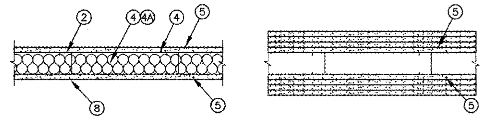
## FIRE RESISTANCE RATINGS - ANSI/UL 263
## DESIGN NO. U419

NONBEARING WALL RATING – 1, 2, 3 OR 4 HR (SEE ITEMS 4 & 5)




1.FLOOR AND CEILING RUNNERS – (NOT SHOWN) – FOR USE WITH ITEM 2 – CHANNEL SHAPED, FABRICATED FROM MIN 25 MSG CORROSION-PROTECTED STEEL, MIN DEPTH TO ACCOMMODATE STUDY SIZE, WITH MIN 1-1/4 IN. LONG LEGS, ATTACHED TO FLOOR AND CEILING WITH FASTENERS 24 IN. O.C. MAX.

1A. FRAMING MEMBERS* – FLOOR AND CEILING RUNNERS – (NOT SHOWN) – IN LIEU OF ITEM 1 – FOR USE WITH ITEM 1A, PROPRIETARY CHANNEL SHAPED, MIN 3-5/8 IN. DEEP, FABRICATED FROM MIN. 0.015 IN. (MIN BARE METAL THICKNESS) GALVANIZED STEEL, ATTACHED TO FLOOR AND CEILING FASTENERS 24 IN. O.C. MAX. EFFECTIVE THICKNESS IS 0.034 IN.
CLARKWESTERN BUILDING SYSTEMS INC – ULTRASTEEL®
DIETRICH INDUSTRIES, INC. – ULTRASTEEL®

1B. FRAMING MEMBERS* – FLOOR AND CEILING RUNNERS – (NOT SHOWN IN LIEU OF ITEM 1) – FOR USE WITH ITEM 2A, PROPRIETARY CHANNEL SHAPED, MIN. 2-1/2 IN. DEEP, FABRICATED FROM MIN. 0.015 IN. (MIN BARE METAL THICKNESS) GALVANIZED STEEL, ATTACHED TO FLOOR AND CEILING FASTENERS 24 IN. OC MAX. EFFECTIVE THICKNESS IS 0.034 IN.
CLARKWESTERN BUILDING SYSTEMS INC – ULTRASTEEL®
DIETRICH INDUSTRIES, INC. – ULTRASTEEL®

1C. FRAMING MEMBERS* – FLOOR AND CEILING RUNNER – NOT SHOWN– IN LIEU OF ITEM 1 – FOR USE WITH ITEM 2C, PROPRIETARY CHANNEL SHAPED RUNNERS, 3-5/8 IN. DEEP ATTACHED TO FLOOR AND CEILING WITH FASTENERS 24 IN. O.C. MAX.
CALIFORNIA EXPANDED METAL PRODUCTS CO – VIPERTRACK ™
CRACO MFG INC – SMART TRACK ™
MARINO/WARE, DIV OF WARE INDUSTRIES INC. – VIPER25™ TRACK

1D. FRAMING MEMBERS* – FLOOR AND CEILING RUNNER –NOT SHOWN – IN LIEU OF ITEM 1 – FOR USE WITH ITEM 2D, PROPRIETARY CHANNEL SHAPED RUNNERS, 1-1/4 IN. WIDE BY 3-5/8 IN. FABRICATED FROM MIN. 0.020 IN. THICK GALVANIZED STEEL, ATTACHED TO FLOOR AND CEILING WITH FASTENERS SPACES 24 IN. O.C. MAX.
MARINO/WARE, DIV OF WARE INDUSTRIES INC. – VIPER25™ TRACK, VIPER20D™ TRACK

1E. FRAMING MEMBERS* – FLOOR AND CEILING RUNNERS –NOT SHOWN – IN LIEU OF ITEM 1 – CHANNEL SHAPED, ATTACHED TO FLOOR AND CEILING WITH FASTENERS 24 IN. IN O.C. MAX.
ALLSTEEL & GYPSUM PRODUCTS INC. – TYPE SUPREME FRAMING SYSTEM
CONSOLIDATED FABRICATORS CORP.
BUILDING PRODUCTS DIV – TYPE SUPREME FRAMING SYSTEM
QUAIL RUN BUILDING MATERIALS INC. – TYPE SUPREME FRAMING SYSTEM
SCAFRO STEEL STUD MANUFACTURING CO. – TYPE SUPREME FRAMING SYSTEM
STEEL CONSTRUCTION SYSTEMS INC.– TYPE SUPREME FRAMING SYSTEM
UNITED METAL PRODUCTS INC. – TYPE SUPREME FRAMING SYSTEM.

1F. FLOOR AND CEILING RUNNER – (NOT SHOWN) – FOR USE WITH ITEM 2B-CHANNEL SHAPED, FABRICATED FROM MIN. 20 MSG CORROSION-PROTECTED OR GALV. STEEL, MIN DEPTH TO ACCOMMODATE STUD SIZE, WITH MIN. 1 IN. LONG LEGS, ATTACHED TO FLOOR AND CEILING WITH FASTENERS SPACED MAX 24 IN. O.C.

1G. FRAMING MEMBERS* – FLOOR AND CEILING RUNNERS – (NOT SHOWN AS AN ALTERNATE TO ITEM 1) – FOR USE WITH ITEM 2F AND 5F OR 5G ONLY, CHANNEL SHAPED, FABRICATED FROM MIN. 0.015 IN. (BARE METAL THICKNESS) GALVANIZED STEEL, ATTACHED TO FLOOR AND CEILING WITH FASTENERS 24 IN. O.C. MAX.
CLARKWESTERN BUILDING SYSTEMS INC – CW PRO-TRACK
DIETRICH INDUSTRIES, INC. – DIETRICH PROTRACK
DMFCWBS LLC – PROTRACK
TELLING INDUSTRIES LLC – TRUE-TRACK ™

1H. FRAMING MEMBERS* – FLOOR AND CEILING RUNNERS – NOT SHOWN – IN LIEU OF ITEM 1 – FOR USE WITH ITEM 2G, PROPRIETARY CHANNEL SHAPED RUNNER, MINIMUM WIDTH TO ACCOMMODATE STUD SIZE, WITH 1-1/8 IN. LONG LEGS FABRICATED FROM MIN. 0.015 IN. (MIN BARE METAL THICKNESS) GALV STEEL, ATTACHED TO FLOOR AND CEILING WITH FASTENERS SPACED 24. IN. O.C. MAX.
SUPER STUDY BUILDING PRODUCTS – THE EDGE

2.STEEL STUDS – CHANNEL SHAPED, FABRICATED FROM MIN 25 MSG CORROSION-PROTECTED STEEL, MIN DEPTH AS INDICATED UNDER ITEM 5, SPACED A MAX OF 24 IN. OC. STUDS TO BE CUT 3/8 OR ¾ IN. LESS THAN ASSEMBLY HEIGHT.

2A. FRAMING MEMBERS*– STEEL STUDS – IN LIEU OF ITEM 2– PROPRIETARY CHANNEL SHAPED STUDS, MIN. DEPTH AS INDICATED UNDER ITEM 5, FABRICATED FROM MIN. 0.015 IN. (BARE METAL THICKNESS) GALVANIZED STEEL, SPACED A MAX OF 24 IN. OC. STUDS TO BE CUT ¾ IN. LESS THAN ASSEMBLY HEIGHT. ALLOWABLE USE OF STUDS IS SHOWN IN THE TABLE BELOW. FOR DIRECT ATTACHMENT OF GYPSUM BOARD ONLY. EFFECTIVE THICKNESS IS 0.034 IN.
CLARKWESTERN BUILDING SYSTEMS INC. – ULTRASTEEL®
DIETRICH INDUSTRIES INC. – ULTRASTEEL®

2B. STEEL STUDS – (AS AN ALTERNATE TO ITEM 2, FOR USE WITH ITEMS 5B AND 5E) CHANNEL SHAPED, FABRICATED FROM MIN 20 MSG CORROSION-PROTECTED OR GALV STEEL, 3-1/2 IN. MIN. DEPTH, SPACED A MAX OF 16 IN. OC. STUDS FRICTION-FIT INTO FLOOR AND CEILING RUNNERS. STUDS TO BE CUT 5/8 TO 3/4 IN. LESS THAN ASSEMBLY HEIGHT.

2C. FRAMING MEMBERS* – STEEL STUDS – (AS AN ALTERNATE TO ITEM 2, FOR USE WITH ITEM 5C) – PROPRIETARY CHANNEL SHAPED STUDS, 3-5/8 IN. DEEP SPACED A MAX OF 24 OM. OC. STUDS TO BE CUT 3.4 IN. LESS THAN THE ASSEMBLY HEIGHT AND INSTALLED WITH A ½ IN. GAP BETWEEN THE END OF THE STUDY AND TRACT AT THE BOTTOM OF THE WALL. FOR DIRECT ATTACHMENT OF GYPSUM BOARD ONLY.
CALIFORNIA EXPANDED METAL PRODUCTS CO – VIPERSTUD™
CRACO MFG INC – SMARTSTUD™
MARINO/WARE, DIV OF WARE INDUSTRIES INC. – VIPER25™

2D. FRAMING MEMBERS* – METAL STUDS – NOT SHOWN – IN LIEU OF ITEM 2 – FOR USE WITH ITEM 1D, PROPRIETARY CHANNEL SHAPED STEEL STUDS, MIN DEPTH AS INDICATED UNDER ITEM 5,SPACED A MAX IF 24 IN. OC, FABRICATED FROM MIN. 0.020 IN. THICK GALV STEEL. STUDS CUT 3/8 IN TO ¾ IN LESS IN LENGTHS THAN ASSEMBLY HEIGHTS.
MARINO/WARE, DIV OF WARE INDUSTRIES INC – VIPER20S™, VIPER20D™

2E. FRAMING MEMBERS* – STEEL STUDS – IN LIEU OF ITEM 2 – FOR USE WITH ITEM 1E – CHANNEL SHAPED STUDS, MIN DEPTH AS INDICATED UNDER ITEM 5, SPACED A MAX OF 24 IN. OC. STUDS STUDS TO BE CUT ¾ IN. LESS THAN ASSEMBLY HEIGHT.
ALLSTEEL & GYPSUM PRODUCTS INC. – TYPE SUPREME FRAMING SYSTEM
CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV – TYPE SUPREME FRAMING SYSTEM
QUAIL RUN BUILDING MATERIALS INC – TYPE SUPREME FRAMING SYSTEM
SCAFRO STEEL STUD MANUFACTURING CO – TYPE SUPREME FRAMING SYSTEM
STEEL CONSTRUCTION SYSTEMS INC – TYPE SUPREME FRAMING SYSTEM
UNITED METAL PRODUCTS INC – TYPE SUPREME FRAMING SYSTEM

2F. FRAMING MEMBERS* – STEEL STUDS – (NOT SHOWN, AS AN ALTERNATE TO ITEM 2) – FOR USE WITH ITEM 1G AND 5F OR 5G ONLY, CHANNEL SHAPED STUDS, MIN DEPTH AS INDICATED UNDER ITEM 5F, FABRICATED FROM MIN. 0.015 IN. (MIN BARE METAL THICKNESS) GALVANIZED STEEL, SPACED A MAX OF 24 IN. OC. STUDS TO BE CUT ¾ IN. LESS THAN ASSEMBLY HEIGHT.
CLARKWESTERN BUILDING SYSTEMS INC. – CW PROSTUD
DIETRICH INDUSTRIES INC. – DIETRICH PROSTUD
DMFCWBS LLC – PROSTUD
TELLING INDUSTRIES LLC – TRUE-STUD™

2G. FRAMING MEMBERS* – METAL STUDS – NOT SHOWN – IN LIEU OF ITEM 2– FOR USE WITH ITEM 1H, PROPRIETARY CHANNEL SHAPED STEEL STUDS, MINIMUM WIDTH INDICATED UNDER ITEM 5, 1-1/4 IN. DEEP FABRICATED FROM MIN. 0.015 IN. (MIN BARE METAL THICKNESS) GALVANIZED STEEL. STUDS 3/8 TO 3/4 IN. LESS IN LENGTHS THAN ASSEMBLY HEIGHTS.

3.WOOD STRUCTURAL PANEL SHEATHING – (OPTIONAL, FOR USE WITH ITEM 5 ONLY.) – (NOT SHOWN) – 4FT WIDE, 7/16 IN. THICK ORIENTED STRAND BOARD (OSB) OR 15/32 UB, THICK STRUCTURAL 1 SHEATHING (PLYWOOD) COMPLYING WITH DOC PS1 OR PS2, OR APA STANDARD PRP-108, MANUFACTURED WITH EXTERIOR GLUE, APPLIED HORIZONTALLY OR VERTICALLY TO THE STEEL STUDS. VERTICAL JOINTS CENTERED ON STUDS, AND STAGGERED ONE STUD SPACE FROM WALLBOARD JOINTS. ATTACHED TO STUDS WITH FLAT HEAD SELF DRILLING TAPPING SCREWS WITH A MIN. HEAD DIA. OF 0.292 IN. AT MAXIMUM 6 IN. OC. IN THE PERIMETER AND 12 IN. OC. IN THE FIELD. WHEN USED, FASTENER LENGTHS FOR GYPSUM PANELS INCREASED BY MIN. 1/2 IN.

4. BATTS AND BLANKETS* – (REQUIRED AS INDICATED UNDER ITEM 5) – MINERAL WOOL BATTS, FRICTION FITTED BETWEEN STUDS AND RUNNERS. NOM THICKNESS AS INDICATED UNDER ITEM 5. SEE BATTS AND BLANKETS (BKNV OR BZJZ) CATEGORIES FOR NAMES OF CLASSIFIED COMPANIES. SPECIFICATION QQ-L-201f, GRADE "C".

5.GYPSUM BOARD* – GYPSUM PANELS WITH BEVELED, SQUARED OR TAPERED EDGES, APPLIED VERTICALLY OR HORIZONTALLY. VERTICAL JOINTS CENTERED OVER STUDS AND STAGGERED ONE STUD CAVITY ON OPPOSITE SIDES OF STUDS. VERTICAL JOINTS IN ADJACENT LAYERS (MULTILAYER SYSTEMS) STAGGERED ONE STUD CAVITY. HORIZONTAL JOINTS NEED NOT BE BACKED BY STEEL FRAMING. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS ON OPPOSITE SIDES OF STUDS NEED NOT BE STAGGERED. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS IN ADJACENT LAYERS (MULTILAYER SYSTEMS) STAGGERED A MIN OF 12 IN. THE THICKNESS AND NUMBER OF LAYERS FOR THE 1 HR, 2 HR, 3 HR AND 4 HR RATINGS ARE AS FOLLOWS:

GYPSUM BOARD PROTECTION ON EACH SIDE OF WALL

| RATING, HR | MIN. STD DEPTH (IN) ITEMS 2,2D,2E,2G | MIN. STD DEPTH (IN) ITEMS 2A | NO. OF LAYERS & THICKNESS OF PANEL | MIN. THICKNESS OF INSULATION (ITEM 4) |
|---|---|---|---|---|
| 1 | 3-1/2 | 3-5/8 | 1 LAYER, 5/8 IN THICK | OPTIONAL |
| 1 | 2-1/2 | 3-5/8 | 1 LAYER, 1/2 IN THICK | 1 1/2 IN. |
| 1 | 1-5/8 | 3-5/8 | 1 LAYER, 3/4 IN THICK | OPTIONAL |
| 2 | 1-5/8 | 2-1/2 | 2 LAYER, 1/2 IN THICK | OPTIONAL |
| 2 | 1-5/8 | 2-1/2 | 2 LAYER, 5/8 IN THICK | OPTIONAL |
| 2 | 3-1/2 | 3-5/8 | 1 LAYER, 3/4 IN THICK | 3 IN. |
| 3 | 1-5/8 | 2-1/2 | 3 LAYER, 1/2 IN THICK | OPTIONAL |
| 3 | 1-5/8 | 2-1/2 | 2 LAYER, 3/4 IN THICK | OPTIONAL |
| 3 | 1-5/8 | 2-1/2 | 3 LAYER, 5/8 IN THICK | OPTIONAL |
| 4 | 1-5/8 | 2-1/2 | 4 LAYER, 5/8 IN THICK | OPTIONAL |
| 4 | 1-5/8 | 2-1/2 | 4 LAYER, 1/2 IN THICK | OPTIONAL |
| 4 | 2-1/2 | 2-1/2 | 2 LAYER, 3/4 IN THICK | 2 IN. |

WHEN ITEM 7B, STEEL FRAMING MEMBERS*, IS USED, NONBEARING WALL RATING IS LIMITED TO 1 HR. MIN. STUD DEPTH IS 3-1/2 IN., MIN. THICKNESS OF INSULATION (ITEM 4) IS 3 IN., AND TWO LAYERS OF GYPSUM BOARD PANELS (1/2 IN OR 5/8 IN THICK) SHALL BE ATTACHED TO FURRING CHANNELS AS DESCRIBED IN ITEM 6. ONE LAYER OF GYPSUM BOARD PANELS ( 1/2 IN. OR 5/8 IN. THICK) ATTACHED TO OPPOSITE SIDE OF STUD WITHOUT FURRING CHANNELS AS DESCRIBED IN ITEM 6.

5A. GYPSUM BOARD*– (AS AN ALTERNATE TO ITEM 5) – 5/8 IN. THICK, 24 TO 54 IN. WIDE, APPLIED HORIZONTALLY AS THE OUTER LAYER TO ONE SIDE OF THE ASSEMBLY. SECURED AS DESCRIBED IN ITEM 6.
CANADIAN GYPSUM COMPANY– TYPE SHX.
UNITED STATES GYPSUM CO– TYPE FRX-G, SHX.
USG MEXICO S A DE C V– TYPE SHX.

5B. GYPSUM BOARD*– (NOT SHOWN) – AS AN ALTERNATE TO ITEM 5 WHEN USED AS THE BASE LAYER ON ONE OR BOTH SIDES OF THE WALL WHEN 5/8 IN OR 3/4 IN. THICK PRODUCTS ARE SPECIFIED. FOR DIRECT ATTACHMENT ONLY TO STEEL STUDS ITEM 2B, (NOT TO BE USED WITH ITEM 3) – NOM 5/8 IN. OR 3/4 IN. MAY BE USED AS ALTERNATE TO ALL 5/8 IN. OR 3/4 IN. SHOWN IN ITEM 5, WALLBOARD PROTECTION ON EACH SIDE OF WALL TABLE. NOM 5/8 IN. OR 3/4 IN. THICK LEAD BACKED GYPSUM PANELS WITH BEVELED, SQUARE OR TAPERED EDGES, APPLIED VERTICALLY. VERTICAL JOINTS CENTERED OVER STUDS AND STAGGERED MIN 1 STUD CAVITY ON OPPOSITE SIDES OF STUDS. GYPSUM BOARD SECURED TO 20 MSG STEEL STUDS ITEM 2B WITH 1-1/4 IN. LONG TYPE S-12 STEEL SCREWS SPACED 8 IN. O.C. AT PERIMETER AND 12 IN. O.C. IN THE FIELD. TO BE USED WITH LEAD BATTEN STRIPS (SEE ITEM 11) OR LEAD DISC OR TABS (SEE ITEM 12).

5C. GYPSUM BOARD*– (FOR USE WITH ITEM 2C) RATING LIMITED TO 1 HOUR. 5/8 IN. THICK, 48 IN, WIDE, GYPSUM PANELS WITH BEVELED, SQUARE OR TAPERED EDGES, APPLIED VERTICALLY OR HORIZONTALLY. (VERTICAL APPLICATION) – THE GYPSUM BOARD IS TO BE INSTALLED ON EACH SIDE OF THE STUDS WITH 1 IN. LONG TYPE S COATED STEEL SCREWS SPACED 8 IN. O.C. STARTING 4 IN. FROM THE EDGE OF THE BOARD AT THE VERTICAL EDGES AND 12 IN. O.C. STARTING 6 IN. FROM THE EDGE OF THE BOARD AT THE CENTER OF EACH BOARD. GYPSUM BOARDS ARE TO BE SECURED AT THE TOP AND BOTTOM TRACK WITH SCREWS SPACED 8 IN. OC STARTING 4 IN. FROM THE BOARD EDGE. FASTENERS SHALL NOT PENETRATE THROUGH BOTH THE STUD AND THE TRACK AT THE SAME TIME. VERTICAL JOINTS ARE TO BE CENTERED OVER STUDS AND STAGGERED ONE STUD CAVITY ON OPPOSITE SIDES OF STUDS. (HORIZONTAL APPLICATION) – THE GYPSUM BOARD IS TO BE INSTALLED ON EACH SIDE OF THE STUDS WITH 1 IN. LONG TYPE S COATED STEEL SCREWS SPACES 8 IN. OC STARTING 4 IN. FROM THE EDGE OF THE BOARD AT THE CENTER OF EACH BOARD. GYPSUM BOARDS ARE TO BE SECURED TO THE TOP AND BOTTOM OF THE TRACK WITH SCREWS SPACED 8 IN. OC STARTING 4 IN. FROM THE BOARD EDGE. FASTENERS SHALL NOT PENETRATE THROUGH BOTH THE STUD AND THE TRACK AT THE SAME TIME. HORIZONTAL JOINTS ARE TO BE BACKED OUT AS OUTLINED UNDER SECTION VI OF VOLUME 1 IN THE FIRE RESISTIVE DIRECTORY.
CANADIAN GYPSUM COMPANY – TYPE SCX.
USG MEXICO S A DE C V– TYPE SCX.

5D. GYPSUM BOARD* – (AS AN ALTERNATE TO ITEM 5) – 5/8 IN. THICK, 48 IN. WIDE, APPLIED VERTICALLY OR HORIZONTALLY. SECURED AS DESCRIBED IN ITEM 6. FOR ITEMS 1 AND 2 ONLY.
UNITED STATES GYPSUM CO– TYPE USGX.

5E. GYPSUM BOARD* – (NOT SHOWN) – ( AS AN ALTERNATE TO ITEM 5 WHEN USED AS THE BASE LAYER ON ONE OR BOTH SIDES OF WALL WHEN 1/2 IN. OR 5/8 IN. THICK PRODUCTS ARE SPECIFIED, FOR DIRECT ATTACHMENT ONLY TO STEEL STUDS, ITEM 2B, NOT TO BE USED WITH ITEM 3. NOMINAL 5/8 IN. THICK LEAD BACKED GYPSUM PANELS WITH BEVELED, SQUARE OR TAPED EDGES, APPLIED VERTICALLY. VERTICAL JOINTS CENTERED OVER STUDS AND STAGGERED MIN 1 STUD CAVITY ON OPPOSITE SIDES OF STUDS. WALLBOARD SECURED TO STUDS WITH 1-1/4 IN. LONG TYPE S-12 (OR NO. 6 BY 1-1/4 IN. LONG BUGLE HEAD FINE DRILLED) STEEL SCREWS SPACED 8 IN. O.C. AT PERIMETER AND 12 IN. OC IN THE FIELD.
NEW ENGLAND LEAD BURNING CO INC, DBA NELCO – NELCO

5F. GYPSUM BOARD* – (AS ALTERNATE TO ITEM 5) – FOR USE WITH ITEMS 1G AND 2F ONLY, GYPSUM PANELS WITH BEVELED, SQUARE, OR TAPERED EDGES, APPLIED VERTICALLY, AND FASTENED TO THE STEEL STUDS WITH 1 IN. LONG TYPE S SCREWS SPACED 8 IN. O.C. ALONG VERTICAL AND BOTTOM EDGES AND 12 IN. O.C. IN THE FIELD. VERTICAL JOINTS CENTERED OVER STUDS AND STAGGERED ONE STUD CAVITY ON OPPOSITE SIDES OF STUDS. STEEL STUD DEPTH SHALL BE A MINIMUM 3-5/8 IN.
UNITED STATES GYPSUM CO– 5/8 IN. THICK TYPE SCX

5G. GYPSUM BOARD*– (AS AN ALTERNATE TO ITEM 5)– FOR USE WITH ITEMS 1G AND 2F ONLY, GYPSUM PANELS WITH BEVELED, SQUARE OR TAPERED EDGES, APPLIED VERTICALLY OR HORIZONTALLY, AS SPECIFIED IN THE TABLE BELOW AND FASTENED TO THE STEEL STUDS AND AS DESCRIBED IN ITEM 6. VERTICAL JOINTS CENTERED OVER STUDS AND STAGGERED ONE STUD CAVITY ON OPPOSITE SIDES OF STUDS. VERTICAL JOINTS IN ADJACENT LAYERS (MULTILAYER SYSTEMS) STAGGERED ONE STUD CAVITY. HORIZONTAL JOINTS NEED NOT BE BACKED BY S STEEL FRAMING. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS IN ADJACENT LAYERS (MULTILAYER SYSTEMS) STAGGERED A MIN OF 12 IN. THE THICKNESS AND NUMBER OF LAYERS FOR THE 2 HR, 3 HR, AND 4 HR RATINGS ARE AS FOLLOWS:

GYPSUM BOARD PROTECTION ON EACH SIDE WALL

| RATING, HR | MIN. STD DEPTH (IN) ITEMS 2F | NO. OF LAYERS & THICKNESS OF PANEL | MIN. THICKNESS OF INSULATION (ITEM 4) |
|---|---|---|---|
| 2 | 1-5/8 | 2 LAYER, 1/2 IN THICK | OPTIONAL |
| 2 | 1-5/8 | 2 LAYER, 5/8 IN THICK | OPTIONAL |
| 3 | 1-5/8 | 3 LAYER, 1/2 IN THICK | OPTIONAL |
| 3 | 1-5/8 | 3 LAYER, 5/8 IN THICK | OPTIONAL |
| 4 | 1-5/8 | 4 LAYER, 5/8 IN THICK | OPTIONAL |
| 4 | 1-5/8 | 4 LAYER, 1/2 IN THICK | OPTIONAL |

6.FASTENERS – (NOT SHOWN ) – FOR USE WITH ITEMS 2 AND 2E– TYPE S OR S-12 STEEL SCREWS USED TO ATTACH PANELS TO STUDS (ITEM 2) OR FURRING CHANNELS (ITEM 7).
SINGLE LAYER SYSTEMS: 1 IN. LONG FOR 1/2 AND 5/8 IN. THICK PANELS OR 1-1/4 IN. LONG FOR 3/4 IN. THICK PANELS, SPACED 8 IN. O.C. WHEN PANELS ARE APPLIED HORIZONTALLY, OR 8 IN. O.C. ALONG VERTICAL AND BOTTOM EDGES AND 12 IN. O.C. IN THE FIELD WHEN THE PANELS ARE APPLIED VERTICALLY.
TWO LAYER SYSTEM:
FIRST LAYER: 1 IN. LONG FOR 1/2 IN. AND 5/8 IN. THICK PANELS OR 1-1/4 IN. LONG FOR 3/4 IN. THICK PANELS, SPACED 16 IN. O.C.
SECOND LAYER: 1-5/8 IN. LONG FOR 1/2 IN., 5/8 IN. THICK PANELS OR 2-1/4 IN. LONG FOR 3/4 IN. THICK PANELS, SPACED 16 IN. O.C. WITH SCREWS OFFSET 8 IN. FROM FIRST LAYER.
THREE-LAYER SYSTEM:
FIRST LAYER: 1 IN. LONG FOR 1/2 AND 5/8 IN. THICK PANELS, SPACED 24 IN. O.C.
SECOND LAYER– 1-5/8 IN. LONG FOR 1/2 IN., 5/8 IN. THICK PANELS, SPACED 24 IN. O.C.
THIRD LAYER: 2-1/4 IN. LONG FOR 1/2 IN., 5/8 IN. THICK PANELS OR 2-5/8 IN. LONG FOR 5/8 IN. THICK PANELS, SPACED 12 IN. O.C. SCREWS OFFSET MIN OF IN. FROM LAYER BELOW.
FOUR-LAYER SYSTEMS:
FIRST LAYER: 1 IN. LONG FOR 1/2 AND 5/8 IN. THICK PANELS, SPACED 24 IN. O.C.
SECOND LAYER: 1-5/8 IN. LONG FOR 1/2 IN., 5/8 IN. THICK PANELS, SPACED 24 IN. O.C.
THIRD LAYER– 2-1/4 IN. LONG FOR 1/2 IN. THICK PANELS OR 2-5/8 IN. LONG FOR 5/8 IN THICK PANELS, SPACED 24 IN. OC.
FOURTH LAYER– 2-5/8 IN. LONG FOR 1/2 IN. THICK PANELS OR 3 IN. LONG FOR 5/8 IN. THICK PANELS, SPACED 12 IN. OC.
SCREWS OFFSET MIN 6 IN. FROM LAYER BELOW.

6A. FASTENERS– ( NOT SHOWN) – FOR USE WITH ITEM 2A – TYPE S OR S-12 STEEL SCREWS USED TO ATTACH PANELS TO STUDS (ITEM 2A).
SINGLE LAYER SYSTEMS: 1 IN LONG FOR 1/2 AND 5/8 IN. THICK PANELS OR 1-1/4 IN. LONG FOR 3/4 IN. THICK PANELS , SPACED 8-1/2 IN. O.C. WITH ADDITIONAL SCREWS 1 IN. AND 2-1/2 IN FROM EDGES OF THE BOARD WHEN PANELS ARE HORIZONTALLY, OR 8 IN. O.C. ALONG VERTICAL AND BOTTOM EDGES AND 12 IN. OC IN THE FIELD WHEN PANELS APPLIED VERTICALLY.
TWO LAYER SYSTEMS: APPLIED VERTICALLY: 1 IN LONG FOR 1/2 AND 5/8 IN. THICK PANELS OR 1-1/4 IN. LONG FOR 3/4 IN. THICK PANELS, SPACED 16 IN. OC.
FIRST LAYER:
1-5/8 IN. LONG FOR 1/2 IN., 5/8 IN. THICK PANELS OR 2-1/4 IN. LONG FOR 3/4 IN. THICK PANELS, SPACED 16 IN. O.C. WITH SCREWS OFFSET 8 IN. FROM FIRST LAYER.
TWO LAYER SYSTEM APPLIED HORIZONTALLY: 1 IN LONG FOR 1/2 AND 5/8 IN. THICK PANELS OR 1-1/4 IN. LONG FOR 3/4 IN. THICK PANELS, SPACED 16 IN. O.C. STARTING 8 IN. FROM EACH EDGE OF THE BOARD WITH AN ADDITIONAL SCREW PLACED 1-1/4 IN. FROM EACH EDGE OF THE BOARD.
SECOND LAYER: 1-5/8 IN. LONG FOR 1/2 IN., 5/8 IN. THICK PANELS OR 2-1/4 IN LONG FOR 3/4 IN. THICK PANELS, SPACED 16 IN. O.C. STARTING 8 IN. FROM EACH EDGE OF THE BOARD WITH ADDITIONAL SCREW PLACED 1-1/4 IN. FROM EACH EDGE OF THE BOARD WITH SCREWS OFFSET 8 IN. FROM FIRST LAYER.
THREE LAYER SYSTEM:
FIRST LAYER: 1 IN. LONG FOR 1/2 IN., 5/8 IN. THICK PANELS, SPACED 24 IN. O.C.
SECOND LAYER: 1-5/8 IN. LONG FOR 1/2 IN., 5/8 IN. THICK PANELS, SPACED 24 IN. O.C.
THIRD LAYER: 2-1/4 IN. LONG FOR 1/2 IN., 5/8 IN. THICK PANELS OR 2-5/8 IN. LONG FOR 5/8 IN. PANELS, SPACED 12 IN. O.C. SCREWS OFFSET MIN 6 IN. FROM LAYER BELOW. FOR ALL LAYERS, AN ADDITIONAL SCREW SHALL BE PLACED 1-1/4 IN. FROM EACH EDGE OF THE BOARD.
FOUR-LAYER SYSTEMS:
FIRST LAYER – 1 IN. LONG FOR 1/2 IN., 5/8 IN. THICK PANELS, SPACED 24 IN. O.C.
SECOND LAYER– 1-5/8 IN. LONG FOR 1/2 IN., 5/8 IN. THICK PANELS, SPACED 24 IN. O.C.
THIRD LAYER– 2-1/4 IN. LONG FOR 1/2 IN., 5/8 IN. THICK PANELS OR 2-5/8 IN. LONG FOR 5/8 IN. PANELS, SPACED 24 IN. O.C.
FOURTH LAYER-2-5/8 IN. LONG FOR 1/2 IN. THICK PANELS OR 3 IN. LONG FOR 5/8 IN. THICK PANELS, SPACED 12 IN. O.C. SCREWS OFFSET MIN 6 IN. FROM LAYER BELOW. FOR ALL LAYERS, AN ADDITIONAL SCREW SHALL BE PLACED 1-1/4 IN. FROM THE EDGE OF EACH BOARD.

7. FURRING CHANNELS– (OPTIONAL, NOT SHOWN, FOR SINGLE OR DOUBLE LAYER SYSTEMS) – RESILIENT FURRING CHANNELS FABRICATED FROM IN 25 MSG CORROSION-PROTECTED STEEL, SPACED VERTICALLY A MAX OF 24 IN. O.C. FLANGE PORTION ATTACHED TO EACH INTERSECTING STUD WITH 1/2 IN. LONG TYPE S-12 STEEL SCREWS. NOT FOR USE WITH ITEM 5A AND 5E.

7A. FRAMING MEMBERS*– ( NOT SHOWN) – (OPTIONAL ON ONE OR BOTH SIDES, NOT SHOWN, FOR SINGLE OR DOUBLE LAYERED SYSTEMS)– AS AN ALTERNATE TO ITEM 7, FURRING CHANNELS AND STEEL FRAMING MEMBERS AS DESCRIBED BELOW:
a. FURRING CHANNELS-FORMED OF NO. 25 MSG GALV STEEL. 2-3/8 IN. WIDE BY 7/8 IN. DEEP, SPACED MAX 24 IN. O.C. PERPENDICULAR TO STUDS. CHANNELS SECURED TO STUDS AS DESCRIBED IN ITEM B. GYPSUM BOARD ATTACHED TO FURRING CHANNELS AS DESCRIBED IN ITEM 6. NOT FOR USE WITH ITEM 5A AND 5E.
b. STEEL FRAMING MEMBERS*– USED TO ATTACH FURRING CHANNELS (ITEMS 7Aa) TO STUDS (ITEM 2). CLIPS SPACED MAX. 48 IN. O.C. RSIC-1 CLIPS SECURED TO STUDS WITH NO. 8 x 9/16 IN. MINIMUM SELF-DRILLING, S-12 STEEL SCREW THROUGH THE CENTER HOLE. FURRING CHANNELS ARE FRICTION FITTED INTO CLIPS.
PAC INTERNATIONAL INC– TYPES-RSIC-1, RSIC-V.

7B. FRAMING MEMBERS*– (OPTIONAL, NOT SHOWN)– AS AN ALTERNATE TO ITEM 7, FOR SINGLE OR DOUBLE LAYER SYSTEMS, FURRING CHANNELS AND STEEL FRAMING MEMBERS ON ONLY ONE SIDE OF STUDS AS DESCRIBED BELOW.
a. FURRING CHANNELS– FORMED OF NO. 25 MSG GALV STEEL, SPACED 24 IN. OC PERPENDICULAR TO STUDS. CHANNELS SECURED TO STUDS AS DESCRIBED IN ITEM B. BATTS AND BLANKETS PLACED IN STUD CAVITY AS DESCRIBED IN ITEM 5. TWO LAYERS OF GYPSUM BOARD ATTACHED TO FURRING CHANNELS AS DESCRIBED IN ITEM 5. NOT FOR USE WITH ITEM 5A AND 5E.
b. STEEL FRAMING MEMBERS*– USED TO ATTACH FURRING CHANNELS (ITEM 7Ba) TO ONE SIDE OF STUDS (ITEM 2). CLIPS SPACED 48 IN. O.C., AND SECURED TO STUDS WITH TWO NO. 8 x 2-1/2 IN. COARSE DRYWALL SCREWS, ONE THROUGH THE HOLE AT EACH END OF THE CLIP. FURRING CHANNELS ARE FRICTION FITTED INTO CLIPS.
KINETICS NOISE CONTROL INC– TYPE ISOMAX

7C. FRAMING MEMBERS*– OPTIONAL– NOT SHOWN– USED AS AN ALTERNATE METHOD TO ATTACH RESILIENT CHANNELS (ITEM 7). CLIPS ATTACHED AT EACH INTERSECTION OF THE RESILIENT CHANNEL AND THE STEEL STUDS (ITEM 2). RESILIENT CHANNELS ARE FRICTION FITTED INTO CLIPS, AND THEN CLIPS ARE SECURED TO THE STEEL STUD WITH MIN. 1 IN. LONG TYPE S-12 STEEL SCREWS THROUGH THE CENTER HOLE OF THE CLIP AND THE RESILIENT CHANNEL FLANGE.
KEENE BUILDING PRODUCTS CO INC – TYPE RC ASSURANCE.

7D. FRAMING MEMBERS*– ( NOT SHOWN) – (OPTIONAL ON ONE OR BOTH SIDES, NOT SHOWN, FOR SINGLE OR DOUBLE LAYER SYSTEMS) – AS AN ALTERNATE TO ITEM 7, FURRING CHANNELS AND STEEL FRAMING MEMBERS AS DESCRIBED BELOW:
a. FURRING CHANNELS – FORMED OF NO. 25 MSG GALV STEEL 2-3/8 IN. WIDE BY 7/8 IN DEEP, SPACED MAX 24 IN. O.C. PERPENDICULAR TO STUDS. CHANNELS SECURED TO STUDS AS DESCRIBED IN ITEM B. GYPSUM BOARD ATTACHED TO FURRING CHANNELS AS DESCRIBED IN ITEM 6. NOT FOR USE WITH ITEM 5A AND 5E.
b. STEEL FRAMING MEMBERS*– USED TO ATTACH FURRING CHANNELS (ITEM 7Aa) TO STUDS (ITEM 2). CLIPS SPACED MAX 48 IN. O.C. GENIECLIPS SECURED TO STUDS WITH NO. 8 x 1-1/2 IN. MINIMUM SELF-DRILLING, S-12 STEEL SCREW THROUGH THE CENTER GROMMET. FURRING CHANNELS ARE FRICTION FITTED.
PLITEQ INC– TYPE GENIECLIP

8. JOINT TAPE COMPOUND – VINYL OR CASE IN, DRY OR PREMIXED JOINT COMPOUND APPLIED IN TWO COATS TO JOINTS AND SCREW HEADS OF OUTER LAYERS. PAPER TAPE, NOM 2 IN. WIDE, EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS OF OUTER LAYER PANELS. PAPER TAPE AND JOINT COMPOUND MAY BE OMITTED WHEN GYPSUM PANELS ARE SUPPLIED WITH A SQUARE EDGE.

9. SIDING, BRICK OR STUCCO – (OPTIONAL, NOT SHOWN) – ALUMINUM VINYL OR STEEL SIDING, BRICK VENEER OR STUCCO, MEETING THE REQUIREMENTS OF LOCAL CODE AGENCIES, INSTALLED OVER GYPSUM PANELS. BRICK VENEER ATTACHED TO STUDS WITH CORRUGATED METAL WALL TIES ATTACHED TO EACH STUD WITH STEEL SCREWS, NOT MORE THAN EACH SIXTH COURSE BRICK.

10. CAULKING AND SEALANTS– (OPTIONAL, NOT SHOWN) – A BEAD OF ACOUSTICAL SEALANT APPLIED AROUND THE PARTITION PERIMETER FOR SOUND CONTROL.
UNITED STATES GYPSUM CO – TYPE AS

11. LEAD BATTEN STRIPS – (NOT SHOWN, FOR USE WITH ITEM 5B)– LEAD BATTEN STRIPS, MIN 1-1/2 IN. WIDE, MAX 10 FT LONG WITH A MAX THICKNESS OF 0.125 IN. STRIPS PLACED ON THE INTERIOR FACE OF STUDS AND ATTACHED FROM THE EXTERIOR FACE OF THE STUD WITH TWO 1 IN. LONG TYPE S-12 PAN HEAD STEEL SCREWS, ONE AT THE TOP OF THE STRIP AND ONE AT THE BOTTOM OF THE STRIP. LEAD BATTEN STRIPS TO HAVE A PURITY OF 99.9% MEETING THE FEDERAL SPECIFICATIONS QQ-L-201f, GRADE "C". LEAD BATTEN STRIPS REQUIRED BEHIND VERTICAL JOINTS OF LEAD BLACKED GYPSUM WALLBOARD (ITEM 5B) AND OPTIONAL AT REMAINING STUD LOCATIONS. REQUIRED BEHIND VERTICAL JOINTS.

12. LEAD DISCS OR TABS – (NOT SHOWN, FOR USE WITH ITEM 5B)– USED IN LIEU OF OR ADDITION TO THE LEAD BATTEN STRIPS ( ITEM 11) OPTIONAL AT OTHER LOCATIONS – MAX 3/4 IN. DIA BY MAX 0.125 IN. THICK LEAD DISCS COMPRESSION FITTED OR ADHERED OVER STEEL SCREW HEADS OR MAX 1/2 IN. BY 1-1/4 IN. BY MAX 0.125 IN. THICK LEAD TABS PLACED OB GYPSUM BOARDS (ITEM 5B) UNDERNEATH SCREW LOCATIONS PRIOR TO THE INSTALLATION OF THE SCREWS. LEAD DISCS OR TABS TO HAVE A PURITY OF 99.9% MEETING THE FEDERAL SPECIFICATIONS QQ-L-201f, GRADE "C".

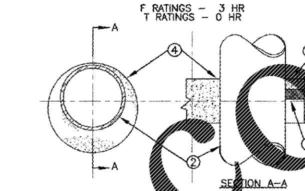
13. LEAD BATTEN STRIPS – (NOT SHOWN, FOR USE WITH ITEM 5E) LEAD BATTEN STRIPS, 2 IN. WIDE, MAX 10 FT LONG WITH A MAX THICKNESS OF 0.142 IN. STRIPS PLACED ON THE FACE OF STUDS AND ATTACHED TO THE STUD WITH TWO MIN. 1 IN. LONG MIN. TYPE S-8 PAN HEAD STEEL SCREW AT THE TOP OF THE STRIP. LEAD BATTEN STRIPS TO HAVE PURITY OF 99.9% MEETING THE FEDERAL SPECIFICATION QQ-L-201f, GRADE "C".

14. LEAD TABS – (NOT SHOWN, FOR USE WITH ITEM 5E) 2 IN. WIDE, 5 IN. LONG WITH A MAX THICKNESS OF 0.142 IN. TABS FRICTION – FIT AROUND FRONT FACE OF STUD, THE STUD FOLDED BACK FLANGE, AND THE BACK FACE OF THE STUD. TABS REQUIRED AT EACH LOCATION WHERE A SCREW (THAT SECURES THE GYPSUM BOARDS, ITEM 5E) WILL PENETRATE THE STEEL STUD. LEAD TABS TO HAVE PURITY OF 99.9% MEETING THE FEDERAL SPECIFICATION QQ-L-201f, GRADE "C".

F2 DESIGN NO. U419
SCALE: NONE

## SYSTEM NO. CAJ1001

F RATINGS – 3 HR
T RATINGS – 0 HR




1. FLOOR OR WALL ASSEMBLY – MIN 4-1/2 IN. THICK LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF CIRCULAR THROUGH OPENING IS 22-1/2 IN. SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
1.A. STEEL SLEEVE – (OPTIONAL, NOT SHOWN) – NOM 12 IN. DIAM (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE SLEEVE CAST INTO CONCRETE FLOOR OR WALL. SLEEVE TO BE FLUSH WITH OR PROJECT MAX 2 IN. FROM TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL.
2. PIPE OF CONDUIT – NOM 20 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE, NOM 6 IN. DIAM (OR SMALLER) RIGID STEEL CONDUIT OR TYPE L (OR HEAVIER) COPPER TUBE, NOM 4 IN. DIAM (OR SMALLER) CAST IRON PIPE OR STEEL EMT. MAX ONE PIPE OR CONDUIT PER THROUGH OPENING. MAX ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND EDGE OF THROUGH OPENING NOT TO EXCEED 2-1/2 IN. MIN ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND EDGE OF THROUGH OPENING IS ZERO IN. (POINT CONTACT). PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
3. PACKING MATERIAL – POLYETHYLENE BACKER ROD OR NOM 1 IN. THICKNESS OF TIGHTLY-PACKED CERAMIC (ALUMINA SILICA) FIBER BLANKET, MINERAL-WOOL BATT OR GLASS FIBER INSULATION MATERIAL USED AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF CAULK FILL MATERIAL (ITEM 4). AS AN ALTERNATE WHEN MAX PIPE SIZE IS 10 IN. DIAM AND WHEN MAX ANNULAR SPACE IS 1 IN., A MIN 1 IN. THICKNESS OF TIGHTLY-PACKED CERAMIC FIBER BLANKET OF MINERAL-WOOD BATT PACKING MATERIAL MAY BE RECESSED MIN 1/2 IN. FROM BOTTOM SURFACE OF FLOOR OR FROM EITHER SIDE OF WALL. 4. FILL, VOID OR CAVITY MATERIALS* – CAULK – APPLIED TO FILL THE ANNULAR SPACE TO THE MIN THICKNESS SHOWN IN THE FOLLOWING TABLE: * BEARING THE UL CLASSIFICATION MARKING.

| MAX PIPE DIAM IN | MAX ANNULAR SPACE IN. | PACKING MATERIAL TYPE (A) | MIN. CAULK THKNS IN |
|---|---|---|---|
| 10 | 1 | BR, CF, GF OR MW | 1/2 (B) |
| 10 | 1 | CF OR MW | 1/2 (C) |
| 20 | 2-1/2 | BR, CF, GF OR MW | 1 (B) |

(A) BR= POLYETHYLENE BACKER ROD. CF= CERAMIC FIBER BLANKET. GF= GLASS FIBER INSULATION.
(B) CAULK INSTALLED FLUSH WITH TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL.
(C) CAULK INSTALLED FLUSH WITH BOTTOM SURFACE OF FLOOR OR ONE SURFACE OF WALL.
MINNESOTA MINING & MFG. CO.– TYPES CP-25 S/L, CP-25 N/S

C8 SYSTEM NUMBER CA-J-1001
SCALE: NONE

| REVISION NO. | REVISION DESCRIPTION | |
|---|---|---|
| Revisions | | By Date |

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| Recommended Approvals: | |
|---|---|
| 1. MEDICAL CENTER DIRECTOR | 6. OPERATIONS SERVICE LINE MANAGER |
| 2. ASSISTANT DIRECTOR | 7. INFECTION CONTROL MANAGER |
| 3. CHIEF OF STAFF | 8. SAFETY MANAGER |
| 4. ASSOC. DIRECTOR | 9. GENERAL ENGINEER |
| 5. SERVICE LINE MGRS. | 10. COR |

Drawing Title: UL ASSEMBLIES
100% CONSTRUCTION DOCUMENTS
FULLY SPRINKLERED

Project Title: RENOVATE MENTAL HEALTH UNITS

| Drawn | Building Number | AutoCAD File Name |
|---|---|---|
| BWS III | | |
| Checked | Reviewed | Const. Contract No. |

Date: February 10, 2017
Project Number: 509-12-104
DRAWING No. GI106

Veterans Affairs

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