY NO.	CONSTRUCTION DESCRIPTION
* UL-U465 NBC-S7a	1 h, N.L.B. L.B., N.A. 45 min, N.L.B.	NBC-S7a NRC-TL-93-298 RAL-TL89-288	<b>51</b> <b>51</b> <b>51</b>	SLSS367 	Single layer wall, 152 mm (6") steel studs spaced 400 mm (16") or 600 mm (24") o.c.; single layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 152 mm (6") FIBERGLAS PINK® Batt Insulation
* ULC-W407 * ULC-W415 NBC-S4b	1 h, N.L.B. 1 h, N.L.B. 45 min, N.L.B.	NBC-S4b NRC-TL-93-325 RAL	<b>47</b> <b>49</b> <b>N.A.</b>	SLSS377 	Single layer wall, 92 mm (3-5/8") steel studs spaced 400 mm (16") o.c.; single layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") FIBERGLAS PINK® Batt Insulation
* ULC-W407 * ULC-W415 NBC-S4a	1 h, N.L.B. 1 h, N.L.B. 45 min, N.L.B.	NBC-S4a NRC-TL-92-349 RAL-TL89-157	<b>48</b> <b>49</b> <b>50</b>	SLSS377A 	Single layer wall, 92 mm (3-5/8") steel studs spaced 600 mm (24") o.c.; single layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") FIBERGLAS PINK® Batt Insulation
* ULC-W407 * ULC-W415 NBC	1 h, N.L.B. 1 h, N.L.B. N.A.	NBC NRC RAL	<b>N.A.</b> <b>N.A.</b> <b>N.A.</b>	SLSS387 	Single layer wall, 92 mm (3-5/8") steel studs spaced 400 mm (16") o.c.; single layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 65 mm (2-1/2") FIBERGLAS PINK® Batt Insulation
* ULC-W407 * ULC-W415 NBC	1 h, N.L.B. 1 h, N.L.B. N.A.	NBC NRC W03582	<b>N.A.</b> <b>N.A.</b> <b>48</b>	SLSS387A 	Single layer wall, 92 mm (3-5/8") steel studs spaced 600 mm (24") o.c.; single layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 65 mm (2-1/2") FIBERGLAS PINK® Batt Insulation
* ULC-W407 * ULC-W415 NBC-S4d	1 h, N.L.B. 1 h, N.L.B. 45 min, N.L.B.	NBC-S4d NRC-TL-92-418 RAL	<b>38</b> <b>38</b> <b>N.A.</b>	SLSS397 	Single layer wall, 92 mm (3-5/8") steel studs spaced 400 mm (16") o.c.; single layer 15.9 mm (5/8") type "x" gypsum board each side; no insulation
ULC-W407 ULC-W415 NBC-S4c	1 h, N.L.B. 1 h, N.L.B. 45 min, N.L.B.	NBC-S4c NRC-TL-92-376 W03182	<b>38</b> <b>38</b> <b>43</b>	SLSS397A 	Single layer wall, 92 mm (3-5/8") steel studs spaced 600 mm (24") o.c.; single layer 15.9 mm (5/8") type "x" gypsum board each side; no insulation
ULC NBC	N.A. N.A. N.A.	NBC NRC-TL-93-344 RAL	<b>N.A.</b> <b>46</b> <b>N.A.</b>	SLSS407 	Single layer wall, 92 mm (3-5/8") steel studs spaced 400 mm (16") o.c.; single layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") FIBERGLAS PINK® Batt Insulation
ULC NBC	N.A. N.A. N.A.	NBC NRC-TL-92-410 *RAL-TL87-392	<b>N.A.</b> <b>48</b> <b>47</b>	SLSS407A 	Single layer wall, 92 mm (3-5/8") steel studs spaced 600 mm (24") o.c.; single layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") FIBERGLAS PINK® Batt Insulation

Note: See references for assembly details regarding stud & drywall type, spacing of studs, fasteners and/or resilient channels, required to meet the listed STC rating for that assembly.

\* Fire rating based on referenced assembly. See Appendix for explanatory footnotes.

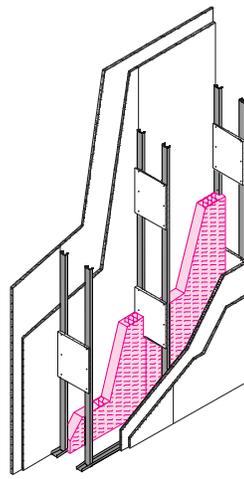


## Single Layer Steel Stud Wall

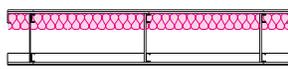
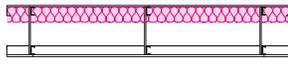
FIRE TEST NO.	FIRE RATING	TEST NO.	STC	WALL ASSEMBLY NO.	CONSTRUCTION DESCRIPTION
ULC NBC	N.A. N.A. N.A.	NBC NRC RAL	N.A. N.A. N.A.	SLSS417 	Single layer wall, 92 mm (3-5/8") steel studs spaced 400 mm (16") o.c.; single layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 65 mm (2-1/2") FIBERGLAS PINK® Batt Insulation
ULC NBC	N.A. N.A. N.A.	NBC NRC W03682	N.A. N.A. 44	SLSS417A 	Single layer wall, 92 mm (3-5/8") steel studs spaced 600 mm (24") o.c.; single layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 65 mm (2-1/2") FIBERGLAS PINK® Batt Insulation
ULC NBC	N.A. N.A. N.A.	NBC NRC W00582	N.A. N.A. 36	SLSS427 	Single layer wall, 92 mm (3-5/8") steel studs spaced 600 mm (24") o.c.; single layer 12.7 mm (1/2") type "x" gypsum board each side; no insulation
UL-U494 NBC-S1b	1 h, N.L.B. L.B., N.A. 45 min, N.L.B.	NBC-S1b NRC-TL-93-058 RAL	39 39 N.A.	SLSS437 	Single layer wall, 64 mm (2-1/2") steel studs spaced 400 mm (16") o.c.; single layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 65 mm (2-1/2") FIBERGLAS PINK® Batt Insulation
UL-U494 NBC-S1a	1 h, N.L.B. L.B., N.A. 45 min, N.L.B.	NBC-S1a NRC-TL-93-033 W05182	43 44 47	SLSS437A 	Single layer wall, 64 mm (2-1/2") steel studs spaced 600 mm (24") o.c.; single layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 65 mm (2-1/2") FIBERGLAS PINK® Batt Insulation
ULC NBC-S1c	N.A. L.B., N.A. 45 min, N.L.B.	NBC-S1c NRC-TL-93-057 W05482	35 35 40	SLSS447 	Single layer wall, 64 mm (2-1/2") steel studs spaced 400 mm (16") or 600 mm (24") o.c.; single layer 15.9 mm (5/8") type "x" gypsum board each side; no insulation
UL-U468 NBC	1 h, N.L.B. N.A. N.A.	NBC NRC RAL	N.A. N.A. N.A.	SLSS457 	Single layer wall, 64 mm (2-1/2") steel studs spaced 400 mm (16") o.c.; single layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 65 mm (2-1/2") FIBERGLAS PINK® Batt Insulation
UL-U468 NBC	1 h, N.L.B. N.A. N.A.	NBC NRC-TL-93-038 RAL-TL91-309	N.A. 45 44	SLSS457A 	Single layer wall, 64 mm (2-1/2") steel studs spaced 600 mm (24") o.c.; single layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 65 mm (2-1/2") FIBERGLAS PINK® Batt Insulation
ULC NBC	N.A. N.A. N.A.	NBC NRC W04382	N.A. N.A. 34	SLSS467 	Single layer wall, 64 mm (2-1/2") steel studs spaced 600 mm (24") o.c.; single layer 12.7 mm (1/2") type "x" gypsum board each side; no insulation

Note: See references for assembly details regarding stud & drywall type, spacing of studs, fasteners and/or resilient channels, required to meet the listed STC rating for that assembly.

\* Fire rating based on referenced assembly. See Appendix for explanatory footnotes.

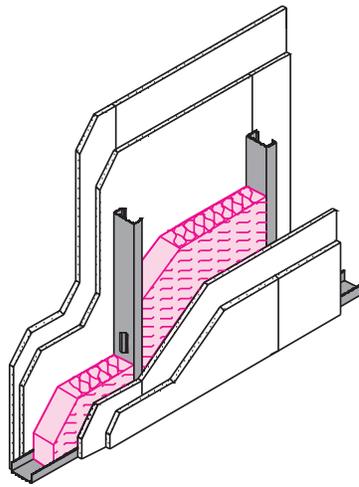


## Chase Wall

FIRE TEST NO.	FIRE RATING	TEST NO.	STC	WALL ASSEMBLY NO.	CONSTRUCTION DESCRIPTION
* UL-U420 * GA-WP-5105 NBC	2h, N.L.B. 2h, N.L.B. N.A.	NBC NRC RAL-TL90-350	<b>N.A.</b> <b>N.A.</b> <b>57</b>	CWSS477 	Chase wall, 41 mm (1-5/8") steel studs spaced 600 mm (24") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 65 mm (2-1/2") thick FIBERGLAS PINK® Batt Insulation
* UL-U420 * GA-WP-5105 NBC	2h, N.L.B. 2h, N.L.B. N.A.	GA-WP5105 NRC RAL	<b>55-59</b> <b>N.A.</b> <b>N.A.</b>	CWSS487 	Chase wall, 41 mm (1-5/8") steel studs spaced 600 mm (24") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
ULC NBC	N.A. N.A. N.A.	NBC NRC W1068	<b>N.A.</b> <b>N.A.</b> <b>55</b>	CWSS497 	Chase wall, 41 mm (1-5/8") steel studs spaced 600 mm (24") o.c.; single layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
* UL-U420 * GA-WP-5015 NBC	1 h, N.L.B. 1 h, N.L.B. N.A.	GA-WP-5105 NBC RAL-TL90-349	<b>50-54</b> <b>N.A.</b> <b>53</b>	CWSS507 	Chase wall, 41 mm (1-5/8") steel studs spaced 600 mm (24") o.c.; single layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
ULC NBC	N.A. N.A. N.A.	NBC NRC W468	<b>N.A.</b> <b>N.A.</b> <b>52</b>	CWSS517 	Chase wall, 41 mm (1-5/8") steel studs spaced 600 mm (24") o.c.; single layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
ULC NBC	N.A. N.A. N.A.	NBC NRC W368	<b>N.A.</b> <b>N.A.</b> <b>42</b>	CWSS527 	Chase wall, 41 mm (1-5/8") steel studs spaced 600 mm (24") o.c.; single layer 12.7 mm (1/2") type "x" gypsum board each side; no insulation

Note: See references for assembly details regarding stud & drywall type, spacing of studs, fasteners and/or resilient channels, required to meet the listed STC rating for that assembly.

\* Fire rating based on referenced assembly. See Appendix for explanatory footnotes.

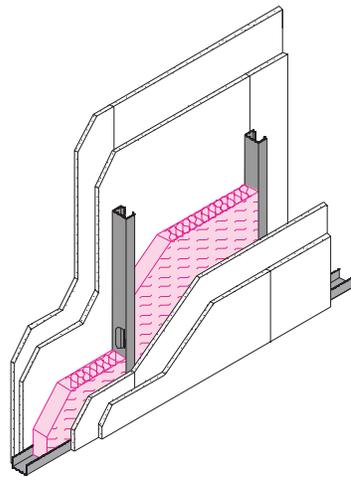


## Double Layer Steel Stud Wall

FIRE TEST NO.	FIRE RATING	TEST NO.	STC	WALL ASSEMBLY NO.	CONSTRUCTION DESCRIPTION
* GA-WP-1711	2h, N.L.B.	NBC-S6b	<b>55</b>	DLSS537	Double layer wall, 92 mm (3-5/8") steel studs spaced 400 mm (16") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
* ULC-W406 & *W414	2 h, N.L.B.	NRC-TL-93-351	<b>56</b>		
NBC-S6b	2h, N.L.B.	RAL	<b>N.A.</b>		
* GA-WP-1711	2h, N.L.B.	NBC-S6a	<b>56</b>	DLSS537A	Double layer wall, 92 mm (3-5/8") steel studs spaced 600 mm (24") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
* ULC-W406 & *W414	2 h, N.L.B.	NRC-TL-92-369	<b>57</b>		
NBC-S6a	2h, N.L.B.	W02584	<b>58</b>		
* GA-WP-1711	2h, N.L.B.	NBC-S6h	<b>45</b>	DLSS547	Double layer wall, 92 mm (3-5/8") steel studs spaced 400 mm (16") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board each side; no insulation
* ULC-W406 & *W414	2 h, N.L.B.	NRC	<b>N.A.</b>		
NBC-S6h	2h, N.L.B.	RAL	<b>N.A.</b>		
* GA-WP-1711	2h, N.L.B.	NBC-S6g	<b>47</b>	DLSS547A	Double layer wall, 92 mm (3-5/8") steel studs spaced 600 mm (24") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board each side; no insulation
* ULC-W406 & *W414	2 h, N.L.B.	NRC	<b>N.A.</b>		
NBC-S6g	2h, N.L.B.	GA-WP-1711	<b>40-44</b>		
* GA-WP-1521	2h, N.L.B.	NBC-S6d	<b>54</b>	DLSS557	Double layer wall, 92 mm (3-5/8") steel studs spaced 400 mm (16") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
* ULC-W406 & *W414	2 h, N.L.B.	NRC-TL-92-424	<b>55</b>		
NBC-S6d	1.5h, N.L.B.	RAL	<b>N.A.</b>		
* GA-WP-1521	2h, N.L.B.	NBC-S6c	<b>55</b>	DLSS557A	Double layer wall, 92 mm (3-5/8") steel studs spaced 600 mm (24") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
* ULC-W406 & *W414	2 h, N.L.B.	NRC-TL-92-412	<b>55</b>		
NBC-S6c	1.5h, N.L.B.	GA-WP-1521	<b>55-59</b>		
* GA-WP-1521	2h, N.L.B.	NBC-S6j	<b>44</b>	DLSS567	Double layer wall, 92 mm (3-5/8") steel studs spaced 400 mm (16") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board each side; no insulation
* ULC-W406 & *W414	2 h, N.L.B.	NRC	<b>N.A.</b>		
NBC-S6j	1.5h, N.L.B.	RAL	<b>N.A.</b>		
GA-WP-1521	2h, N.L.B.	NBC-S6i	<b>45</b>	DLSS567A	Double layer wall, 92 mm (3-5/8") steel studs spaced 600 mm (24") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board each side; no insulation
* ULC-W406 & *W414	2 h, N.L.B.	NRC	<b>N.A.</b>		
NBC-S6i	1.5h, N.L.B.	W780	<b>50</b>		

Note: See references for assembly details regarding stud & drywall type, spacing of studs, fasteners and/or resilient channels, required to meet the listed STC rating for that assembly.

\* Fire rating based on referenced assembly. See Appendix for explanatory footnotes.

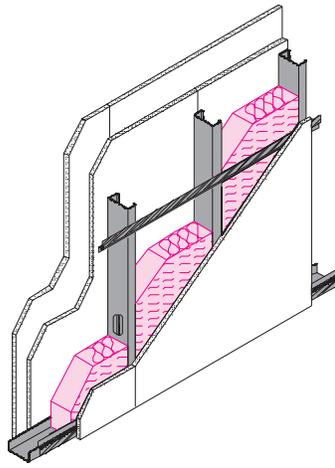


## Double Layer Steel Stud Wall

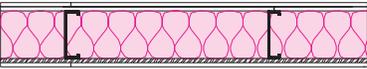
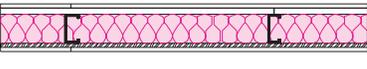
FIRE TEST NO.	FIRE RATING	TEST NO.	STC	WALL ASSEMBLY NO.	CONSTRUCTION DESCRIPTION
* UL-U411	2h, N.L.B.	NBC-S3b	<b>51</b>	DLSS577	<p>Double layer wall, 64 mm (2-1/2") steel studs spaced 400 mm (16") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 65 mm (2-1/2") thick FIBERGLAS PINK® Batt Insulation</p>
* ULC-W406 & *W414	2 h, N.L.B.	NRC	<b>N.A.</b>		
NBC-S3b	2h, N.L.B.	RAL	<b>N.A.</b>		
* UL-U411	2h, N.L.B.	NBC-S3a	<b>54</b>	DLSS577A	<p>Double layer wall, 64 mm (2-1/2") steel studs spaced 600 mm (24") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board each side; one thickness, 65 mm (2-1/2") thick FIBERGLAS PINK® Batt Insulation</p>
* ULC-W406 & *W414	2 h, N.L.B.	NRC-TL-93-037	<b>55</b>		
NBC-S3a	2h, N.L.B.	GA-WP-1548	<b>50-54</b>		
* GA-WP-1615	2h, N.L.B.	NBC-S3d	<b>47</b>	DLSS587	<p>Double layer wall, 64 mm (2-1/2") steel studs spaced 400 mm (16") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 65 mm (2-1/2") thick FIBERGLAS PINK® Batt Insulation</p>
* ULC-W406 & *W414	2 h, N.L.B.	NRC	<b>N.A.</b>		
NBC-S3d	1.5h, N.L.B.	RAL	<b>N.A.</b>		
* GA-WP-1615	2h, N.L.B.	NBC-S3c	<b>53</b>	DLSS587A	<p>Double layer wall, 64 mm (2-1/2") steel studs spaced 600 mm (24") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board each side; one thickness, 65 mm (2-1/2") thick FIBERGLAS PINK® Batt Insulation</p>
* ULC-W406 & *W414	2 h, N.L.B.	NRC-TL-93-040	<b>55</b>		
NBC-S3c	1.5h, N.L.B.	GA-WP-1546	<b>50-54</b>		
* GA-WP-1615	2h, N.L.B.	NBC-S3j	<b>39</b>	DLSS597	<p>Double layer wall, 64 mm (2-1/2") steel studs spaced 400 mm (16") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board each side; no insulation</p>
* ULC-W406 & *W414	2 h, N.L.B.	NRC	<b>N.A.</b>		
NBC-S3j	1.5h, N.L.B.	RAL	<b>N.A.</b>		
* GA-WP-1615	2h, N.L.B.	NBC-S3i	<b>44</b>	DLSS597A	<p>Double layer wall, 64 mm (2-1/2") steel studs spaced 600 mm (24") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board each side; no insulation</p>
* ULC-W406 & *W414	2 h, N.L.B.	NRC	<b>N.A.</b>		
NBC-S3i	1.5h, N.L.B.	GA-WP-1615	<b>45-49</b>		

Note: See references for assembly details regarding stud & drywall type, spacing of studs, fasteners and/or resilient channels, required to meet the listed STC rating for that assembly.

\* Fire rating based on referenced assembly. See Appendix for explanatory footnotes.

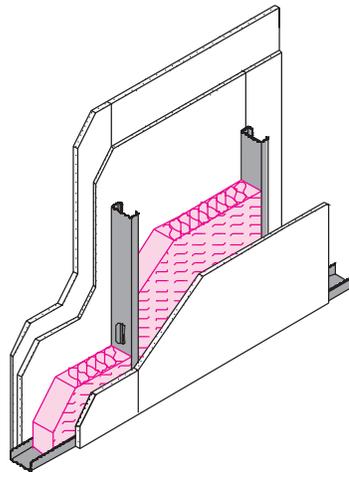


## Unbalanced Steel Stud Wall with Resilient Channels

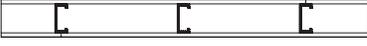
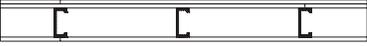
FIRE TEST NO.	FIRE RATING	TEST NO.	STC	WALL ASSEMBLY NO.	CONSTRUCTION DESCRIPTION
ULC NBC	N.A. N.A. N.A.	NBC NRC RAL-TL89-295	<b>N.A.</b> <b>N.A.</b> <b>60</b>	USSR607 	Unbalanced wall, 152 mm (6") steel studs spaced 600 mm (24") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board one side, single layer other side; resilient channels spaced 600 mm (24") o.c.; one thickness, 152 mm (6") thick FIBERGLAS PINK® Batt Insulation
ULC NBC	N.A. N.A. N.A.	NBC NRC-TL-94-019 RAL-TL90-345	<b>N.A.</b> <b>54</b> <b>58</b>	USSR617 	Unbalanced wall, 92 mm (3-5/8") steel studs spaced 400 mm (16") or 600 mm (24") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board one side; single layer other side; resilient channels spaced 600 mm (24") o.c.; one thickness 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation

Note: See references for assembly details regarding stud & drywall type, spacing of studs, fasteners and/or resilient channels, required to meet the listed STC rating for that assembly.

\* Fire rating based on referenced assembly. See Appendix for explanatory footnotes.

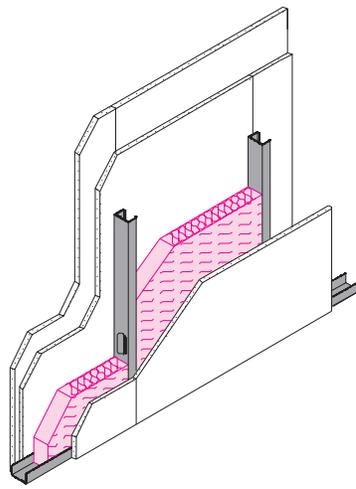


## Unbalanced Steel Stud Wall

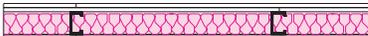
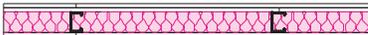
FIRE TEST NO.	FIRE RATING	TEST NO.	STC	WALL ASSEMBLY NO.	CONSTRUCTION DESCRIPTION
* ULC-W407	1 h, N.L.B.	NBC-S5b	52	USS627	 <p>Unbalanced wall, 92 mm (3-5/8") steel studs spaced 400 mm (16") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board one side, single layer other side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation</p>
* ULC-W415	1 h, N.L.B.	NRC-TL-92-420	52		
NBC-S5b	1 h, N.L.B.	RAL	N.A.		
* ULC-W407	1 h, N.L.B.	NBC-S5a	53	USS627A	 <p>Unbalanced wall, 92 mm (3-5/8") steel studs spaced 600 mm (24") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board one side, single layer other side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation</p>
* ULC-W415	1 h, N.L.B.	NRC-TL-92-368	54		
NBC-S5a	1 h, N.L.B.	GA-WP-1052	50-54		
* ULC-W407	1 h, N.L.B.	NBC-S5f	42	USS637	 <p>Unbalanced wall, 92 mm (3-5/8") steel studs spaced 400 mm (16") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board one side, single layer other side; no insulation</p>
* ULC-W415	1 h, N.L.B.	NRC	N.A.		
NBC-S5f	1 h, N.L.B.	RAL	N.A.		
* ULC-W407	1 h, N.L.B.	NBC-S5e	43	USS637A	 <p>Unbalanced wall, 92 mm (3-5/8") steel studs spaced 600 mm (24") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board one side, single layer other side; no insulation</p>
* ULC-W415	1 h, N.L.B.	NRC	N.A.		
NBC-S5e	1 h, N.L.B.	W03082	47		
* GA-WP-1022P	1 h, N.L.B.	NBC-S5d	50	USS647	 <p>Unbalanced wall, 92 mm (3-5/8") steel studs spaced 400 mm (16") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board one side, single layer other side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation</p>
NBC-S5d	L.B., N.A.	NRC-TL-93-345	51		
	1 h, N.L.B.	RAL	N.A.		
* GA-WP-1022P	1 h, N.L.B.	NBC-S5c	51	USS647A	 <p>Unbalanced wall, 92 mm (3-5/8") steel studs spaced 600 mm (24") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board one side, single layer other side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation</p>
NBC-S5c	L.B., N.A.	NRC-TL-92-411	52		
	1 h, N.L.B.	W02284	52		
* GA-WP-1022P	1 h, N.L.B.	NBC-S5h	40	USS657	 <p>Unbalanced wall, 92 mm (3-5/8") steel studs spaced 400 mm (16") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board one side, single layer other side; no insulation</p>
NBC-S5h	L.B., N.A.	NRC	N.A.		
	1 h, N.L.B.	RAL	N.A.		
GA-WP-1022P	1 h, N.L.B.	NBC-S5g	41	USS657A	 <p>Unbalanced wall, 92 mm (3-5/8") steel studs spaced 600 mm (24") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board one side, single layer other side; no insulation</p>
NBC-S5g	L.B., N.A.	NRC	N.A.		
	1 h, N.L.B.	W00682	41		

Note: See references for assembly details regarding stud & drywall type, spacing of studs, fasteners and/or resilient channels, required to meet the listed STC rating for that assembly.

\* Fire rating based on referenced assembly. See Appendix for explanatory footnotes.

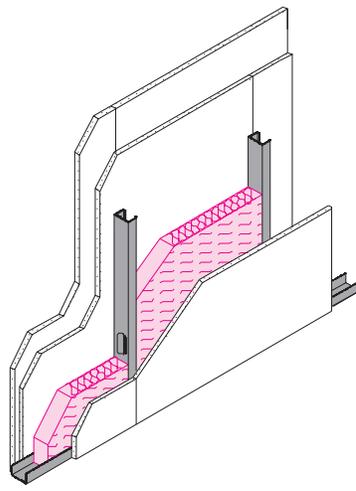


## Unbalanced Steel Stud Wall

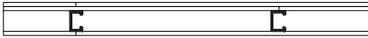
FIRE TEST NO.	FIRE RATING	TEST NO.	STC	WALL ASSEMBLY NO.	CONSTRUCTION DESCRIPTION
*UL-U468 NBC-S2b	1 h, N.L.B. L.B., N.A. 1 h, N.L.B.	NBC-S2b NRC RAL	<b>44</b> <b>N.A.</b> <b>N.A.</b>	USS667 	Unbalanced wall, 64 mm (2-1/2") steel studs spaced 400 mm (16") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board one side, single layer other side; one thickness, 65 mm (2-1/2") thick FIBERGLAS PINK® Batt Insulation
*UL-U468 NBC-S2a	1 h, N.L.B. L.B., N.A. 1 h, N.L.B.	NBC-S2a NRC-TL-93-036 W02884	<b>50</b> <b>51</b> <b>52</b>	USS667A 	Unbalanced wall, 64 mm (2-1/2") steel studs spaced 600 mm (24") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board one side, single layer other side; one thickness, 65 mm (2-1/2") thick FIBERGLAS PINK® Batt Insulation
ULC NBC-S2f	N.A. L.B., N.A. 1 h, N.L.B.	NBC-S2f NRC RAL	<b>37</b> <b>N.A.</b> <b>N.A.</b>	USS677 	Unbalanced wall, 64 mm (2-1/2") steel studs spaced 400 mm (16") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board one side, single layer other side; no insulation
ULC NBC-S2e	N.A. L.B., N.A. 1 h, N.L.B.	NBC-S2e NRC W05382	<b>41</b> <b>N.A.</b> <b>44</b>	USS677A 	Unbalanced wall, 64 mm (2-1/2") steel studs spaced 600 mm (24") o.c.; double layer 15.9 mm (5/8") type "x" gypsum board one side, single layer other side; no insulation
*GA-WP-1021 *UL-U468 NBC-S2d	1 h, N.L.B. 1 h, N.L.B. 1 h, N.L.B.	NBC-S2d NRC RAL	<b>42</b> <b>N.A.</b> <b>N.A.</b>	USS687 	Unbalanced wall, 64 mm (2-1/2") steel studs spaced 400 mm (16") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board one side, single layer other side; one thickness, 65 mm (2-1/2") thick FIBERGLAS PINK® Batt Insulation
*GA-WP-1021 *UL-U468 NBC-S2c	1 h, N.L.B. 1 h, N.L.B. 1 h, N.L.B.	NBC-S2c NRC-TL-93-039 W02984	<b>50</b> <b>51</b> <b>50</b>	USS687A 	Unbalanced wall, 64 mm (2-1/2") steel studs spaced 600 mm (24") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board one side, single layer other side; one thickness, 65 mm (2-1/2") thick FIBERGLAS PINK® Batt Insulation
*GA-WP-1021 *UL-U468 NBC	1 h, N.L.B. 1 h, N.L.B. N.A.	NBC NRC RAL	<b>N.A.</b> <b>N.A.</b> <b>N.A.</b>	USS697 	Unbalanced wall, 64 mm (2-1/2") steel studs spaced 400 mm (16") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board one side, single layer other side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation
*GA-WP-1021 *UL-U468 NBC	1 h, N.L.B. 1 h, N.L.B. N.A.	GA-WP-1021 NRC RAL	<b>50-54</b> <b>N.A.</b> <b>N.A.</b>	USS697A 	Unbalanced wall, 64 mm (2-1/2") steel studs spaced 600 mm (24") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board one side, single layer other side; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation

Note: See references for assembly details regarding stud & drywall type, spacing of studs, fasteners and/or resilient channels, required to meet the listed STC rating for that assembly.

\* Fire rating based on referenced assembly. See Appendix for explanatory footnotes.



## Unbalanced Steel Stud Wall

FIRE TEST NO.	FIRE RATING	TEST NO.	STC	WALL ASSEMBLY NO.	CONSTRUCTION DESCRIPTION
* GA-WP-1021 NBC-S2h	1 h, N.L.B. L.B., N.A. 1 h, N.L.B.	NBC-S2h NRC RAL	<b>35</b> <b>N.A.</b> <b>N.A.</b>	USS707 	Unbalanced wall, 64 mm (2-1/2") steel studs spaced 400 mm (16") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board one side, single layer other side; no insulation
* GA-WP-1021 NBC-S2g	1 h, N.L.B. L.B., N.A. 1 h, N.L.B.	NBC-S2g NRC W04482	<b>40</b> <b>N.A.</b> <b>39</b>	USS707A 	Unbalanced wall, 64 mm (2-1/2") steel studs spaced 600 mm (24") o.c.; double layer 12.7 mm (1/2") type "x" gypsum board one side, single layer other side; no insulation

Note: See references for assembly details regarding stud & drywall type, spacing of studs, fasteners and/or resilient channels, required to meet the listed STC rating for that assembly.

\* Fire rating based on referenced assembly. See Appendix for explanatory footnotes.

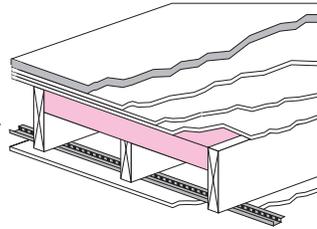
### WOOD FLOORS

all on 51 mm (2") x 254 mm (10") joists, @ 400 mm (16") o.c.

### STC

53

42\*\*



### Construction Description

Carpet and pad, 9.5 mm (3/8") particle board surface, 15.9 mm (5/8") plywood subfloor; single layer 12.7 mm (1/2") type "x" gypsum ceiling on resilient channel; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation

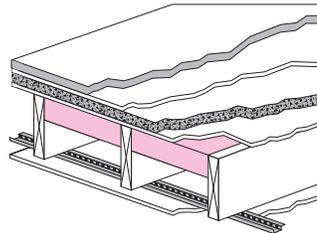
Carpet and pad, 9.5 mm (3/8") particle board surface, 15.9 mm (5/8") plywood subfloor; single layer 12.7 mm (1/2") type "x" gypsum ceiling; no insulation

### LIGHTWEIGHT (Cellular) CONCRETE FLOORS

all on 51 mm (2") x 254 mm (10") joists, @ 400 mm (16") o.c.

58

47



Carpet and pad, 38 mm (1-1/2") lightweight (cellular) concrete floor, 15.9 mm (5/8") plywood subfloor; single layer 12.7 mm (1/2") type "x" gypsum ceiling on resilient channel; one thickness, 89 mm (3-1/2") thick FIBERGLAS PINK® Batt Insulation

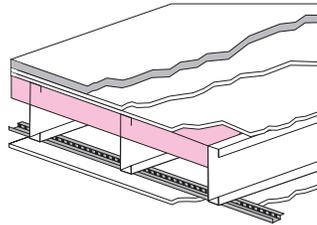
Carpet and pad, 38 mm (1-1/2") lightweight (cellular) concrete floor, 15.9 mm (5/8") plywood subfloor; single layer 12.7 mm (1/2") type "x" gypsum ceiling; no insulation

### STEEL JOIST

all on 184 mm (7-1/4") x 438 mm (18") joists, @ 610 mm (24") o.c.

56

43



Steel joists, carpet and pad, 81 mm (3-1/4") T & G plywood subfloor; single 15.9 mm (5/8") type "x" gypsum board attached to ceiling joists by resilient channel; one thickness, 89 mm (3-1/2") thick FIBERGLAS Steel Stud Insulation

Steel joists, carpet and pad, 19 mm (3/4") T & G plywood subfloor; single layer 15.9 mm (5/8") type "x" gypsum board attached directly to the joists; no insulation

\*\*STC tests performed on assembly without carpeting and pad.

**Sound Absorption Coefficients  
of General Building Materials**
*Octave band centre frequencies (Hz)*

<b>Material</b>	<b>Finish</b>	<b>125</b>	<b>250</b>	<b>500</b>	<b>1000</b>	<b>2000</b>	<b>4000</b>	<b>NRC</b>
<b>Brick</b>	Unglazed	.03	.03	.03	.04	.05	.07	.05
	Unglazed, painted	.01	.01	.02	.02	.02	.03	.00
<b>Carpet</b>	1/8" Pile height	.05	.05	.10	.20	.30	.40	.15
	1/4" Pile height	.05	.10	.15	.30	.50	.55	.25
	3/16" Combined pile and foam	.05	.10	.10	.30	.40	.50	.25
	5/16" Combined pile and foam	.05	.15	.30	.40	.50	.60	.35
<b>Ceiling</b>	5/8" Mineral board ceiling	.31	.29	.51	.70	.71	.71	.55
	5/8" Film faced glass fibre ceiling	.66	.76	.60	.80	.89	.80	.75
	1-1/2" Glass cloth faced glass fibre ceiling	.80	.96	.88	1.04	1.05	1.06	1.00
<b>Concrete block</b>	Unpainted	.36	.44	.31	.29	.29	.25	.25
	Painted	.10	.05	.06	.07	.09	.08	.05
<b>Fabrics</b>	Light velour, 10oz. per sq yd., hung straight in contact with wall	.03	.04	.11	.17	.24	.35	.15
	Medium velour, 14oz. per sq yd., draped to half area	.07	.31	.49	.75	.70	.60	.55
	Heavy velour, 18 oz. per sq yd., draped to half area	.14	.35	.55	.72	.70	.65	.60
<b>Floors</b>	Concrete or terrazzo	.01	.01	.01	.02	.02	.02	.00
	Linoleum, asphalt, rubber or cork tile on concrete	.02	.03	.03	.03	.03	.02	.05
	Wood	.15	.11	.10	.07	.06	.07	.10
	Wood parquet in asphalt on concrete	.04	.04	.07	.06	.06	.07	.05
<b>Glass</b>	1/4" sealed, large panes	.05	.03	.02	.02	.03	.02	.05
	24oz., operable window (in closed condition)	.10	.05	.04	.03	.03	.03	.05
<b>Gypsum Board</b>	1/2" nailed to 2x4's, 16" o.c., painted	.10	.08	.05	.03	.03	.03	.05
	Marble or glazed tile	.01	.01	.01	.01	.02	.02	.00
<b>Plaster, gypsum, lime</b>								
	Rough finish on lath	.02	.03	.04	.05	.04	.03	.05
	Smooth finish	.02	.02	.03	.04	.04	.03	.05
<b>Hardwood plywood paneling</b>								
	1/4" thick, wood frame	.58	.22	.07	.04	.03	.07	.10
<b>Wall Panels</b>	Fiberglass wall panels	.05	.30	.80	1.00	1.02	.95	.80
<b>Water surface</b>	As in swimming pool	.01	.01	.01	.01	.02	.03	.00
<b>Wood roof decking</b>								
	Tongue-and-groove cedar	.24	.19	.14	.08	.13	.10	.15

Table from "Acoustical Ceilings - Use and Practice." Ceilings and Interior Systems Contractors Association (1978), p.18

\* Information received in imperial units only

*Octave band centre frequencies (Hz)*

<b>Product Type &amp; Thickness</b>	<b>Mounting</b>	<b>125</b>	<b>250</b>	<b>500</b>	<b>1000</b>	<b>2000</b>	<b>4000</b>	<b>NRC</b>
701 plain, 1" thick	A	.17	.33	.64	.83	.90	.92	.70
701 plain, 2" thick	A	.22	.67	.98	1.02	.98	1.00	.90
701 plain, 3" thick	A	.43	1.17	1.26	1.09	1.03	1.04	1.15
701 plain, 4" thick	A	.73	1.29	1.22	1.06	1.00	.97	1.15
701 plain, 1" thick	E-405	.32	.41	.70	.83	.93	1.02	.70
701 plain, 2" thick	E-405	.44	.68	1.00	1.09	1.06	1.10	.95
701 plain, 3" thick	E-405	.77	1.08	1.16	1.09	1.05	1.18	1.10
701 plain, 4" thick	E-405	.87	1.14	1.24	1.17	1.18	1.28	1.20
703 plain, 1" thick	A	.11	.28	.68	.90	.93	.96	.70
703 plain, 2" thick	A	.17	.86	1.14	1.07	1.02	.98	1.00
703 plain, 3" thick	A	.53	1.19	1.21	1.08	1.01	1.04	1.10
703 plain, 4" thick	A	.84	1.24	1.24	1.08	1.00	.97	1.15
703 plain, 1" thick	E-405	.32	.32	.73	.93	1.01	1.10	.75
703 plain, 2" thick	E-405	.40	.73	1.14	1.13	1.06	1.10	1.00
703 plain, 3" thick	E-405	.66	.93	1.13	1.10	1.11	1.14	1.05
703 plain, 4" thick	E-405	.65	1.01	1.20	1.14	1.10	1.16	1.10
705 plain, 1" thick	A	.02	.27	.63	.85	.93	.95	.65
705 plain, 2" thick	A	.16	.71	1.02	1.01	.99	.99	.95
705 plain, 3" thick	A	.54	1.12	1.23	1.07	1.01	1.05	1.10
705 plain, 4" thick	A	.75	1.19	1.17	1.05	.97	.98	1.10
705 plain, 1" thick	E-405	.30	.34	.68	.87	.97	1.06	.70
705 plain, 2" thick	E-405	.39	.63	1.06	1.13	1.09	1.10	1.00
705 plain, 3" thick	E-405	.66	.92	1.11	1.12	1.10	1.19	1.05
705 plain, 4" thick	E-405	.59	.91	1.15	1.11	1.11	1.19	1.10
703, FRK faced, 1" thick	A	.18	.75	.58	.72	.62	.35	.65
703, FRK faced, 2" thick	A	.63	.56	.95	.74	.60	.35	.75
703, FRK faced, 1" thick	E-405	.33	.49	.62	.78	.66	.45	.65
703, FRK faced, 2" thick	E-405	.45	.47	.97	.93	.65	.42	.75
705, FRK faced, 1" thick	A	.27	.66	.33	.66	.51	.41	.55
705, FRK faced, 2" thick	A	.60	.50	.63	.82	.45	.34	.60
705, FRK faced, 1" thick	E-405	.29	.52	.33	.72	.58	.53	.55
705, FRK faced, 2" thick	E-405	.50	.36	.70	.90	.52	.47	.60
703, ASJ faced, 1" thick	A	.17	.71	.59	.68	.54	.30	.65
703, ASJ faced, 2" thick	A	.47	.62	1.01	.81	.51	.32	.75
703, ASJ faced, 1" thick	E-405	.27	.54	.57	.66	.58	.36	.60
703, ASJ faced, 2" thick	E-405	.53	.44	.93	.77	.55	.35	.65
705, ASJ faced, 1" thick	A	.20	.64	.33	.56	.54	.33	.50
705, ASJ faced, 2" thick	A	.58	.49	.73	.76	.55	.35	.65
705, ASJ faced, 1" thick	E-405	.24	.58	.29	.75	.57	.41	.55
705, ASJ faced, 2" thick	E-405	.42	.35	.69	.80	.55	.42	.60

- Mounting:** •A (formerly no.4) - Material placed against a solid backing such as a block wall  
 •E-405 (formerly no.7) - Material placed over a 16" air space. Data includes facings exposed to sound source, if specified
- Facings:** •FRK-foil-faced laminate with glass fiber reinforcing and Kraft backing  
 •ASJ (All-Service Jacket) - An embossed laminate of white Kraft facing with glass fiber reinforcing and a foil backing

**Procedures:**

All tests were conducted according to ASTM C 423, Standard Test Method for Sound Absorption Coefficients by the Reverberation Room Method. Sound Absorption coefficients for each sample were measured over one-third octave bands and are reported at the preferred octave band center frequencies. In some cases, the measured sound absorption coefficients are greater than 1.00. As recommended by the test method, these values are reported as measured and not adjusted. The corresponding NRC for a material may also be greater than 1.00 according to the ASTM test method. The sound absorption coefficients of these materials are not significantly affected by coverings such as expanded sheet metal, metal lath, hardware cloth, screening or glass cloth. When other coverings having less open surfaces are required, consult an Owens Corning sales representative.

\* Information received in imperial units only

<i>Exterior finish</i>	<i>Cavity Insulation</i>	<i>Resilient channel</i>	<i>STC</i>
<b>Wood siding(1)</b>	None	No	<b>37</b>
	3-1/2" FIBERGLAS PINK® Batt insulation	No	<b>39</b>
	None	Yes	<b>43</b>
	3-1/2" FIBERGLAS PINK® Batt insulation	Yes	<b>47</b>
<b>Stucco(2)</b>	3-1/2" FIBERGLAS PINK® Batt insulation	No	<b>46</b>
	None	Yes	<b>49</b>
	3-1/2" FIBERGLAS PINK® Batt insulation	Yes	<b>57</b>
<b>Brick veneer(3)</b>	3 1/2" FIBERGLAS PINK® Batt insulation	No	<b>56</b>
	None	Yes	<b>54</b>
	3-1/2" FIBERGLAS PINK® Batt insulation	Yes	<b>58</b>
<b>Concrete block</b>	None	No	<b>45</b>

**Wall construction details**

<b>Wood siding(1)</b>	Framing	2"x4" wood studs, 16" o.c.
	Sheathing	1/2" wood fiberboard insulation nailed to studs
	Siding	5/8"x10" redwood nailed through sheathing into studs
	Interior	1/2" gypsum board screwed to studs or to metal resilient channels which were attached to the studs
<b>Stucco(2)</b>	Framing	2"x4" woods studs, 16" o.c.
	Sheathing	None
	Stucco	No. 15 felt building and 1" wire mesh nailed to studs. Stucco Applied in 3 coats to 7/8" total thickness. Dry weight of Stucco 7.9lb/sq ft
	Interior	1/2" gypsum board screwed to studs or resilient channel
<b>Brick veneer(3)</b>	Framing	2"x4" wood studs, 16" o.c.
	Sheathing	3/4" wood fiberboard insulation
	Brick	standard face brick 3-1/2" wide, spaced 1/2" out from sheathing with metal ties nailed through sheathing into studs. Dry weight of brick and mortar 41lb/sq ft .
	Interior	1/2" gypsum board screwed to studs or resilient channel

Taken from the U.S. Department of Commerce National Bureau of Standards Building Science Series 77.  
 \* Information received in imperial units only

## Sound Transmission Loss of Exterior Doors

<i>Door</i>	<i>Weather Strip</i>	<i>Normally closed STC</i>
Wood, flush solid core(1)	Brass	<b>27</b>
Wood, flush solid core(1)	Plastic	<b>27</b>
Steel, flush(2)	Magnetic	<b>28</b>

## Door Construction Detail

(1)Flush solid core wood door	Width	1-3/4"
	Weight	78lb, 3.9 lb/sq ft
(2)Flush steel door	Width	1-3/4"
	Faces	0.028" steel, separated by plastic perimeter strip
	Core	Rigid polyurethane, 2 2-1/2" lb/cu.ft, foamed in place
	Weight	64lb, 3.2lb/sq ft

## Sound Transmission Loss of Windows

<i>Material</i>	<i>Type</i>	<i>Size</i>	<i>Glazing<sup>1</sup></i>	<i>Sealed STC</i>	<i>Locked STC</i>	<i>Unlocked STC</i>
Wood	Double hung	3'x5'	ss	<b>29</b>		<b>23</b>
			ss-d	<b>29</b>		
			ds	<b>29</b>		
			ds-d	<b>30</b>		
			In-7/16"	<b>28</b>	<b>26</b>	<b>22</b>
	Fixed picture	6'x5'	ss-d	<b>28</b>		
			ds	<b>29</b>		
			in-1"	<b>34</b>	<b>STC</b>	<b>STC</b>
Wood-plastic	Double hung		ss	<b>29</b>	<b>26</b>	<b>26</b>
			in-3/8"	<b>26</b>	<b>26</b>	<b>25</b>
	Storm sash		ds	<b>30</b>	<b>27</b>	
			in-3/8"	<b>28</b>	<b>24</b>	
	Fixed casement		ds	<b>31</b>		
			Operable casement	ds		<b>30</b>
	Sliding glass door		lam-3/16"	<b>31</b>	<b>26</b>	<b>26</b>
Aluminum	Sliding		ss	<b>28</b>	<b>24</b>	
	Operable casement		ds	<b>31</b>	<b>21</b>	<b>17</b>
	Single hung		in-7/16"	<b>30</b>	<b>27</b>	<b>25</b>
Single pane 1/4" laminated glass						<b>34</b>

'ss = single strength  
 ds = double strength  
 d = divided lights  
 in = insulating glass of indicated overall thickness  
 lam = laminated safety glass of indicated overall thickness

Taken from the U.S. Department of Commerce National Bureau of Standards Building Science Series 77.

\* Information received in imperial units only

- \***GA File No. WP-1021**, non load-bearing steel stud wall assembly, listed in The Gypsum Association Fire Resistance Design Manual GA-600-97, documents a **1 hour** fire rating using 64 mm (2-1/2") steel studs, 0.46 mm (25 Gauge), spaced 600 mm (24") o.c. with a single layer of 12.7 mm (1/2") type "x" gypsum wallboard on one side, double layer other side, and no insulation. Item 10 Under the General Explanatory Notes section of this manual, page 3, states that "When not specified as a component of a fire tested wall or partition system, mineral or glass fiber insulation of a thickness not exceeding that of the stud depth shall be permitted to be added within the stud cavity". Item 13 states that "Greater stud sizes (depths) shall be permitted to be used in metal or wood stud systems. Metal studs of heavier gauge than those tested shall be permitted. The assigned rating of any load-bearing system shall also apply to the same system when used as a non load-bearing system. Indicated stud spacings are maximums". Item 18 states that "Additional layers of the type "x" or regular gypsum board shall be permitted to be added to any system". The batts enhance the acoustical performance of the assembly without affecting the listed fire rating.
- \***GA File No. WP-1022P**, non load-bearing steel stud wall assembly, listed in The Gypsum Association Fire Resistance Design Manual GA-600-97, documents a **1 hour** fire rating using 64 mm (2-1/2") steel studs, 0.46 mm (25 Gauge), spaced 600 mm (24") o.c. with a double layer of 12.7 mm (1/2") proprietary type "x" gypsum wallboard (Gold Bond Fire-Shield G) on one side, single layer other side and no insulation. Item 10 Under the General Explanatory Notes section of this manual, page 3, states that "When not specified as a component of a fire tested wall or partition system, mineral or glass fiber insulation of a thickness not exceeding that of the stud depth shall be permitted to be added within the stud cavity". Item 13 states that "Greater stud sizes (depths) shall be permitted to be used in metal or wood stud systems. Metal studs of heavier gauge than those tested shall be permitted. The assigned rating of any load-bearing system shall also apply to the same system when used as a non load-bearing system. Indicated stud spacings are maximums". Item 18 states that "Additional layers of the type "x" or regular gypsum board shall be permitted to be added to any system". Only the specified proprietary type gypsum board listed in the assembly description can be used to meet the listed rating. The batts enhance the acoustical performance of the assembly without affecting the listed fire rating.
- \***GA File No. WP-1521**, non load-bearing steel stud wall assembly, listed in The Gypsum Association Fire Resistance Design Manual GA-600-97, documents a **2 hour** fire rating using 92 mm (3-5/8") steel studs, 0.46 mm (25 Gauge), spaced 600 mm (24") o.c. with a double layer of 12.7 mm (1/2") type "x" gypsum wallboard on each side and no insulation. Item 10 Under the General Explanatory Notes section of this manual, page 3, states that "When not specified as a component of a fire tested wall or partition system, mineral or glass fiber insulation of a thickness not exceeding that of the stud depth shall be permitted to be added within the stud cavity". Item 13 states that "Greater stud sizes (depths) shall be permitted to be used in metal-or wood-stud systems. Metal studs of heavier gauge than those tested shall be permitted. The assigned rating of any load-bearing system shall also apply to the same system when used as a non load-bearing system. Indicated stud spacings are maximums". Item 18 states that "Additional layers of the type "x" or regular gypsum board shall be permitted to be added to any system". The batts enhance the acoustical performance of the assembly without affecting the listed fire rating.
- \***GA File No. WP-1615**, non load-bearing steel stud wall assembly, listed in The Gypsum Association Fire Resistance Design Manual GA-600-97, documents a **2 hour** fire rating using 64 mm (2-1/2") steel studs, 0.46 mm (25 Gauge), spaced 600 mm (24") o.c. with a double layer of 12.7 mm (1/2") type "x" gypsum wallboard on each side and no insulation. Item 10 Under the General Explanatory Notes section of this manual, page 3, states that "When not specified as a component of a fire tested wall or partition system, mineral or glass fiber insulation of a thickness not exceeding that of the stud depth shall be permitted to be added within the stud cavity". Item 13 states that "Greater stud sizes (depths) shall be permitted to be used in metal-or wood-stud systems. Metal studs of heavier gauge than those tested shall be permitted. The assigned rating of any load-bearing system shall also apply to the same system when used as a non load-bearing system. Indicated stud spacings are maximums". Item 18 states that "Additional layers of the type "x" or regular gypsum board shall be permitted to be added to any system". The batts enhance the acoustical performance of the assembly without affecting the listed fire rating.
- \***GA File No. WP-1711**, non load-bearing steel stud wall assembly, listed in The Gypsum Association Fire Resistance Design Manual GA-600-97, documents a **2 hour** fire rating using 92 mm (3-5/8") steel studs, 0.46 mm (25 Gauge), spaced 600 mm (24") o.c. with a double layer of 15.9 mm (5/8") type "x" gypsum wallboard on each side and no insulation. Item 10 Under the General Explanatory Notes section of this manual, page 3, states that "When not specified as a component of a fire tested wall or partition system, mineral or glass fiber insulation of a thickness not exceeding that of the stud depth shall be permitted to be added within the stud cavity". Item 13 states that "Greater stud sizes (depths) shall be permitted to be used in metal or wood stud systems. Metal studs of heavier gauge than those tested shall be permitted. The assigned rating of any load-bearing system shall also apply to the same system when used as a non load-bearing system. Indicated stud spacings are maximums". Item 18 states that "Additional layers of the type "x" or regular gypsum board shall be permitted to be added to any system". The batts enhance the acoustical performance of the assembly without affecting the listed fire rating.
- \***GA File No. WP-3370**, load-bearing double wood stud wall assembly, listed in The Gypsum Association Fire Resistance Design Manual GA-600-97, documents a **1 hour** fire rating using a double row of 38x89 mm (2"x4") wood studs spaced 400 mm (16") o.c. on separate plates 25 mm (1") apart and a single layer of 15.9 mm (5/8") type "x" gypsum wallboard on each side and no insulation. Item 10 Under the General Explanatory Notes section of this manual, page 3, states that "When not specified as a component of a fire tested wall or partition system, mineral or glass fiber insulation of a thickness not exceeding that of the stud depth shall be permitted to be added within the stud cavity". Item 13 states that "greater stud sizes (depths) shall be permitted to be used in metal-or wood-stud systems. Metal studs of heavier gauge than those tested shall be permitted. The assigned rating of any load-bearing system shall also apply to the same system when used as a non load-bearing system. Indicated stud spacings are maximums". Item 18 states that "Additional layers of the type "x" or regular gypsum board shall be permitted to be added to any system". The batts enhance the acoustical performance of the assembly without affecting the listed fire rating.

- \***GA File No. WP-5015**, non load-bearing chase wall assembly, listed in The Gypsum Association Fire Resistance Design Manual GA-600-97, documents a **1 hour** fire rating using a double row of 41 mm (1-5/8") steel studs, 0.46 mm (25 Gauge), spaced 600 mm (24") o.c. and 156 mm (6-1/4") apart, with a single layer of 15.9 mm (5/8") type "x" gypsum wallboard on each side and no insulation. Item 10 Under the General Explanatory Notes section of this manual, page 3, states that "When not specified as a component of a fire tested wall or partition system, mineral or glass fiber insulation of a thickness not exceeding that of the stud depth shall be permitted to be added within the stud cavity". Item 13 states that "Greater stud sizes (depths) shall be permitted to be used in metal-or wood-stud systems. Metal studs of heavier gauge than those tested shall be permitted. The assigned rating of any load-bearing system shall also apply to the same system when used as a non load-bearing system. Indicated stud spacings are maximums". Item 18 states that "Additional layers of the type "x" or regular gypsum board shall be permitted to be added to any system". The batts enhance the acoustical performance of the assembly without affecting the listed fire rating.
- \***GA File No. WP-5105**, non load-bearing chase wall assembly, listed in The Gypsum Association Fire Resistance Design Manual GA-600-97, documents a **2 hour** fire rating using a double row of 41 mm (1-5/8") steel studs, 0.46 mm (25 Gauge), spaced 600 mm (24") o.c. and 156 mm (6-1/4") apart, with a double layer of 15.9 mm (5/8") type "x" gypsum wallboard on each side and no insulation. Item 10 Under the General Explanatory Notes section of this manual, page 3, states that "When not specified as a component of a fire tested wall or partition system, mineral or glass fiber insulation of a thickness not exceeding that of the stud depth shall be permitted to be added within the stud cavity". Item 13 states that "Greater stud sizes (depths) shall be permitted to be used in metal-or wood-stud systems. Metal studs of heavier gauge than those tested shall be permitted. The assigned rating of any load-bearing system shall also apply to the same system when used as a non load-bearing system. Indicated stud spacings are maximums". Item 18 states that "Additional layers of the type "x" or regular gypsum board shall be permitted to be added to any system". The batts enhance the acoustical performance of the assembly without affecting the listed fire rating.
- \***OSUT-3127**, load-bearing wall assembly uses 38x89 mm (2"x4") wood studs spaced 400 mm (16") o.c. max. with resilient channels, a single layer of 15.9 mm (5/8") type "x" gypsum board on each side and 38 mm (1-1/2") FIBERGLAS PINK® Batt Insulation, yielding a **1 hour** fire rating. See "Summarization of Test Results" report of Project T-3127 conducted at the Engineering Experiment Station at Ohio State University. Under standard engineering practices, substituting the single layer of 15.9 mm (5/8") drywall, with two layers of 12.7 mm (1/2") drywall, and adding extra insulation, will not affect the listed fire rating.
- \***ULC-W301**, load-bearing wall assembly listed in ULC List of Equipment & Materials Volume III, Fire Resistance Ratings, documents a **1 hour** fire rating using 38x89 mm (2"x4") wood studs spaced 400 mm (16") o.c. with a single layer of 15.9 mm (5/8") type "x" gypsum board (Atlantic/Canadian/Domtar/Georgia Pacific/Westroc) on each side and no insulation. On Page 19 of Volume III, under Walls and Partitions, it is stated that "With the exception of support (i.e. studs) and fastener (i.e. nails, screws) spacings, the dimensions given in the following designs are to be construed as the minimum allowable for each rated assembly. Support and fastener spacings are the maximum allowable. Mineral fiber thermal building insulation that is processed from rock, slag and glass only may be used in assemblies consisting of wallboard and steel or wood studs when illustrated without insulation, without detracting from the rating assigned to the assembly". See Owens Corning Canada's Batts & Blankets listing under Guide No. 40 U8.3 of Volume II. The batts enhance the acoustical performance of the assembly without affecting the listed fire rating.
- \***ULC-W302**, load-bearing wall assembly listed in ULC List of Equipment & Materials Volume III, Fire Resistance Ratings, documents a **45 minute** fire rating using 38x89 mm (2"x4") wood studs spaced 400 mm (16") o.c. with a single layer of 12.7 mm (1/2") type "x" gypsum board (Atlantic/Canadian/Domtar/Georgia Pacific/Westroc) on each side and no insulation. On page 19 of Volume III, under Walls and Partitions, it is stated that "With the exception of support (i.e. studs) and fastener (i.e. nails, screws) spacings, the dimensions given in the following designs are to be construed as the minimum allowable for each rated assembly. Support and fastener spacings are the maximum allowable. Mineral fiber thermal building insulation that is processed from rock, slag and glass only may be used in assemblies consisting of wall board and steel or wood studs when illustrated without insulation, without detracting from the rating assigned to the assembly". See Owens Corning Canada's Batts & Blankets listing under Guide No. 40 U8.3 of Volume II. The batts enhance the acoustical performance of the assembly without affecting the listed fire rating.
- \***ULC-W406**, non load-bearing wall assembly listed in ULC List of Equipment and Materials, Volume III, Fire resistance Ratings, documents a **2 hour** fire rating using 64 mm (2-1/2") steel studs, 0.5 mm (25 Gauge), spaced 600 mm (24") o.c. with a double layer of 12.7 mm (1/2") type "x" gypsum board (Canadian Gypsum) on both sides and no insulation. On page 19 of Volume III, under Walls and partitions, it is stated that "With the exception of support (i.e. studs) and fastener (i.e. nails, screws) spacings, the dimensions given in the following designs are to be construed as the minimum allowable for each rated assembly. Support and fastener spacings are the maximum allowable. Mineral fibre thermal building insulation that is processed from rock, slag and glass only may be used in assemblies consisting of wallboard and steel or wood studs when illustrated without insulation, without detracting from the rating assigned to the assembly." See Owens Corning Canada's Batts & Blankets listing under Guide No. 40 U8.3 of Volume II. The batts enhance the acoustical performance of the assembly without affecting the listed fire rating.
- \***ULC-W407**, non load-bearing wall assembly listed in ULC List of Equipment & Materials Volume III, Fire Resistance Ratings, documents a **1 hour** fire rating using 92 mm (3-5/8") steel studs, 0.46 mm (25 Gauge), spaced 600 mm (24") o.c. with a single layer of 15.9 mm (5/8") type "x" gypsum board (Canadian Gypsum) on each side and no insulation. On page 19 of Volume III, under Walls and Partitions, it is stated that "With the exception of support (i.e. studs) and fastener (i.e. nails, screws) spacings, the dimensions given in the following designs are to be construed as the minimum allowable for each rated assembly. Support and fastener spacings are the maximum allowable. Mineral fiber thermal building insulation that is processed from rock, slag and glass only may be used in assemblies consisting of wallboard and steel or wood studs when illustrated without insulation, without detracting from the rating assigned to the assembly". See Owens Corning Canada's Batts & Blankets listing under Guide No. 40 U8.3 of Volume II. The batts enhance the acoustical performance of the assembly without affecting the listed fire rating.

- \***ULC-W414**, non load-bearing wall assembly listed in ULC List of Equipment and Materials, Volume III, Fire resistance Ratings, documents a **2 hour** fire rating using 63 mm (2-1/2") steel studs, 0.6 mm (25 Gauge), spaced 600 mm (24") o.c. with a double layer of 12.7 mm (1/2") type "x" gypsum board (Atlantic Gypsum, Domtar, Westroc Industries) on both sides and no insulation. On page 19 of Volume III, under Walls and Partitions, it is stated that "With the exception of support (i.e. studs) and fastener (i.e. nails, screws) spacings, the dimensions given in the following designs are to be construed as the minimum allowable for each rated assembly. Support and fastener spacings are the maximum allowable. Mineral fibre thermal building insulation that is processed from rock, slag and glass only may be used in assemblies consisting of wallboard and steel or wood studs when illustrated without insulation, without detracting from the rating assigned to the assembly." See Owens Corning Canada's Batts & Blankets listing under Guide No. 40 U8.3 of Volume II. The batts enhance the acoustical performance of the assembly without affecting the listed fire rating.
- \***ULC-W415**, non load-bearing wall assembly listed in ULC List of Equipment & Materials Volume III, Fire Resistance Ratings, documents a **1 hour** fire rating using 92 mm (3-5/8") steel studs, 0.46 mm (25 Gauge), spaced 600 mm (24") o.c. with a single layer of 15.9 mm (5/8") type "x" gypsum board (Atlantic/Domtar/Westroc) on each side and no insulation. On page 19 of Volume III, under Walls and Partitions it is stated that "With the exception of support (i.e. studs) and fastener (i.e. nails, screws) spacings, the dimensions given in the following designs are to be construed as the minimum allowable for each rated assembly. Support and fastener spacings are the maximum allowable. Mineral fiber thermal building insulation that is processed from rock, slag and glass only may be used in assemblies consisting of wallboard and steel or wood studs when illustrated without insulation, without detracting from the rating assigned to the assembly". See Owens Corning Canada's Batts & Blankets listing under Guide No. 40 U8.3 of Volume II. The batts enhance the acoustical performance of the assembly without affecting the listed fire rating.
- \***UL-U305**, load-bearing wall assembly listed in Underwriters Laboratories Inc. (ULI) Fire Resistance Directory 1997, Vol.1 documents a **1 hour** fire rating using 38x89 mm (2"x4") wood studs (fire stopped) spaced 400 mm (16") o.c. with a single layer of 15.9 mm (5/8") type "x" gypsum board on each side (see design description for allowable types) and no insulation. On page 13, under Wall and Partition Assemblies, it is stated that "The hourly rating of a load-bearing assembly also applies to the same assembly when it is used as a non-load bearing assembly. The size of studs are minimum unless otherwise stated in a design. The spacing of studs is a maximum unless otherwise stated in a design. The use of glass fiber insulation is optional." The batts enhance the acoustical performance of the assembly without affecting the listed fire rating. See Owens Corning Fiberglas Corp, Batts & Blankets listing, Nos. R13926(N) & R3576(N), under BZJZ.
- \***UL-U309**, load-bearing wall assembly listed in Underwriters Laboratory Inc. (ULI) Fire Resistance Directory 1997, Vol.1 documents a **1 hour** fire rating using 38x89 mm (2"x4") wood studs (fire stopped) spaced 600 mm (24") o.c. with a single layer of 15.9 mm (5/8") type "x" gypsum board on each side (see design description for allowable types) and no insulation. On page 13, under Wall and Partition Assemblies, it is stated that "The hourly rating of a load-bearing assembly also applies to the same assembly when it is used as a non-load bearing assembly. The size of studs are minimum unless otherwise stated in a design. The spacing of studs is a maximum unless otherwise stated in a design. The use of glass fiber insulation is optional." The batts enhance the acoustical performance of the assembly without affecting the listed fire rating. See Owens Corning Fiberglas Corp, Batts & Blankets listing, Nos. R13926(N) & R3576(N), under BZJZ.
- \***UL-U340**, load-bearing staggered wood wall assembly listed in Underwriters Laboratory Inc. (ULI) Fire Resistance Directory 1997, Vol.1 documents a **1 hour** fire rating using 38x89 mm (2"x4") wood studs staggered on a common 38x140 mm (2"x6") wood plate, spaced 600 mm (24") o.c. with a single layer of 15.9 mm (5/8") type "x" gypsum board on each side (see design description for allowable types) and no insulation. On page 13, under Wall and Partition Assemblies, it is stated that "The hourly rating of a load-bearing assembly also applies to the same assembly when it is used as a non-load bearing assembly. The size of studs are minimum unless otherwise stated in a design. The spacing of studs is a maximum unless otherwise stated in a design. The use of glass fiber insulation is optional." The batts enhance the acoustical performance of the assembly without affecting the listed fire rating. See Owens Corning Fiberglas Corp, Batts & Blankets listing, Nos. R13926(N) & R3576(N), under BZJZ.
- \***UL-U411**, non load-bearing steel stud wall assembly listed in Underwriters Laboratories Inc. (ULI) Fire Resistance Directory 1997, Vol.1 documents a **2 hour** fire rating using 64 mm (2-1/2") steel studs, 0.46 mm (25 Gauge), spaced 600 mm (24") o.c. max. with a double layer of 15.9 mm (5/8") type "x" gypsum board on each side (see design description for allowable types) and no insulation. On page 13, under Wall and Partition Assemblies, it is stated that "The hourly rating of a load-bearing assembly also applies to the same assembly when it is used as a non-load bearing assembly. The size of studs are minimum unless otherwise stated in a design. The spacing of studs is a maximum unless otherwise stated in a design. The use of glass fiber insulation is optional." The batts enhance the acoustical performance of the assembly without affecting the listed fire rating. See Owens Corning Fiberglas Corp, Batts & Blankets listing, Nos. R13926(N) & R3576(N), under BZJZ.
- \***UL-U420**, non load-bearing chase wall assembly listed in Underwriters Laboratories Inc. (ULI) Fire Resistance Directory 1997, Vol.1 documents a **1 hour** fire rating using 41 mm (1-5/8") steel studs, 0.46 mm (25 Gauge), spaced 600 mm (24") o.c. with a single layer of 15.9 mm (5/8") type "x" gypsum board on each side (see design description for allowable types) and no insulation. A double layer of 15.9 mm (5/8") type "x" gypsum board on each side and no insulation, yields a **2 hour** fire rating. On page 13, under Wall and Partition Assemblies, it is stated that "The hourly rating of a load-bearing assembly also applies to the same assembly when it is used as a non-load bearing assembly. The size of studs are minimum unless otherwise stated in a design. The spacing of studs is a maximum unless otherwise stated in a design. The use of glass fiber insulation is optional." The batts enhance the acoustical performance of the assembly without affecting the listed fire rating. See Owens Corning Fiberglas Corp, Batts & Blankets listing, Nos. R13926(N) & R3576(N), under BZJZ.

- \***UL-U465**, non load-bearing steel stud wall assembly listed in Underwriters Laboratories Inc. (ULI) Fire Resistance Directory 1997, Vol.1 documents a **1 hour** fire rating using 89 mm (3-5/8") steel studs, 0.46 mm (25 Gauge), spaced 600 mm (24") o.c. max. with a single layer of 15.9 mm (5/8") type "x" gypsum board on each side (see design description for allowable types) and no insulation. On page 13, under Wall and Partition Assemblies, it is stated that "The hourly rating of a load-bearing assembly also applies to the same assembly when it is used as a non-load bearing assembly. The size of studs are minimum unless otherwise stated in a design. The spacing of studs is a maximum unless otherwise stated in a design. The use of glass fiber insulation is optional." The batts enhance the acoustical performance of the assembly without affecting the listed fire rating. See Owens Corning Fiberglas Corp, Batts & Blankets listing, Nos. R13926(N) & R3576(N), under BZJZ.
- \***UL-U468**, non load-bearing steel stud wall assembly listed in Underwriters Laboratories Inc. (ULI) Fire Resistance Directory 1997, Vol.1 documents a **1 hour** fire rating using 64 mm (2-1/2") steel studs, 0.46 mm (25 Gauge), spaced 400 mm (16") or 600 mm (24") o.c. with a single layer of 12.7 mm (1/2") type "x" gypsum board on each side (see design description for allowable types) and 65 mm (2-1/2") thick FIBERGLAS PINK® Batt Insulation. On page 13, under Wall and Partition Assemblies, it is stated that "The hourly rating of a load-bearing assembly also applies to the same assembly when it is used as a non-load bearing assembly. The size of studs are minimum unless otherwise stated in a design. The spacing of studs is a maximum unless otherwise stated in a design." See Owens Corning Fiberglas Corp, Batts & Blankets listing, Nos. R13926(N) & R3576(N), under BZJZ.
- \***UL-U494** non load-bearing steel stud wall assembly listed in Underwriters Laboratories Inc. (ULI) Fire Resistance Directory 1997, Vol.1 documents a **1 hour** fire rating using 64 mm (2-1/2") steel studs, 0.46 mm (25 Gauge), spaced 400 mm (16") or 600 mm (24") o.c. with a single layer of 15.9 mm (5/8") type "x" gypsum board on each side (see design description for allowable types) and 65 mm (2-1/2") thick FIBERGLAS PINK® Batt Insulation. On page 13, under Wall and Partition Assemblies, it is stated that "The hourly rating of a load-bearing assembly also applies to the same assembly when it is used as a non-load bearing assembly. The size of studs are minimum unless otherwise stated in a design. The spacing of studs is a maximum unless otherwise stated in a design." See Owens Corning Fiberglas Corp, Batts & Blankets listing, Nos. R13926(N) & R3576(N), under BZJZ.





## **Customer Service**

### **English**

Telephone 1-800-268-7500

7am. to 7pm. E.S.T.

Fax 1-800-784-5704 24 hrs.

### **French**

Telephone 1-800-463-7673

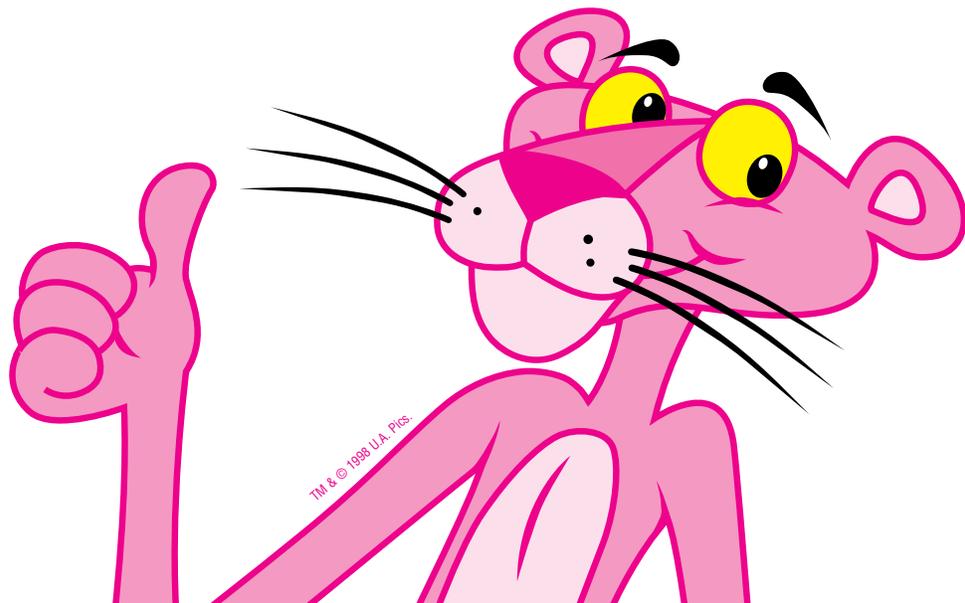
7am. to 7pm. E.S.T.

Fax 1-800-784-5704 24 hrs.

### **Technical Assistance Canada-Wide**

Telephone 1-800-667-0450

Fax (514) 377-2973



TM & © 1998 U.A. Pinc.

