FABRICATION
DIMENSIONS
FOR 2" (R-8.7)
FIBROUS GLASS
DUCT BOARD
Fabrication Dimensions for 2" (R-8.7) Fibrous Glass Duct Board

Hand Grooving Tools

Female Shiplap Tool: Cuts female slip joint. Also used to cut seating edge of board at longitudinal closure corner.

Male Shiplap Tool: Cuts male slip joint to mate with female slip joint to connect two duct sections.

Modified Shiplap Tool: Removes insulation for shiplap corner folds. Reversing tool allows both left and right hand cuts to be made.

V-Groove Tool: Cuts 90° V-grooves for corner folds when modified shiplap grooving method is not used.

Shiplap / End Cutoff Tool: Cuts shiplap on end of board for longitudinal corner closure plus staple flap.

Introduction

This publication provides dimensional data required for accurate fabrication of insulated duct systems using 2" (R-8.7) fibrous glass duct board. General fabrication principles for 2" fibrous glass duct board are basically the same as for 1" and 1 1/2" duct board. For complete detailed duct board fabrication guidelines, refer to NAIMA Fibrous Glass Duct Construction Standard, 5th Edition (2002), Publication AH 116.

Thermal Performance

Thermal resistance (R-value) of 2" fibrous glass duct board is 8.7, which enables it to comply with energy codes requiring duct system R-values of at least 8.0.

Fabrication

Both hand and machine grooving tools are available for fabricating 2" fibrous glass duct board. Hand grooving tools are shown at right. Correct tool blade settings are very important in assuring accurate fabrication, tight joints, and an air-tight duct system that performs to specifications. Dimensions shown are nominal and may vary among tool manufacturers.

Closure

Closure of longitudinal and transverse joints using 2" fibrous glass duct board is the same as with 1" or 1 1/2" duct board, except that UL 181A/P pressure-sensitive closure tapes must be 3" wide.
Tool Settings For One Piece Duct

Hand Fabrication, Shiplap

1 GREY
A + 3⅛"
B + 3⅛"
C + 3⅛"
D + 2 7/8"
2½"

2 ORANGE (R)
A + B + C + D + 161/4"

3 ORANGE (L)

4 ORANGE (L)

Tool Settings For Two Piece “U” Style Duct

GREY
A + 3⅛"
B + 3⅛"
C + 3⅛"
D + 2"
2½"

ORANGE (R)
A + B + C + D + 11⅛"

ORANGE (L)
A + B + C + D + 11⅛"

KNIFE
D + 7"

KNIFE
D + 7⅛"

NOTE: A, B, C, & D ARE INSIDE DIMENSIONS AND ARE MEASURED BETWEEN TOOL TABS

FABRICATION DIMENSIONS FOR 2" FIBROUS GLASS DUCT BOARD
Tool Settings For Two Piece "L" Style Duct

Hand Fabrication, Shiplap

Hand Fabrication, V-Groove

Machine Fabrication, Standard

Machine Fabrication, Preferred

NOTE: A, B, C, & D ARE INSIDE DIMENSIONS AND ARE MEASURED BETWEEN TOOL TABS

Tool Settings For Four Piece Duct

Hand Fabrication, Shiplap

Machine Fabrication, Standard

Machine Fabrication, Preferred

NOTE: A, B, C, & D ARE INSIDE DIMENSIONS AND ARE MEASURED BETWEEN TOOL TABS
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**NOTE:** This table assumes the total stretch-out (add-on) dimension is 16". If the process used results in a different stretch-out (add-on) dimension, this table must be modified accordingly.

**NOTE:** Maximum unreinforced size at 1/2" w.g. is 36" for 800EI board and 42" for 1400EI board.
90° Elbow With Rail Mounted Turning Vanes

Branch Width = I.D. + 3"

CUT THROUGH BOARD AND FACING

CUT THROUGH BOARD AND FACING ONLTY

Female Shiplap

See Fastener Schedule

See Tape Tab Schedule

TAP-OUT PANEL

Rotate 180°

SQUARE EDGE PANEL

FASTENER SCHEDULE:

#10 plated sheet metal screws, 2½" long, with 2½" square or 3" round galvanized steel washers, 0.028" thick, volcano type, with turned edges facing away from duct board, 12" (nom.) centers.

TAPE TAB SCHEDULE:

UL 181A pressure sensitive or heat activated tape, 8" (nom.) length, on 12" (nom.) centers, at least one per side.

Refer to FGDCS, Section IV, Closure

Tee With Rail Mounted Turning Vanes

Branch Width = I.D. + 3"

CUT THROUGH BOARD AND FACING

CUT THROUGH BOARD AND FACING ONLTY

Female Shiplap

See Fastener Schedule

See Tape Tab Schedule

Discard TAP-OUT PANELS

See Tape Tab Schedule
One Way Transition
Reducing Square Edge Panel

Two Way Transition
Reducing Shiplap and Square Edge Panels
**Square Taps**

1. **Branch Width**
   - I.D. + 2”

2. **CUT THROUGH FACING ONLY**
   - STRAIGHT CUT THROUGH BOARD AND FACING

3. **Male Shiplap**
   - STRAIGHT CUT THROUGH BOARD AND FACING, TOP AND SIDES. CUT THROUGH FACING ONLY AT BOTTOM.

4. **Female Shiplap**
   - CUT THROUGH FACING ONLY

5. **Branch Depth**
   - I.D. + 1”

6. **Opening Size**
   - = Branch Width I.D. + Dimension A + 2”

7. **Air Flow**
   - A

**Wide Mouth Tap**

1. **Branch Width**
   - I.D. + 8”

2. **2 1/8”**
   - Staple Flaps All 4 Sides

3. **11 1/2”**
   - Duct I.D.

4. **Branch I.D.**
   - + 2”

5. **Dimension A**
   - = 6” MIN.

6. **OR, FOR TAPS OVER 30” WIDE, 1/4 BRANCH WIDTH**

**Square Edge Panel (Typ.)**

**Shiplap Panel**

**Tap-Out Panel**

- MUST HAVE SQUARE EDGES
End Caps

**Type A End Cap**
- Female Shiplap
- No staple flap
- Staple flaps folded, not cut, at the corners.
- Apply closure

**Type B End Cap**
- Female Shiplap
- Staple flap + Female shiplap
- Staple flaps folded, not cut, at the corners.
- Apply closure

**Type C End Cap**
- Female shiplap
- 2 1/2" (min.) staple flaps all four sides
- Staple flaps folded, not cut, at the corners.
- Apply closure

**Tape Tabs:** UL 181A pressure sensitive or heat activated tape, 8" (nom.) long 12" (nom.) centers, min. one per side. Apply closure.
Closure systems are important in the proper assembly of fibrous glass duct systems. Closures must comply with UL 181A. These are:

- Pressure sensitive aluminum foil tapes listed under UL 181A, Part I (P).
- Heat activated aluminum foil/scrim tapes listed under UL 181A, Part II (H).
- Mastic and glass fabric tape closure systems listed under UL 181A, Part III (M).

Joint and Seam Closures

See Figure 1 (shiplap joint) and Figure 2 (butt joint with tape tabs). Staples: galvanized steel, outward clinching, 1/2" (min.) long, crown width 0.40" (min.) flat wire, 0.040" x 0.020" (min.).

Surface Preparation

Surfaces to which closures will be applied must be clean, dry, and free of oil or grease. Follow the cleaning instructions of closure manufacturers.

- Pressure sensitive tape closures: Tape must be 3" wide (min.), 1" (min.) overlap on adjacent surfaces. Press in place and rub firmly with sealing tool until scrim shows through tape. Apply heat when temperature is below 50°F.
- Heat activated tape closures: Tape must be 3" wide (min.), 1" (min.) overlap on adjacent surfaces. Seal with iron at 550°F - 600°F. Heat indicator dots on tape will change color when satisfactory bond is achieved.
- Glass fabric and mastic closures: Apply 31/2" wide coat of mastic, embed 3" wide fabric in it, fill scrim pattern with a second application of mastic. Allow joint to set up before stressing.
For Complete Information on Fibrous Glass Duct Board Fabrication:


For additional information on fibrous glass duct systems, contact one of the manufacturers listed below.

**CertainTeed Corp.**
P.O. Box 860, Valley Forge, PA 19482  
800-233-8990

**Johns Manville Corp.**
P.O. Box 5108, Denver, CO 80217  
800-654-3103

**Knauf Fiber Glass**
One Knauf Drive, Shelbyville, IN 46176  
800-825-4434

**Owens Corning**
One Owens Corning Parkway, Toledo, OH 43659  
800-GET-PINK

**About NAIMA**

NAIMA is the association for North American manufacturers of fiber glass, rock wool, and slag wool insulation products. Its role is to promote energy efficiency and environmental preservation through the use of fiber glass, rock wool, and slag wool insulation, and to encourage the safe production and use of these materials.

In May 1999, NAIMA began implementing a comprehensive voluntary work practice partnership with the U.S. Occupational Safety and Health Administration (OSHA). The program, known as the Health and Safety Partnership Program, or HSPP, promotes the safe handling and use of insulation materials and incorporates education and training for the manufacture, fabrication, installation and removal of fiber glass, rock wool and slag wool insulation products.

For more information, contact: