

**System No. F-C-1002**  
(Formerly System No. 100)  
F Rating — 1 and 2 Hr (See Item 1)  
T Rating — 1 Hr

1. Floor-Ceiling Assembly — The 1 or 2 hr fire-rated wood joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the UL Fire Resistance Directory. The 1 hr fire rated assembly shall be constructed as specified in Design No. L365, L371 or L376. The 2 hr fire rated assembly shall be constructed as specified in Design No. L365, L371 or L376. The F Rating of the fire-rated system is equal to the fire rating of the floor-ceiling assembly. The general construction details of the floor-ceiling assembly are summarized below:

- Flooring System** — Lumber or plywood subfloor with finish floor of lumber, plywood or floor topping materials as specified in the individual Floor-Ceiling Design. Max diam of opening is 1 in. larger than outside diam of pipe.
- Wood Joists** — Nom 2 by 10 in. lumber joists spaced 16 in. O.C. with nom 1 by 3 in. lumber bridging and with ends fastened.
- Furring Channels** — (Not Shown) — Resilient galv steel furring channels installed perpendicular to wood joists between first and second layers of wallboard (Item 1D) in 2 hr fire rated assembly. Furring channels spaced max 24 in. O.C.
- Gypsum Board** — Nom 4 1/2 in. thick as specified in the individual Floor-Ceiling Design. First layer of wallboard nailed to wood joists. Second layer of wallboard (2 hr fire rated assembly only) screw-attached to furring channels. Max diam of opening is 1 in. larger than outside diam of penetrant.

1.1 Chaze Wall — (Optional, not shown) — The through penetrants (Item No. 2) may be routed through a fire-rated single, double or staggered wood stud gypsum wallboard chaze wall having a fire rating consistent with that of the floor-ceiling assembly. The chaze wall shall be constructed of the materials and in the manner specified in the individual L300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- Studs** — Nom 2 by 6 in. or double nom 2 by 4 in. lumber studs, tightly butted.
- Sole Plate** — Nom 2 by 6 in. or parallel 2 by 4 in. lumber plates, tightly butted.
- Double Top Plate** — The double top plate shall consist of two nom 2 by 6 in. or two sets of parallel 2 by 4 in. lumber plates, tightly butted. Max diam of opening is 2 in.
- Gypsum Board** — Thickness, type, number of layers and fastener shall be as specified in individual Wall and Partition Design.
- Through Penetrants** — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 in. (point contact) to max 1/4 in. Pipe, conduit or tubing to be rigidly supported on both sides of floor assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
  - Steel Pipe — Nom 10 in. diam (or smaller) Schedule 40 (or heavier) steel pipe.
  - Iron Pipe — Nom 10 in. diam (or smaller) cast or ductile iron pipe.
  - Conduit — Nom 6 in. diam (or smaller) steel conduit, or nom 4 in. (or smaller) steel electrical metallic tubing.
  - Copper Tubing — Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.
  - Copper Pipe — Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.

3. Fill, Void or Cavity Material — Caulk — Min 3/4 in. thickness of fill material applied within the annular, flush with both surfaces of sole plate. Min 5/8 in. or 1 1/4 in. thickness of fill material, for 1 and 2 hr rated assemblies, respectively, applied within the annular, flush with bottom surface of ceiling or top plate. An additional min 1/4 in. thickness of fill material applied to periphery of penetrant at its gross from the top of flooring and underside of ceiling or from top of sole plate and underside of top plate.

3M COMPANY — CF 25W+  
\*Bearing the UL Classification Mark

**RATED PIPE PENETRATION @ GYP. BD. CLG.**  
SCALE: NTS

10

**System No. W-L-1039**  
(Formerly System No. 665)  
F Rating — 1 Hr  
T Rating — 0 and 1 Hr (See Item 2)

1. Wall Assembly — The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual L300 or L400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- Studs** — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. O.C. Steel studs to be min 2 1/2 in. wide and spaced max 24 in. O.C. The opening in the wall to accommodate the through penetrant (Item 2) shall be framed on all sides within the stud cavity using short lengths of stud installed between the vertical stud members.
- Gypsum Board** — One layer of nom 5/8 in. thick gypsum wallboard, as specified in the individual Wall and Partition Design. Max diam of opening is 2 in. for steel stud walls. Max diam of opening is 1 1/2 in. for wood stud walls.
- Through Penetrants** — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 in. (point contact) to max 1/4 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
  - Steel Pipe — Nom 20 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
  - Iron Pipe — Nom 20 in. diam (or smaller) cast or ductile iron pipe.
  - Conduit — Nom 2 in. diam (or smaller) steel electrical metallic tubing or steel conduit.
  - Copper Tubing — Nom 2 in. diam (or smaller) Type L (or heavier) copper tubing.
  - Copper Pipe — Nom 2 in. diam (or smaller) Regular (or heavier) copper pipe.

3. Fill, Void or Cavity Material — Caulk — Min 1/2 in. thickness of fill material applied within the annular, flush with both surfaces of wall. At the point contact location between pipe and wall, min 1/4 in. diam bead of fill material shall be applied at the wall-pipe interface on both surfaces of wall.

RECTORSAL — Bostor 50+  
\*Bearing the UL Classification Mark

**TYP. RATED PENETRATION @ GYP. BD. WALL**  
SCALE: NTS

9

**System No. F-C-5002**  
(Formerly System No. 450)  
F Rating — 1 Hr  
T Rating — 1 Hr  
I Rating At Ambient — 7 CFM/sq ft  
I Rating At 400 F — Less Than 1 CFM/sq ft

1. Floor Assembly — The fire-rated wood truss or combination wood and steel truss floor-ceiling assembly shall be constructed of the materials and in the manner described in the individual L500-Series Designs in the UL Fire Resistance Directory and shall include the following construction features:

- Trusses** — Min 12 in. deep parallel chord trusses fabricated from nom 2 by 4 in. lumber in combination with galv steel truss plates or Structural Wood Members\* with lagging as required.
- Flooring** — Nom 5/4 in. thick plywood flooring with or without Floor Topping Materials\*. Max diam of hole-sawed opening in flooring is 7 in.
- Furring Channels** — Rigid or resilient galv steel furring channels installed perpendicular to bottom chord of trusses.
- Gypsum Board** — Nom 4 1/2 in. thick, screw-attached to furring channels. Min 1/4 in. thick, screw-attached to gypsum wallboard ceiling is 7 in.

2. Pipe — Nom 4 in. diam (or smaller) Schedule 10 (or heavier) steel pipe or nom 3 in. diam (or smaller) Type L (or heavier) copper pipe. Pipe to be installed approximately midway between trusses and centered in circular cutouts in flooring (Item 1B) and gypsum wallboard ceiling (Item 1D). Diam of circular cutouts in flooring and gypsum wallboard ceiling to be 1/2 to 3/4 in. larger than outside diam of pipe covering (Item 3) or tube insulation (Item 3A) on pipe. Pipe to be rigidly supported on both sides of floor-ceiling assembly.

3. Pipe Covering — Nom 1 in. thick hollow cylindrical heavy density (min 5.5 pcf) glass fiber units coated with a fire-rated, non-flammable jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with built strip tape supplied with the product.

See Pipe and Equipment Covering — Materials\* (BRCU) category Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking of 30 or less may be used.

3A. Tube Insulation — One plastic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 in. (point contact) to max 1/4 in. Pipe, conduit or tubing to be rigidly supported on both sides of floor assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
 

- Steel Pipe — Nom 10 in. diam (or smaller) Schedule 40 (or heavier) steel pipe.
- Iron Pipe — Nom 10 in. diam (or smaller) cast or ductile iron pipe.
- Conduit — Nom 6 in. diam (or smaller) steel conduit, or nom 4 in. (or smaller) steel electrical metallic tubing.
- Copper Tubing — Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.
- Copper Pipe — Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.

3. Fill, Void or Cavity Material — Caulk — Min 3/4 in. thickness of fill material applied within the annular, flush with both surfaces of sole plate. Min 5/8 in. or 1 1/4 in. thickness of fill material, for 1 and 2 hr rated assemblies, respectively, applied within the annular, flush with bottom surface of ceiling or top plate. An additional min 1/4 in. thickness of fill material applied to periphery of penetrant at its gross from the top of flooring and underside of ceiling or from top of sole plate and underside of top plate.

3M COMPANY — CF 25W+  
\*Bearing the UL Classification Mark

**TYP. RATED PENETRATION @ GYP. BD. CLG.**  
SCALE: NTS

8

**System No. W-L-1039**  
(Formerly System No. 665)  
F Rating — 1 Hr  
T Rating — 0 and 1 Hr (See Item 2)

1. Wall Assembly — The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual L300 or L400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- Studs** — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. O.C. Steel studs to be min 2 1/2 in. wide and spaced max 24 in. O.C. The opening in the wall to accommodate the through penetrant (Item 2) shall be framed on all sides within the stud cavity using short lengths of stud installed between the vertical stud members.
- Gypsum Board** — One layer of nom 5/8 in. thick gypsum wallboard, as specified in the individual Wall and Partition Design. Max diam of opening is 2 in. for steel stud walls. Max diam of opening is 1 1/2 in. for wood stud walls.
- Through Penetrants** — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 in. (point contact) to max 1/4 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
  - Steel Pipe — Nom 4 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
  - Iron Pipe — Nom 4 in. diam (or smaller) cast or ductile iron pipe.
  - Conduit — Nom 2 in. diam (or smaller) steel conduit, or nom 1 1/2 in. (or smaller) steel electrical metallic tubing.
  - Copper Tubing — Nom 2 in. diam (or smaller) Type L (or heavier) copper tubing.
  - Copper Pipe — Nom 2 in. diam (or smaller) Regular (or heavier) copper pipe.

3. Fill, Void or Cavity Material — Caulk — Min 1/2 in. thickness of fill material applied within the annular, flush with both surfaces of wall. At the point contact location between pipe and wall, min 1/4 in. diam bead of fill material shall be applied at the wall-pipe interface on both surfaces of wall.

RECTORSAL — Bostor 50+  
\*Bearing the UL Classification Mark

**TYP. RATED PENETRATION @ GYP. BD. WALL**  
SCALE: NTS

7

**NOT USED**  
SCALE: NTS

6

**GA FILE NO. FC 5002**

**WOOD JOISTS, GYPSUM WALLBOARD**

1 HOUR FIRE 35 to 39 STC SOUND

AGORA Ceiling, Wdgge, Fps Test, Sound Test

5 8 0 1 9 8

RECEIVED  
CITY OF LAS VEGAS PERMITS  
DEC 02 2003

**FIRE-RATED CEILING**  
SCALE: NTS

5

**System No. C-AJ-1353**  
F Rating — 0 Hr

Floor or Wall Assembly — Min 2-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete floor may also be constructed of any min 6 in. thick hollow-core Precast Concrete Units\* (PCU). Wall may also be constructed of any UL Classified Concrete Block\*. Max diam of opening is 10 in. Max diam of opening in floors constructed of hollow-core is 7 in.

See Concrete Blocks (CAZT) or Precast Concrete Units (CFV) categories in the Fire Resistance Directory for names of manufacturers.

Steel Sleeve — (Optional) — Nom 10 in. diam (or smaller) Schedule 10 (or heavier) steel pipe cast or grouted into floor or wall assembly. Steel sleeve may be installed flush or may project a max 2 ft. beyond floor or wall surface.

Through Penetrant — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space between the pipe, conduit or tube and the periphery of the opening shall be min 0 in. (point contact) to max 2 in. Pipe, conduit or tube to be rigidly supported on both sides of the floor or wall assembly. The following types and sizes of metallic pipes, conduits and tubes may be used:
 

- Steel Pipe — Nom 8 in. diam (or smaller) Schedule 5 (or heavier) steel pipe.
- Iron Pipe — Nom 8 in. diam (or smaller) cast or ductile iron pipe.
- Conduit — Nom 6 in. diam (or smaller) rigid steel conduit, nom 4 in. diam (or smaller) steel electrical metallic tubing (EMT) or nom 4 in. diam (or smaller) flexible steel conduit.
- Copper Pipe — Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.
- Copper Tube — Nom 4 in. diam (or smaller) Regular (or heavier) copper tube.

Through Penetrating Product\* — Flexible Metal Piping — As an alternate to Item 3, one nom 2 in. diam (or smaller) flexible steel piping shall be installed either concentrically or eccentrically within the firestop system. The annular space between the pipe, conduit or tube and the periphery of the opening shall be min 0 in. (point contact) to max 2 in. Pipe to be rigidly supported on both sides of the floor or wall assembly.

OMEGA FLEX INC  
TITELUX COOP  
A RUNDY CO  
WARD MFG INC

4. Firestop System — The firestop system shall consist of the following:
 

- Facking Material** — Min 1 pcf mineral wool batt insulation compressed and tightly packed to min 2 1/4 in. thickness. Facking material recessed from top surface of floor or both surfaces of wall as required to accommodate fill material (Item 4B). In floors constructed of hollow-core precast concrete units, packing material to be recessed from both top and bottom surfaces of floor, as required to accommodate fill material (Item 4B). When steel sleeve projects from top of floor or from both sides of wall, the thickness of mineral wool batt packing material should be increased by an amount equal to the distance that the sleeve extends past the floor or wall surface.
- Fill, Void or Cavity Material** — Sealant — Min 1 1/4 in. thickness of fill material applied within annular, flush with top surface of floor assembly or top edge of steel sleeve. In walls, min 1 1/4 in. thickness of fill material applied flush with both surfaces of wall assembly or both ends of steel sleeve. In floors constructed of hollow-core precast concrete units, fill material installed symmetrically on both side of floor. At point contact location, apply min 1/4 in. diam bead of fill material on top surface of floor or both surfaces of wall or precast concrete unit.

SPECIFIED TECHNOLOGIES INC — Special LCI Sealant  
\*Bearing the UL Classification Mark

**RATED PENETRATION @ CONCRETE**  
SCALE: NTS

4

**TATE SNYDER KIMSEY**

December 2, 2003

City of Las Vegas  
Department of Building and Safety  
731 S. Fourth Street,  
Las Vegas, NV 89101-0918

**ARCHITECTURAL PLANS MODIFICATION**  
City of Las Vegas Project #: C-241-02  
Project Description: CLV West Service Yard Maintenance, 2880 Romanus Dr.  
Plans Examiner: Mike Hazard

Dear Mr. Hazard:

The following is a modification to the previously approved drawings for this project:

File Name: Assembly and Details - Sheet A2.31

Detail #0 change includes adding Detail 10A2.31 for another rated pipe penetration detail at a rated gypsum wallboard ceiling. This was required by the CLV Inspector for the unclassified fire-rated pipe in the Maintenance Building.

Please call our office if there are any comments or questions.

Sincerely,  
*Stephen C. Rankin, AIA*  
Stephen C. Rankin, AIA  
Co. Partner, CLV, O.A.S.

5 8 0 1 9 8

RECEIVED  
CITY OF LAS VEGAS PERMITS  
DEC 02 2003

**Design No. P522**  
Unrestrained Assembly Rating — 1 Hr  
Finish Rating — 25 Min (See Item 3)

1. Roofing System — Any UL Class A, B or C Roofing System (Type 1) or Prepared Roof Covering (TRW) suitable for use with nom 12 in. thick plywood sheathing. Nom 15/32 in. thick plywood sheathing secured to trusses with construction adhesive and No. 6d spaced nails. Nails spaced 12 in. O.C. along each truss. Staples having equal greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

2. Trusses — Parallel chord trusses, spaced a max of 24 in. O.C. between nom 2 by 4 lumber with lumber oriented vertically or horizontally. Truss members secured together with 0.040 in. thick galv steel plates. Truss lugs 5/16 in. long with projecting perpendicular to the plane of the plate. The teeth are in pairs facing each other (made by the same punch) forming a split tooth type plate. Each tooth has a chisel point on its outside edge. These points are diagonally opposite each other for each pair. Top half of each tooth has a twist for stiffness. The pairs are repeated on approximately 7/8 in. centers with four rows of teeth per row of plate width. Where the truss intersects with the interior face of the exterior walls, the min truss depth shall be 12 in. with a min roof slope of 3/12 and a min area in the plane of the truss of 21 sq ft.

3. Batt and Blankets\* — (Optional) — Glass fiber insulation, secured to the plywood decking with staples spaced 12 in. O.C. or to the trusses with 0.090 in. diam galv steel wires spaced 12 in. O.C. Any glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance, having a min density of 2.6 pcf. As an option the insulation may be fitted into the truss cavity, draped over the resilient channel/gypsum wallboard ceiling membrane when specified channels and gypsum wallboard attachment is modified as required in Items 6 and 7. The finished rating has only been determined when the insulation is secured to the decking.

4. Air Duct\* — Any UL Class 0 or Class 1 flexible air duct installed in accordance with the instructions provided by the damper manufacturer.

5. Ceiling Damper\* — Max nom area, 224 sq in. Max square size, 15 in. by 18 in. max. Damper shall not exceed 224 sq in. with a max width of 18 in. Damper height is 14 in. Installed in accordance with manufacturer installation instructions provided with the damper. Max damper openings not to exceed 1/2 in. long.

6. POTTOREFF CO INC — Model GPC-521

7. Resilient Channels\* — Formed of 25 MGO galv steel, installed perpendicular to the trusses (Item 2), spaced a max of 16 in. O.C. when no insulation (Item 3) is fitted in the concealed space, or a max of 12 in. O.C. when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane. Two courses of resilient channels positioned 6 in. O.C. at wallboard but-joists (9 in. from each end of wallboard but-joists) and 12 in. O.C. between but-joists. Channels recessed over-lapped 4 in. beneath wood trusses. Channels secured to each truss with Type 302 by 1/2 in. long screws.

8. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

9. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

10. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

11. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

12. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

13. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

14. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

15. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

16. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

17. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

18. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

19. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

20. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

21. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

22. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

23. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

24. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

25. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

26. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

27. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

28. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

29. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

30. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

31. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

32. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

33. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

34. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

35. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

36. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

37. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

38. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

39. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

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41. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

42. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

43. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

44. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

45. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in the concealed space, or a max of 8 in. O.C. along butted end-joints and in the field when insulation (Item 3) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

46. Wallboard Gypsum — One layer of nom 5/8 in. thick by 46 in. wide boards installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type 3 single-head wood screws. Screws spaced a max of 12 in. O.C. along butted end-joints and in the field when no insulation (Item 3) is fitted in