Johns Manville

Fire Protection Systems

Super Firetemp®
T Board

Grease & Ventilation Duct Systems

Product Manual

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Super Firetemp® T board

Super Firetemp ® T Board from Johns Manville was made for grease and Ventilation ducts.

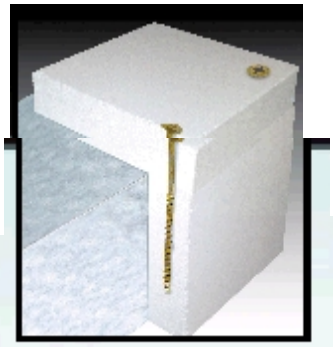
The structural grade calcium silicate material tested to 2000 F is the best of all alternatives for preventing a fire in a kitchen grease or ventilation duct fire from spreading throughout a building.

T board provides a 1 and 2 hour fire rated enclosure around any kitchen exhaust hood, duct or ventilation duct.

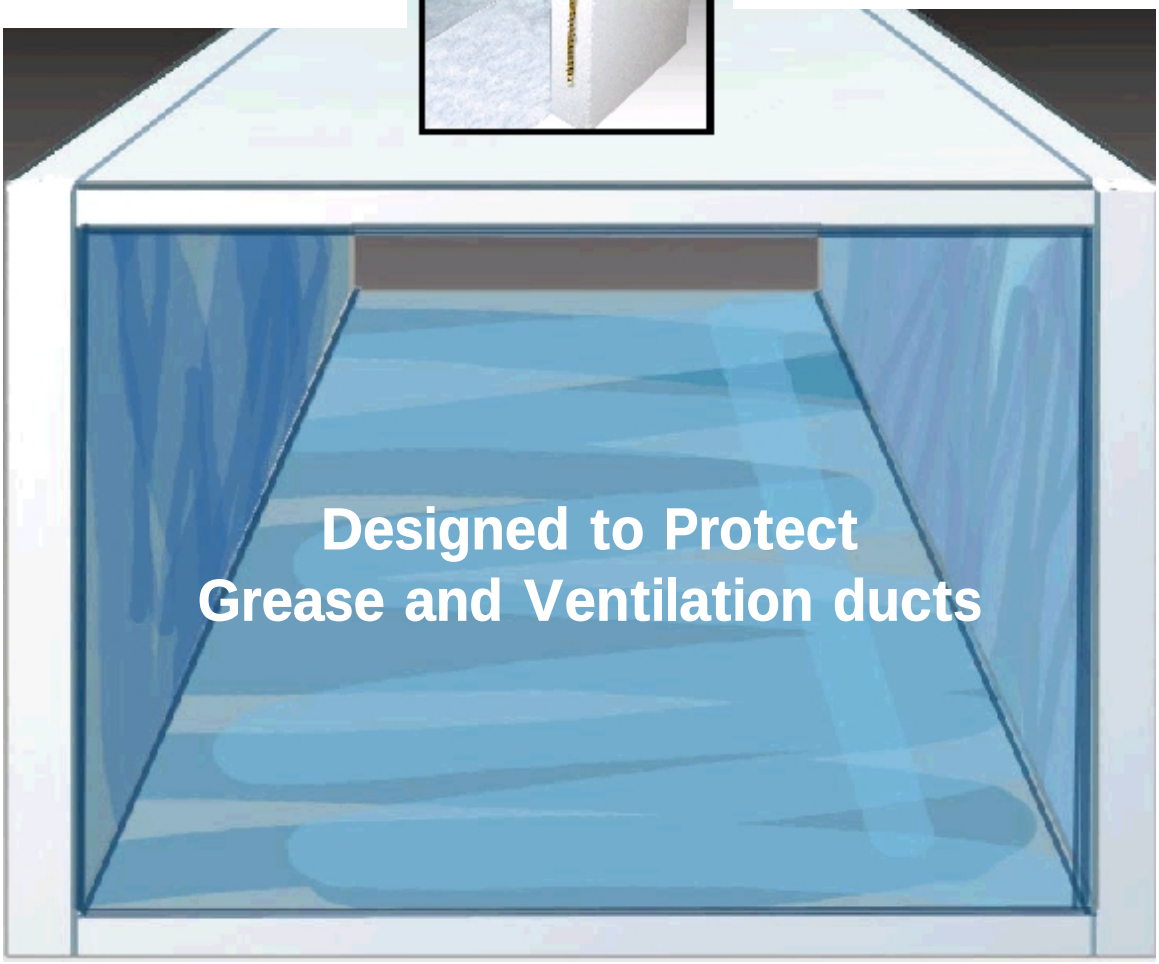
T board is faster, easier and more economical to install than traditional drywall.

Check out these features and benefits of T-board compared to drywall:

- ✓ No steel stud framing
  ½" air gap vs 4"-6"
- ✓ One Layer vs 3-5
- ✓ Requires fewer screws
- ✓ Butt joints
- ✓ No taping
- ✓ 1/3" installation time



- ✓ One Inspection
- ✓ Easily cut to fit
- ✓ Zero clearance to combustibles
- ✓ Simple clean out doors
- ✓ Compliance to
  UL 1978 Grease duct
  ISO-6944 ventilation duct



System Testing and Listing

Listings

Grease Duct	
UL	YYET MH 19893
OPL	16053-1
	GD 503 R
	GD 505 C
	GD 515 R
SBCCI PST & ESI	2134
Air Duct	
OPL	VAD 521 R
ULC	FRD-11
Firestop Approvals	
UL	W-L-7055
	C-AJ-7060
	C-AJ-7061
OPL	FS546 W
	FS547 W
	FS 551 W

System Testing & Approvals

The enclosure meets the following requirements:

Agency	Listing
OPL	**16053-1** **#07820 Classification - 48" ducts** **ISO-6944 - 1985 for Ventilation Ducts**
UL	**UL Classification YYET - 24" ducts**
NFPA 96	**Standard for Ventilation Control and Fire Protection of Commercial Cooking Operation**
SBCCI	**Southern Building Code Congress International**

When installed according to the directions stated herein

UL 1978 – Standard for grease ducts – internal fire test
Normal Temperature test (soaking heat) 500 F
Abnormal Temperature test (grease duct fire) 2000 F

ASTM E119 –External Fire Test
2 hour full engulfment test

ASTM E814 –Firestop penetration
2 hour engulfment with hose stream test

ISO-6944- Ventilation duct standard
1 or 2 hour full engulfment

NFPA 96 – Standard for ventilation control and fire protection of commercial cooking operations
Field fabrication criteria for zero clearance to combustible

Super Firetemp® T Board
Duct Insulation

Description
Super Firetemp® T board is an inorganic, incombustible material. Chemically, Super Firetemp® T board features a tobermorite crystal structure that results in exceptional strength and controlled water of hydration. Super Firetemp® T board is composed primarily of lime, silica, and reinforcing fibers. The product is white, essentially dust-free, and contains no asbestos. It has been fire tested up to 2000°F (1093°C).

Applications
Uses include 1 & 2 hour fire-rated enclosures around kitchen exhaust hoods and ventilation ducts. Super Firetemp® T board meets the requirements defined by Underwriters Laboratories (UL), the National Fire Protection Association (NFPA 96), and SBCCI. It is an alternative method of providing duct fire protection instead of the traditional shaft wall enclosure construction around a duct. For design flexibility, JM also has the first approved grease duct enclosure that combines Super Firetemp® T board with Firetemp® Wrap.

Advantages
System Design. Super Firetemp® T board is an Omega Point Laboratories and Underwriters Laboratories (UL) classified board. The product is non combustible and complies with 25/50 flame and smoke requirements per ASTM E84.

Simplified Installation. Super Firetemp® T board is lightweight. Cutting and fabrication of the board around ducts is easily accomplished, thereby minimizing labor cost.

Space Saving. Super Firetemp® T board is a single layer system with zero clearance to combustible which makes it ideal for tight installations.

Tough Board. The board is self supporting and does not depend on the strength of the duct to support the weight of the fire protection system.

Attractive. The product's sanded surface readily accepts oil-based paints, wall coverings and cured veneers.

Fire Rated Doors. Super Firetemp® T board being strong and rigid will allow for the installation of typical fire rated inspection doors used in shaft wall enclosures (check local codes for applicability and approval for use).

System Testing and Approvals
ASTM C 656, Type II, Grade 5
ASTM C 795: Passes
ASTM E 84: Flame Spread: 0, Smoke Development: 0
ASTM E 136: Passes
ASTM E 119; UL 263; NFPA 251:
1 to 2 hour rating for fire rated enclosure
UL 1978: Internal Grease Duct and Air Duct Fire Test
ASTM E 814; UL 1479: Through penetration, 2-hour "F" and "T" ratings using Firetemp® CI & SI firestopping products.
Underwriters Laboratories Inc. YYET
Omega Point Laboratories

Available Forms
Super Firetemp® T board is manufactured in 4' x 8' (1.22 m x 2.44 m) panels with a sanded finish on one or both sides. The standard thickness for Super Firetemp® T board is 2" (51 mm).

Technical Services
For technical information and assistance regarding application information, code approvals and performance specifications, call 1-800-872-0338. If this piece is more than one year old, please contact Johns Manville for the current information.

Order Placement
Refer to the maps on the back page to find the appropriate location for placing orders.

Super Firetemp® T Board
Duct Insulation

Specifications
Physical Properties
Density (Average) . . . . . 18 pcf (288 kg/m3)
Maximum Recommended Continuous
Service Temperature . . . . . 1200°F (649°C)
Flexural Strength . . . . . 140 psi (965 kPa)
Compressive Strength
@ 10% Deformation. . . . . 400 psi (2,758 kPa)
Moisture Content, Normal
Percentage of Dry weight. 4

Standard Sizes
Thickness* . . . . . 2" (51 mm)
Sheet Size . . . . . 4' x 8' (1.22 m x 2.44 m)
Dimensional Tolerances
Length and Width . . . . . + 1/8" (3 mm)
Thickness (sanded one side) . . . . . – 1/8" (3 mm) + 1/4" (6 mm)
* Other thickness' available upon request

Linear Shrinkage After 24 Hours at Temperatures, %

Temp °F (°C)	Length	Width	Thickness	Weight Loss
1200 (649)	< 1%	< 1%	< 1-1/2%	< 9%

Thermal Conductivity ("k")

Mean Temp °F	Mean Temp °C	"k" Btu in/(hr sqft°F)	W/m °K
200	93	.54	0.078
400	204	.61	0.088
600	316	.67	0.097
800	427	.73	0.105

Super Calstik Adhesive
Color: white
Available in 1-5 gallon pails

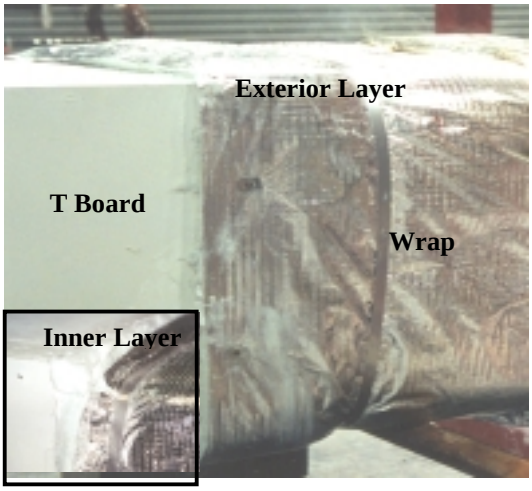
Firestop Barrier

Firetemp CI, SI or SE
Ready to use water based sealant offered as caulk or spray mastic
Colors: CI (Red), SI (Blue), SE (Grey)

Firetemp® Wrap is a high temperature insulation blanket specifically designed to provide one and two hour fire ratings around many commercial applications.

Super Firetemp® T board and Firetemp® Wrap Transition - Installation Guide

Advantages
Simplified Installation. This transition provides flexibility to the installer to utilize the installation benefits of the board and wrap, while providing an approved grease duct fire protection system. Use of this transition will allow for time or labor saving by maximizing installation efficiency and by providing flexibility for installation in difficult spaces. Before and after any transition follow the installation recommendations described for the board and wrap products.



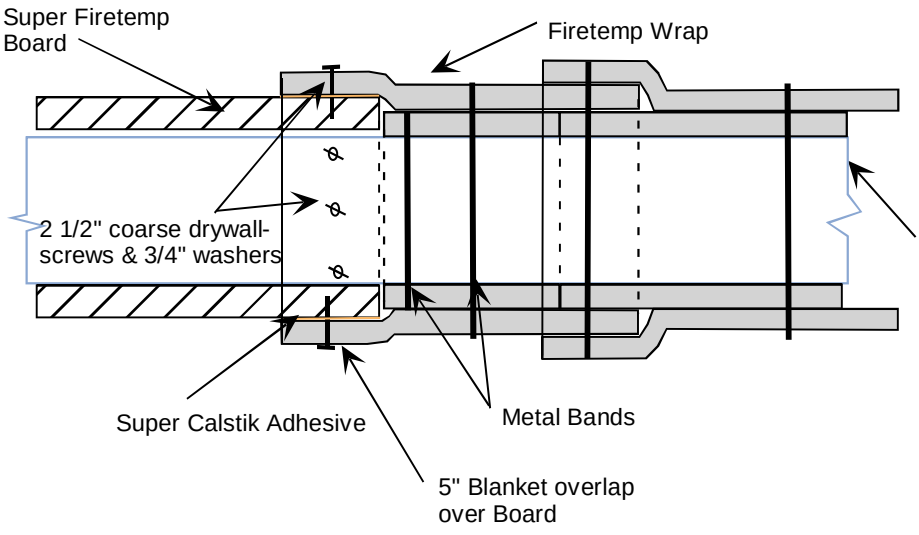
System Testing and Approvals
This transition using Super Firetemp T board and Firetemp Wrap has been fully tested against internal grease duct fires (UL 1978), external fires (ASTM E119/ UL 263), through penetration, insulated duct fires (ASTM E814/ UL 1479), and surface burning (ASTM E84/UL 723). Omega Point Laboratories (OPL) fire endurance testing agency accredited by ICBO, BOCA and SBCCI (National Evaluation Services) in the United States performed these tests and have provided reference listings.

Installation
Install board and wrap as described in installation guides before or after transition area.

At transition, install board, then butt inner layer of wrap next to board. Hold first layer of blanket in place by attaching ½" stainless steel band (0.0015" thick) 1 ½" from edge of blanket. Coat a 5-inch width of board, with Super Calstik™ adhesive, adjacent to butt joint of wrap. Overlap the second layer of wrap a minimum of 5 inches over the board and in contact with the Super Calstik® adhesive. Overlap the blanket a minimum of 3 inches over itself. Attached 2 ½" long coarse dry wall screws with washers (1 1/2" speed clips) every 8" OC and from 3-4 inches from the edge of each corner. Attach additional stainless steel bands over wrap as described in wrap installation guide. See Figure 1 for visual depiction of board/wrap transition.

Figure 1

Super Firetemp T Board and Wrap Transition - Joint System



Architects Specification - Super Firetemp® T Board

Johns Manville Super Firetemp T board Commercial Kitchen Grease and Air Ventilation Duct System

Part 1 - General

1.01 Description of System

A. Work in this section includes labor, material, and equipment to provided a 1 and 2-hour fire-resistive enclosure with zero clearance to combustibles for commercial kitchen grease and ventilation duct systems.

B. Related Sections:
1. Section 04200 – Unit Masonry
2. Section 05500 - Metal Fabrication
3. Section 07270 - Firestopping
4. Section 09260 - Gypsum Wallboard Systems
5. Section 15890 - Ductwork

1.02 References

A. Test Standards for evaluating and rating performance of fire resistive duct wrap systems.
1. Underwriters Laboratories, Inc. (UL)
   a. UL 723, surface burning characteristics per ASTM E-84
   b. UL 1978, Standard for Grease ducts, Clearance to Combustibles
   c. UL 1479, Through-Penetration 2 hour Firestop Test.
   d. Fire Protection Equipment Directory, Grease Duct Enclosures, YYET
2. Underwriters Laboratory of Canada (ULC)
   a. Underwriters Laboratory of Canada, ISO-6944-1985 2 hour large Ventilation Duct fire resistive enclosure test.
   b. Underwriters Laboratory of Canada, CAN4S115-M85/UL1479 2 hour Through Penetration Firestop Tests
3. Omega Point Laboratories (OPL)
   a. UL 1978 Interior fire test
   b. ASTM E-119 2 hour external total engulfment test
   c. ASTM E814 standard method of fire test of through penetration firestops – 2-hour firestop test
   d. ASTM E136 Combustibility
   e. OPL Grease Duct Enclosures, GD
   f. OPL Ventilation Duct Enclosures, VAD
4. American Society for Testing and Materials (ASTM)
   a. E119 Standard Method of Fire tests of building construction and material; 2-hour external total engulfment test.
   b. E814, Standard Method of Fire Tests of Through-Penetration Fire stops; 2-hour firestop tests.
   c. E136, Combustibility Test
   d. E84, Surface Burning Characteristics
   e. C518 thermal Transmission Properties
5. ISO Standard
   a. ISO-6944-1985 Part24 Fire Resistance Tests – Ventilation ducts
6. International Mechanical Code, Section 506.6 - compliance
7. Southern Building Code Congress (SBCCI) compliance
8. NFPA 96, 1994 Edition, Ventilation Control & Fire Protection of Commercial Cooking Operations

1.03 System Description

A. A light weight, non-asbestos, calcium-silicate, fire-resistive board. This fire-resistive board is a two-hour enclosure system, with zero clearance to combustibles, when used with a listed and approved through-penetration firestop system.
B. Performance Requirements:
   1. Two hour fire resistive enclosure assembly, ASTM E119: Total Engulfment test
   2. Zero clearance to combustible, UL 1978 Standard for Grease Ducts
   3. Class Interior Finish materials, ASTM E-814
   4. Through Penetration protection systems for commercial kitchen grease and air ventilation ducts, ASTM E814.
   5. Non-Combustibility, ASTM E136.
   6. ISO-6944-1985, Fire Resistance Tests – Ventilation ducts

1.04 Submittals

A. Submit independent third listings or test reports substantiating performance requirements and code compliance along with manufacturer's installation instructions.

1.05 Delivery, Storage, Handling

A. Deliver materials in original sealed containers or unopened packages, clearly labeled with manufacturer's name, product identification, and lot numbers.
B. Store materials out of weather and in an enclosed shelter.

Part 2 Products

2.01 Manufacturer

A. Fire Resistive materials as supplied by Johns Manville Intl, Super Firetemp® T board, Super Calstik Adhesive, and Firetemp Firestop products (CI, SI, or SE).

2.02 Materials

A. Fire Resistive Super Firetemp T Board – 2" thick
B. Super Calstik Adhesive
C. Type S drywall screws – 3-41/2" in length
D. Through Penetration Firestop Materials
   1. Firetemp firestop (CI, SI or SE) ¼ to ½" in thickness
   2. Soluble Amorphous Wool Blanket or Mineral wool batt – 8 or 4 pcf density – packed in annular space.

Part 3 Execution

3.01 Preparation

A. Remove dirt and dust, and clean surfaces for openings and items penetrating rated floors and walls.

3.02 Installation

A. Install Super Firetemp T board in accordance with Manufacturer's instructions and referenced standards.

3.03 Warning Labels

A. Provide warning label on duct
   1. Once every 20 feet
   2. On each clean-out door
   To discourage contractors or workers from disturbing fire resistive system.

B. Wording - "Fire resistive Enclosure- Do Not Remove"

3.04 Repair Procedure

A. Repair damaged surface in accordance with manufacturer's instructions.

INSTALLATION

Installation Instructions

Part 1 - General

1.01 Description of System

A. This fireproofing system shall be a complete system of Fireproofing materials supplied as specified by Johns Manville.

B. This system is designed for application on grease ducts as shown on the drawings.

1.02 Quality Assurance

A. Supplier Qualifications: The Super Firetemp system as supplied by Johns Manville is approved for use on this project.

B. Applicator Qualifications: Applicators bidding on this work represent that they are fully apprised of Super Firetemp products and application procedures.

1.03 Submittals

A. Product Data: Submit copies of Super Firetemp data and these application instructions and drawings.

B. Samples: Submit samples of Super Firetemp board, Super Calstik and other materials as requested.

1.04 Product Delivery, Storage and Handling

A. Materials shall be delivered in packaged lots, clearly marked with Johns Manville's name, brand and type of material with UL or other labels as required.

B. Materials shall be stored in a clean, dry warehouse with careful handling to avoid damage.

1.05 Job Conditions

A. Environmental conditions: while a warm environment is desirable, Super Firetemp board may be applied in subfreezing or wet weather, if necessary. The only restriction in subfreezing conditions is to provide enough heat to prevent the Super Calstik from freezing before it cures.

B. Ventilation: When Johns Manville Super Firetemp is saw-cut in the field, workers must follow personal protection as indicated in the product warning label or Material Safety Data Sheet (MSDS).

C. Coordination: Fireproofing must be coordinated with other construction to avoid retrofits that would interfere with the integrity of the finished fireproofing job. At the same time, the fireproofing should be applied last to minimize the possibility of incidental damage to the finished system.

1.06 Codes

A. Install all Super Firetemp board in strict accordance with all published, applicable regulations by local, state or federal agencies that may have jurisdiction.

B. The Grease Duct Enclosure and through firestop penetration is listed under Underwriters Laboratories under YYET and Omega Point Laboratories Classification 16053-1in the OPL Fire Protection Equipment Directory.

C. The Grease Duct Insulation and Fireproofing System complies with SBCCI.

D. For 1 & 2 hour rated assemblies, use 2" (51mm) thick Super Firetemp T.

E. The Ventilation duct Enclosure and through firestop penetration is listed under Omega Point Laboratories Classification 15053-1.

Part 2 - Product Information

2.01 Super Firetemp

A. Description: Super Firetemp is press-molded tobermorite calcium silicate board possessing such strength and resiliency that it can be installed without damage.

B. Typical Average Properties:

Super Firetemp T Board	
Density, pcf (kg/m3)	18 (288)
Flexural Strength, psi (kPa)	140 (965)
Compressive Strength @ 10% deformation, psi (kPa)	400 (2760)

C. Easy Application

1 May be field-installed using ordinary tools such as drywall screws and a power screwdriver or nails and a power nail gun.

2 May be field-cut using a circular saw equipped with a carbide-tipped blade or a reciprocating saw equipped with a metal cutting blade. Precut in a shop for minimum on-site effort. Field cuts, with a circular saw, should be made using a straightedge for the saw to follow.

3 Miscellaneous materials such as drywall screws and Super Calstik Glue as approved by Johns Manville.

D. Hazardous Warning

1 For the latest health and safety information for this product, please refer to the Johns Manville Material Safety Data Sheet (MSDS) No. 2005-1.0, or contact the Johns Manville Product Information Center at 1-800-654-3103.

2 Contains no asbestos.

Part 3 - Installation

3.01 Inspection

A. Verify that the ducts to be fireproofed are as represented in the design criteria.

3.02 Job Preparation

A. The metal duct must comply with the code The enclosure is constructed of minimum 2 " (51 mm) thick Super Firetemp T for a 1-hour or 2-hour enclosure. The exterior of

the enclosure is permitted to be in direct contact with combustibles.

B. The installation of Super Firetemp board must be coordinated with other construction work to avoid retrofits or damage to the enclosure. Plan the work such that the enclosure will not have to be opened or taken apart after it has been installed.

C. The enclosure must be located so that the installer does not have to cut into the Super Firetemp to make room for adjacent equipment, pipe fittings, electrical fittings, etc. Verify there is sufficient room for the access doors to be removed so the duct can be inspected and cleaned.

D. Super Firetemp board can be installed in any weather condition. In subfreezing temperatures, provide enough heat to allow the adhesive to set before it freezes. The Super Calstik adhesive must be kept above the freezing point to prevent separation.

E. It is important to have the proper tools. Super Firetemp board can be cut with ordinary handsaws or power tools, however the blades will dull quickly. Use carbide-tipped blades for maximum life.

3.03 Installation

A. Support the duct enclosure using a conventional trapeze arrangement or simply rest it on the ceiling support structures (Figure 1 & 2). The structures must be capable of supporting the weight of the Super Firetemp boards and the weight of the duct assembly (Figure 4). Supports must be no further apart than 4' (1.22 m) O.C. When stiffeners are used on the metal duct, place the supports under the assembly so that the metal stiffener members are within 6" (152 mm) of the supports (Figure 3).

B. For horizontal ducts the minimum clearance between the duct and the enclosure shall be zero inches on the bottom, 1/4" (6 mm) (1/2" - 12mm for duct >24") on each side and 1/2" (12 mm) (1"- 24mm for duct >24") on the top (Figure 4). If reinforcements are used for the particular duct, the spacing must be maintained between the reinforcement and the Super Firetemp board.

C. For vertical ducts, provide 1/4" (6 mm) (1/2" - 12mm for ducts >24") clearance between the duct and enclosure on all four sides for expansion clearance. Observe these clearances at all locations along the length of the duct. If reinforcements are used for the particular duct, the spacing must be maintained between the reinforcement and the Super Firetemp board.

D. Provide adequate clearance at the end of all straight runs to allow for expansion of the metal duct inside the enclosure. Allow 2" (51 mm) of expansion for every 100' (30.5 m) of straight run length.

E. Completely cover the duct with Super Firetemp board. Use 2 " (50mm) Super Firetemp T for 1-hour and 2-hour rated assemblies. Butt joints should be staggered a minimum of 12 inches from other butt joints (Figure 2). No more than 2 adjacent butt joints should be placed in a common plane surrounding a duct.

F. Cement all joints together with Super Calstik by buttering both mating surfaces with cement before joining. Use enough Super Calstik so that it squeezes out where the boards are mated together. Usage should be about 50' (15.3 m) of joint (1/8" [3 mm] thick) per gallon (3.8 liters) of Super Calstik.

G. Fasten Super Firetemp sections together with drywall screws or nails (8"[203 mm] O.C.) at joints where sections meet at right angles. Screws or nails should be at least 5" long (Screws or nails for ducts at or below cross-sectional dimensions of 24" (310 mm) by 24" (610 mm) 24" should be at least 3 1/2" long).

H. Provide adequate support at the bottom of long vertical runs. On multiple-story vertical runs, the Super Firetemp enclosure shall be supported at every floor level (Figure 5).

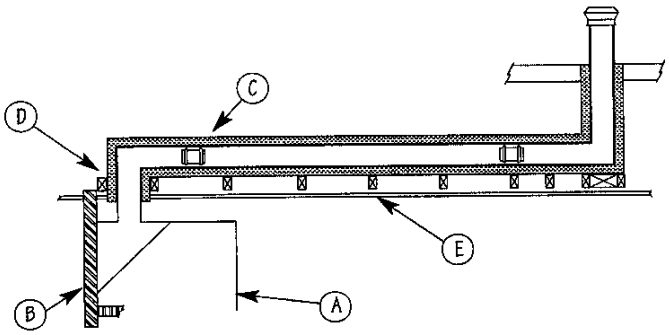
I. In multistory buildings product can be installed deck to deck or as a continuous enclosure. For deck to deck run the metal duct up through the penetrations in a concrete floor system with metal supports for the metal duct resting on the floor at each level. For continuous enclosures through fire rated walls or floors follow firestop recommendations shown in Figures 6A or 6B.

J. Whenever clean-out covers are required, use a rated access door or fabricate an access clean-out cover as shown in Figure 7. Use a 1/8" (3 mm) thick gasket made from glass, mineral wool or ceramic fiber paper around the outer 3" (76 mm) of the access opening to seal the door cover. Hold the fabricated access door in place with two metal or wooden bars, using wing nuts as shown in Figure 7.

K. Spackle all joints with Super Calstik.

L. Super Firetemp L and or M can be combined with Super Firetemp T using Super Calstik adhesive to form a fire rated enclosure.

Figure 1
Super Firetemp Grease Duct Enclosure System for 1 & 2 Hour Fire Protection



Legend
A. Approved exhaust hood
B. Building wall
C. Duct clean-out door
D. Support flange attached to enclosure
E. Ceiling system

Notes:
1. Where required, duct shall be sloped by shimming under the duct and/or the Super Firetemp enclosure.

2. Duct Hangers and support for horizontal and vertical runs shall be designed to provide adequate support for the duct and the building and mechanical codes.

3. Labels shall be placed adjacent to all clean-out openings, which state that cover must be replaced after use.

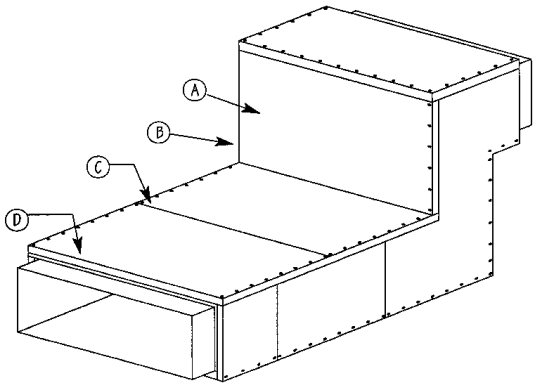
4. Duct and Super Firetemp shall be supported by hangers from roof or by laying directly on ceiling joists. Maximum distance between supports is 4'.

5. Lateral support for vertical runs shall be provided every 10' or at every floor level in multistory structures.

6. Lateral support for vertical portion of the enclosure must be capable of supporting the weight of the duct and the enclosure.

7. Calculations for the supporting members and connection shall be submitted to the building official for approval.

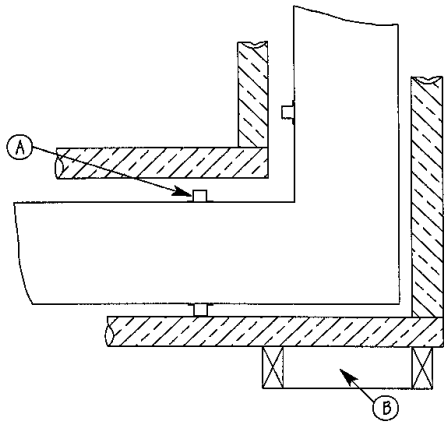
Figure 2
Typical Installation



Legend

A. 2" Thick Super Firetemp T Board
B. Drywall screws min 5" (3 1/2" screws or nails for ducts equal to or less then 2' in cross sectional dimensions) 8" on center
C. Seal all joints with Super Calstik glue Stagger seams
D. Maintain clearance as required

Figure 3
Typical Elbow

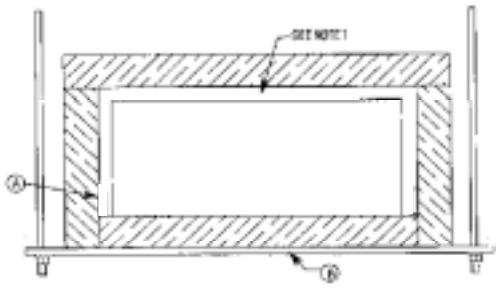


Legend
A. Duct Stiffener when required due to size

B. Weight Support

Note Maintain 1/4" air space (1/2" for ducts > 24") on all sides –bottom of duct may be in direct contact with insulation

Figure 4
Typical Cross Section

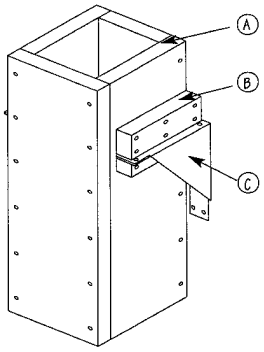


Legend

A. Spacing between duct and enclosure
Vertical runs spacing nominal 1/4"
(1/2" for ducts > 24" in size)
Horizontal runs duct permitted to
rest on board (note 1) 1/2" spacing
(ducts > 24" use 1" air gap for top of duct)

B. Trapeze support sized for weight
1/2" threaded rod for 24" duct
5/8" threaded rod for 48" duct
2 by 2 by 1/4" angle Iron

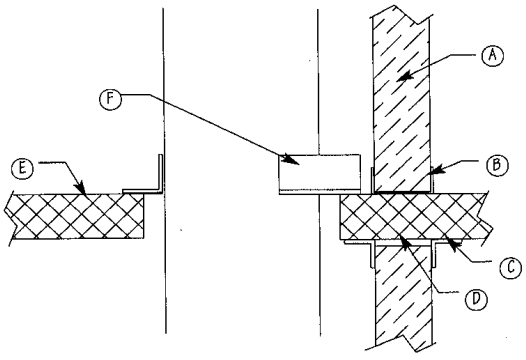
Figure 5
External Support



Legend
A. Super Firetemp enclosure
B. Weight support collar
C. Metal support bracket

Note:
Weight support required every 10' of vertical travel.

Figure 6
Multi-story Grease duct Enclosure Construction



Legend
A. Super Firetemp Enclosure
B. 22 msg galvanized steel floor track
C. 1/8" thick angle iron
D. Mineral fiber safing
E. Concrete deck
F. Angle iron support clips

Note: Support clips must not seal penetration and restrict air movement

Figure 6A
Firestop Penetration
For Ducts > 24" to 48"

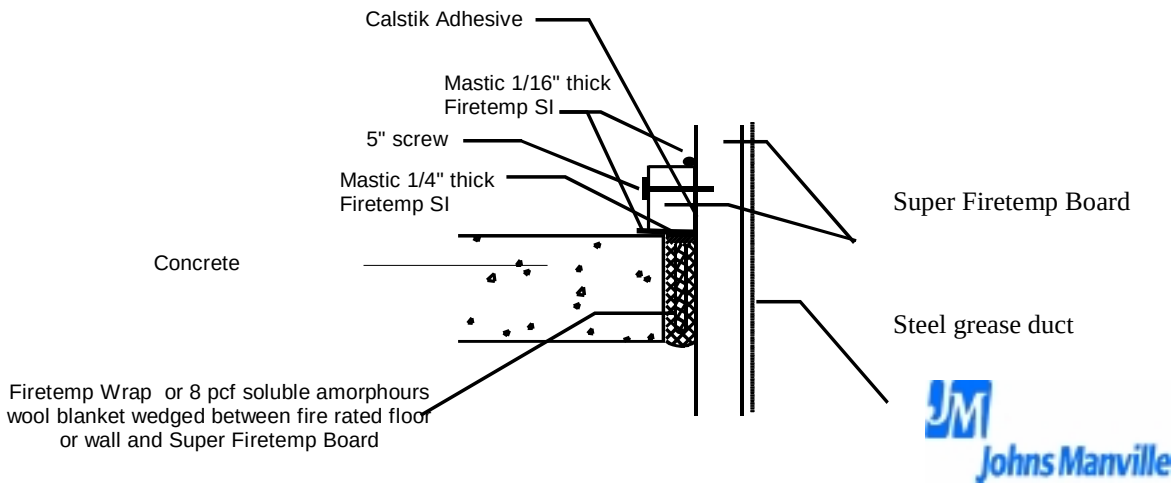


Figure 6B
Firestop Penetration
For Duct ≤ 24"

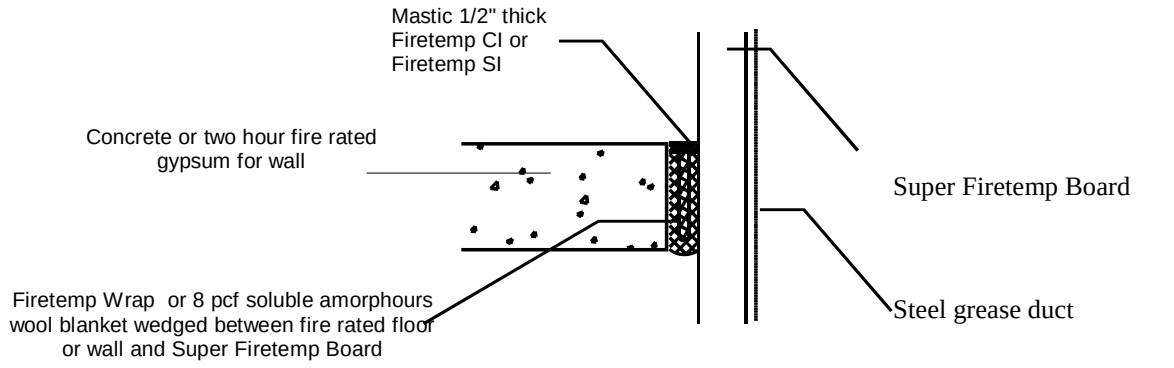
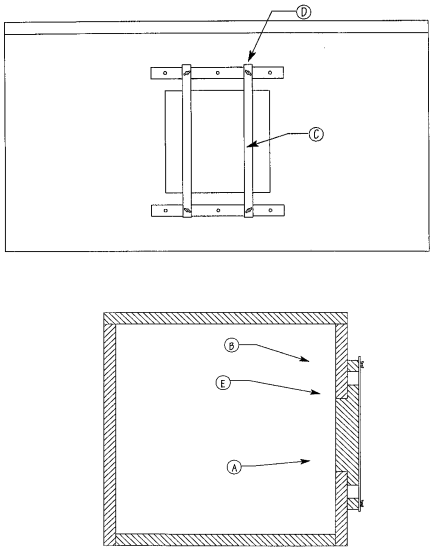


Figure 7
Clean-out Door for Kitchen Grease Duct Enclosure System



Legend
A. Two layers of Super Firetemp board secured together
B. Super Firetemp Support Block
C. Metal Bars
D. Wing nuts
E. Gasket

Notes:
1. Maintain 3" overlap around all sides of opening.
2. Support Blocks may be on sides.
3. Use 1/8" thick gasket between door and enclosure (acceptable gasket can be made from fiberglass, ceramic fiber, mineral fiber).
4. Spacer bar to be 2 1/2" by 2 1/2" bar attached to enclosure with adhesive and screws.

Johns Manville

Super Firetemp® T board
Material Estimating Guide

Circular Ducts

Estimates include the following:

Air gap on all sides of duct (1/4" or ½" depending upon duct size

Typical flange and reforcement ribs (per SMANCA) included and added to duct size

Actual usage may vary depending upon exact job requirements.

Duct size

Diameter (In)	Air Gap (In)	**Estimated Usage (sf/lf of duct)**	**Diameter (In)**	Air Gap (In)	**Estimated Usage (sf/lf of duct)**
4	0.25	**2.3**	**34**	0.5	**13.0**
6	0.25	**3.0**	**36**	0.5	**13.7**
8	0.25	**3.7**	**40**	0.5	**15.1**
10	0.25	**4.4**	**44**	0.5	**16.5**
12	0.25	**5.1**	**48**	0.5	**17.9**
14	0.25	**5.8**	**52**	0.5	**19.3**
16	0.25	**6.5**	**56**	0.5	**20.7**
18	0.25	**7.2**	**60**	0.5	**22.1**
20	0.25	**7.9**	**64**	0.5	**23.5**
22	0.25	**8.6**	**68**	0.5	**24.9**
24	0.25	**9.3**	**72**	0.5	**26.3**
26	0.5	**10.2**	**76**	0.5	**27.7**
28	0.5	**10.9**	**80**	0.5	**29.1**
30	0.5	**11.6**	**84**	0.5	**30.5**
32	0.5	**12.3**			

Super Firetemp® T board
Material Estimating Guide

Square or Rectangular Ducts

Estimates include the following:

Air gap on all sides of duct (1/4" or ½" depending upon duct size

Typical flange and reforcement ribs (per SMANCA) included and added to duct size

Actual usage may vary depending upon exact job requirements.

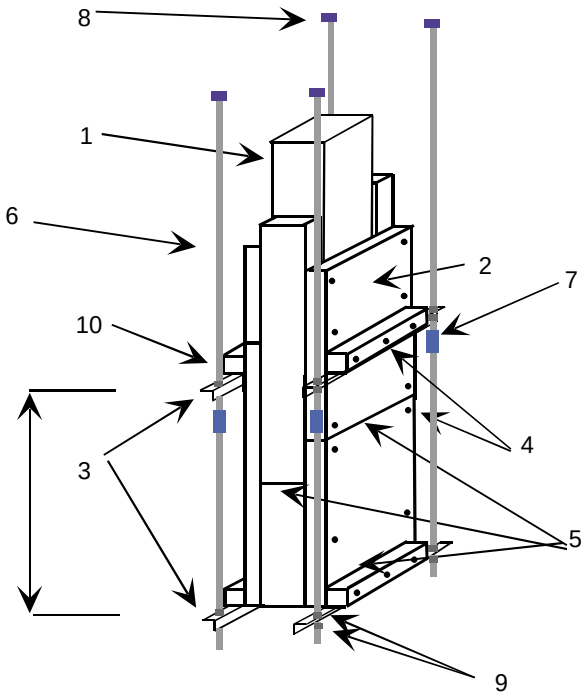
Semi-Perimeter = duct width + duct height

Duct size

Semi-Perimeter (In)	Air Gap (In)	**Estimated Usage (sf/lf of duct)**	**Semi-Perimeter (In)**	Air Gap (In)	**Estimated Usage (sf/lf of duct)**
18	0.25	**4.0**	**100**	0.5	**19.6**
20	0.25	**4.4**	**104**	0.5	**20.3**
22	0.25	**4.7**	**108**	0.5	**21.0**
24	0.25	**5.1**	**112**	0.5	**21.7**
26	0.25	**5.4**	**116**	0.5	**22.4**
28	0.25	**5.8**	**120**	0.5	**23.1**
30	0.25	**6.1**	**124**	0.5	**23.8**
32	0.25	**6.5**	**128**	0.5	**24.5**
34	0.25	**6.8**	**132**	0.5	**25.2**
36	0.25	**7.2**	**136**	0.5	**25.9**
38	0.25	**7.5**	**140**	0.5	**26.6**
40	0.25	**7.9**	**144**	0.5	**27.3**
44	0.25	**8.6**	**148**	0.5	**28.0**
48	0.25	**9.3**	**152**	0.5	**28.7**
52	0.5	**10.7**	**156**	0.5	**29.4**
56	0.5	**11.4**	**160**	0.5	**30.1**
60	0.5	**12.4**	**164**	0.5	**30.8**
64	0.5	**13.1**	**168**	0.5	**31.5**
68	0.5	**13.8**	**172**	0.5	**32.2**
72	0.5	**14.5**	**176**	0.5	**32.9**
76	0.5	**15.2**	**180**	0.5	**33.6**
80	0.5	**15.9**	**184**	0.5	**34.3**
84	0.5	**16.6**	**188**	0.5	**35.0**
88	0.5	**17.4**	**192**	0.5	**35.7**
92	0.5	**18.1**			
96	0.5	**18.8**			

Suggested Installation Method
Extended Duct Support
for Long Vertical Runs

Super Firetemp^{R} Board



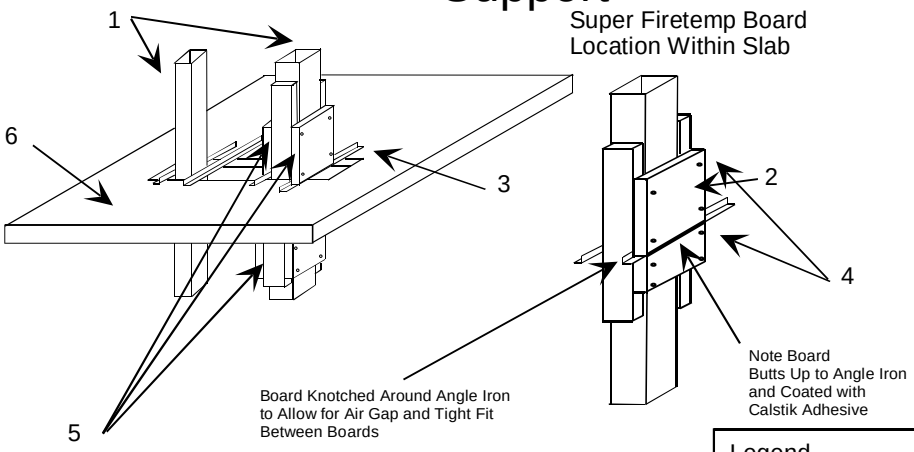
Angle Iron Supports located every 10 to 15 feet depending upon duct size and weight. Super Firetemp board compression properties designed to withstand compressive loads of up to 30 feet in length.

Legend	
1.	Duct
2.	Super Firetemp Board
3.	Angle Iron Duct Support
4.	Drywall Screws
5.	Calstik Adhesive
6.	Threaded Rod
7.	Threaded Rod Coupler
8.	Anchor Support
9.	Nut and Washer
10	SFT Board Supports

Note:
Angle Iron, threaded rod, and anchor supports should be sized for weight of duct being installed.
Follow UMC or SMACA Guidelines.

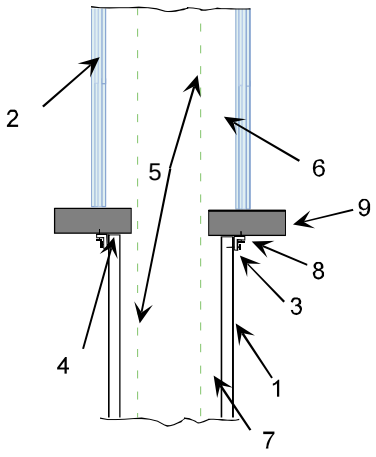
SuperFiretemp Board Supports for Angle Iron Attached to Grease Duct Insulation using drywall screws (3" from edge and 12" OC) and Super Calstik Adhesive.

Super Firetemp^{R} Board
Chase Wall with Multiple Ducts
Suggested Installation Method for Installing Board Over Standard Duct Support



Legend	
1.	Duct
2.	Super Firetemp Board
3.	Angle Iron Duct Support
4.	Drywall Screws
5.	Calstik Adhesive
6.	Concrete Slab
7.	Firestop as Required

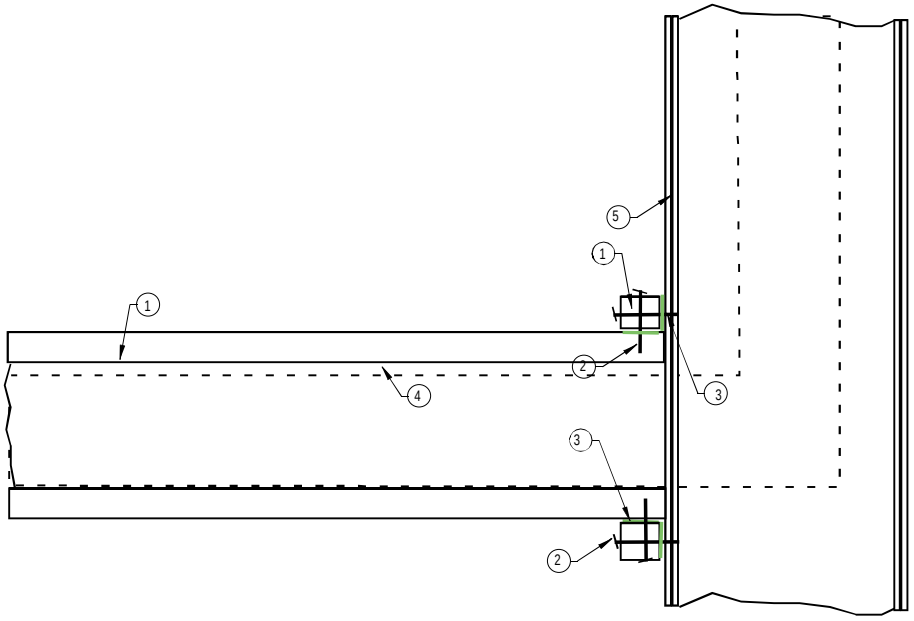
SUGGESTED INSTALLATION
MULTISTORY GREASE DUCT ENCLOSURE CONSTRUCTION WITH SUPER FIRETEMP^{R} BOARD AND FIRE RATED SHAFT ENCLOSURE

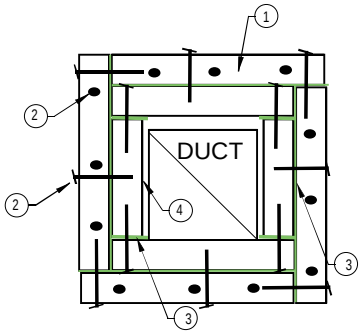


LEGEND	
1	SUPER FIRETEMP BOARD
2	SHAFT ENCLOSURE (X TYPE)
3	DRYWALL SCREWS (8" O.C.)
4	CALSTIK^{TM} ADHESIVE (COVER JOINT)
5	STEEL GREASE DUCT
6	SHAFT CLEARANCE MIN. 3"
7	AIR GAP
8	1/8" THICK ANGLE IRON SHOOT NAILS OR BOLTS INTO CONCRETE TO HOLD ANGLE IRON
9	FIRE RATED FLOOR

SUGGESTED INSTALLATION
FOR 90^0 SHAFT WALL TRANSISTION

BETWEEN SUPER FIRETEMP BOARD AND SHAFT WALL LINER



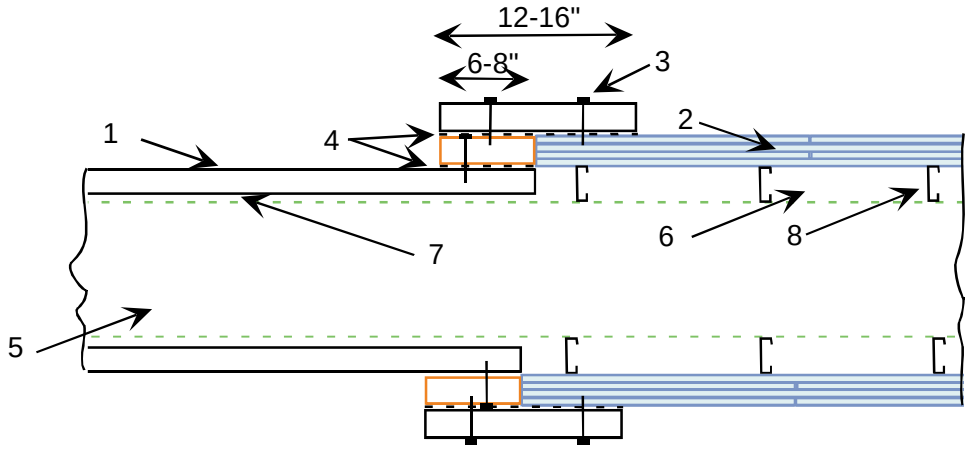


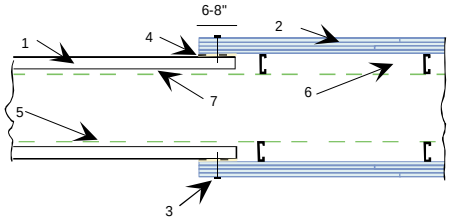
LEGEND	
1	SUPER FIRETEMP BOARD
2	DRY WALL SCREWS
3	SUPER CALSTIK ADHESIVE
4	MINIMUM 1/4" AIR GAP (1/2" FOR DUCTS > 24"
5	SHAFT WALL LINER OR X RATED DRY WALL

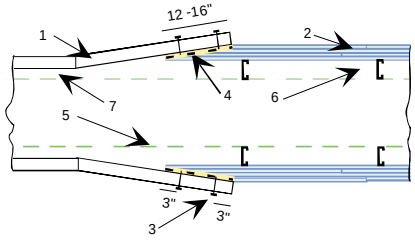
NOTE: DUCTS AND INSULATION MUST BE SUPPORTED USING STANDARD ROD AND TRAPEZE.
FOLLOW UMC OR SMACA GUIDELINES.

Horizontal or Vertical Shaft Transition

Super Firetemp^{R} Board and Fire Rated Drywall Joint

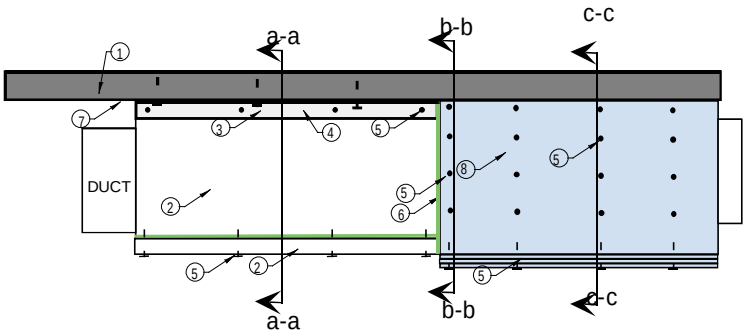


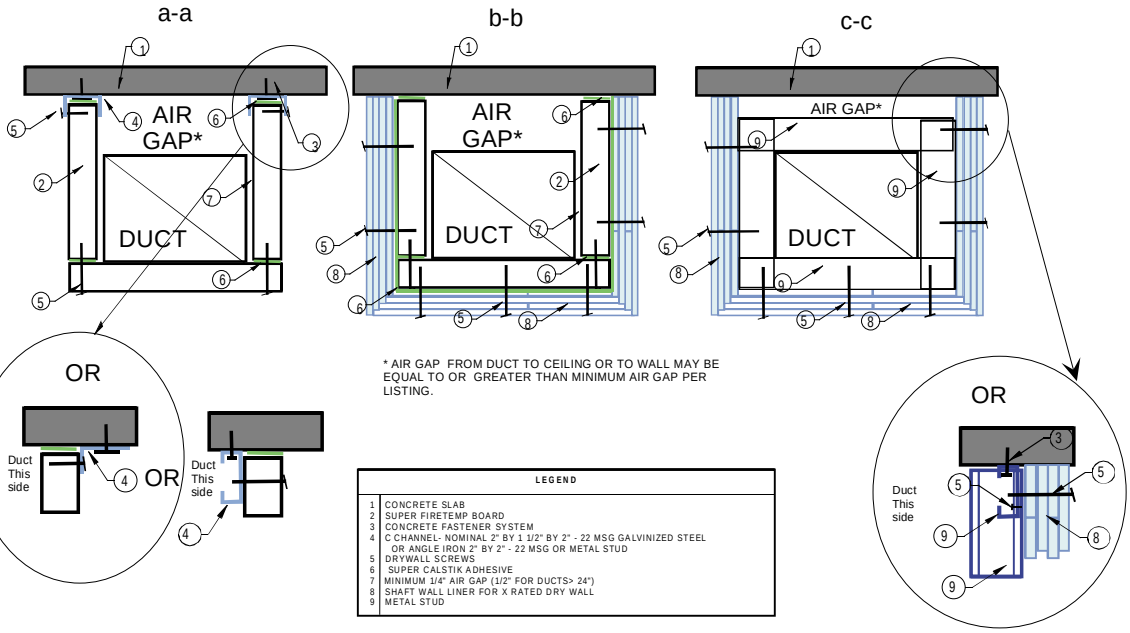




Legend	
1	Super Firetemp Board
2	Shaft Enclosure (X type)
3	Drywall screws (8" O.C.)
4	Calstik adhesive
5	steel grease duct
6	Shaft clearance Min. 3"
7	Air Gap
8	Steel Stud

SUGGESTED INSTALLATION
FOR 3 SIDED HORIZONTAL SHAFT TRANSITION
SUPER FIRETEMP BOARD AND FIRE RATED DRYWALL



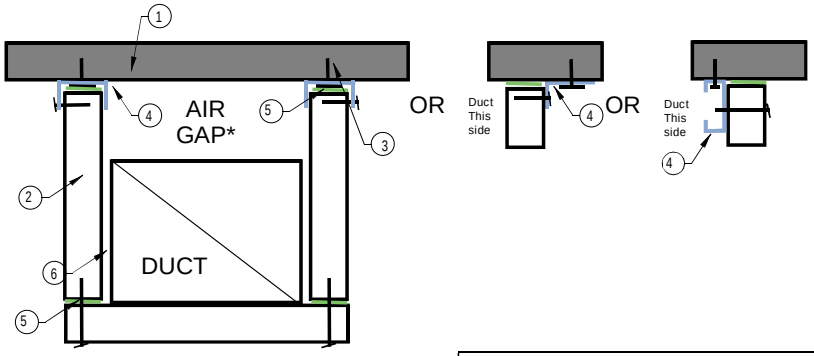


* AIR GAP FROM DUCT TO CEILING OR TO WALL MAY BE EQUAL TO OR GREATER THAN MINIMUM AIR GAP PER LISTING.

LEGEND	
1	CONCRETE SLAB
2	SUPER FIRETEMP BOARD
3	CONCRETE FASTENER SYSTEM
4	C CHANNEL- NOMINAL 2" BY 1 1/2" BY 2" - 22 MSG GALVINIZED STEEL OR ANGLE IRON 2" BY 2" - 22 MSG OR METAL STUD
5	DRYWALL SCREWS
6	SUPER CALSTIK ADHESIVE
7	MINIMUM 1/4" AIR GAP (1/2" FOR DUCTS> 24")
8	SHAFT WALL LINER FOR X RATED DRY WALL
9	METAL STUD

NOTE: DUCTS AND INSULATION MUST BE SUPPORTED USING STANDARD ROD AND TRAPEZE (TRAPEZE ATTACHED TO WALL) FOLLOW UMC OR SMACA GUIDELINES.

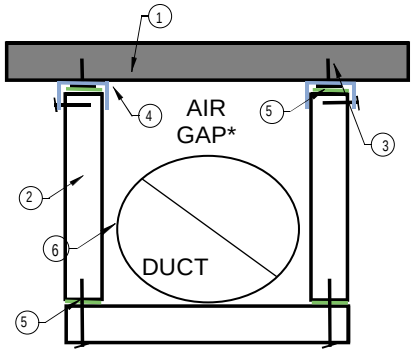
SUGGESTED INSTALLATION
WHEN ATTACHED TO A WALL OR CEILING
3 SIDED DETAIL
SUPER FIRETEMP^{R} BOARD



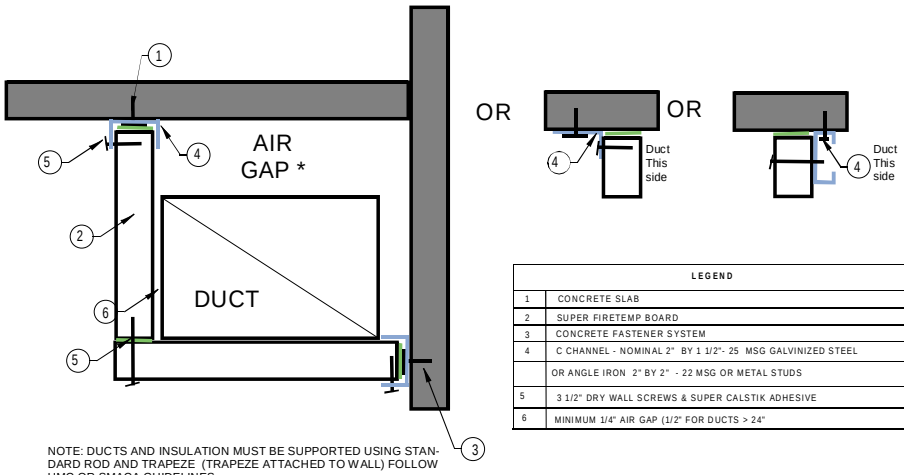
LEGEND	
1	CONCRETE SLAB
2	SUPER FIRETEMP BOARD
3	CONCRETE FASTENER SYSTEM
4	C CHANNEL - NOMINAL 2" BY 1 1/2"- 25 MSG GALVINIZED STEEL
	OR ANGLE IRON 2" BY 2" - 22 MSG OR METAL STUDS
5	3 1/2" DRY WALL SCREWS & SUPER CALSTIK ADHESIVE
6	MINIMUM 1/4" AIR GAP (1/2" FOR DUCTS > 24"

NOTE: DUCTS AND INSULATION MUST BE SUPPORTED USING STANDARD ROD AND TRAPEZE
FOLLOW UMC OR SMACA GUIDELINES.

* AIR GAP FROM DUCT TO CEILING OR TO WALL MAY BE EQUAL TO OR GREATER THAN MINIMUM AIR GAP PER LISTING.



SUGGESTED INSTALLATION
WHEN ATTACHED TO A WALL OR CEILING
2 SIDED DETAIL
SUPER FIRETEMP^{R} BOARD

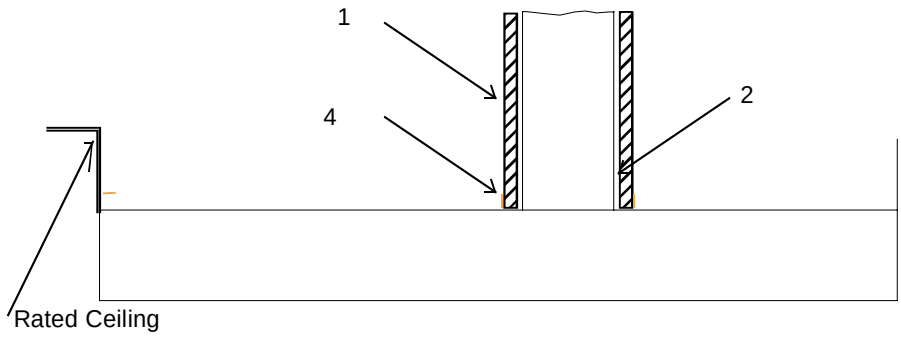


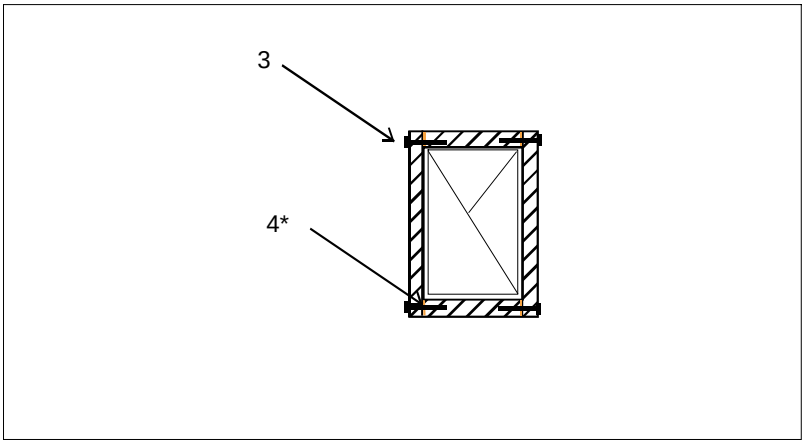
LEGEND	
1	CONCRETE SLAB
2	SUPER FIRETEMP BOARD
3	CONCRETE FASTENER SYSTEM
4	C CHANNEL - NOMINAL 2" BY 1 1/2"- 25 MSG GALVINIZED STEEL
	OR ANGLE IRON 2" BY 2" - 22 MSG OR METAL STUDS
5	3 1/2" DRY WALL SCREWS & SUPER CALSTIK ADHESIVE
6	MINIMUM 1/4" AIR GAP (1/2" FOR DUCTS > 24"

NOTE: DUCTS AND INSULATION MUST BE SUPPORTED USING STANDARD ROD AND TRAPEZE (TRAPEZE ATTACHED TO WALL) FOLLOW UMC OR SMACA GUIDELINES.

* AIR GAP FROM DUCT TO CEILING OR TO WALL MAY BE EQUAL TO OR GREATER THAN MINIMUM AIR GAP PER LISTING.

SUGGESTED INSTALLATION
FOR NON-RATED HOOD
FOR SUPER FIRETEMP BOARD

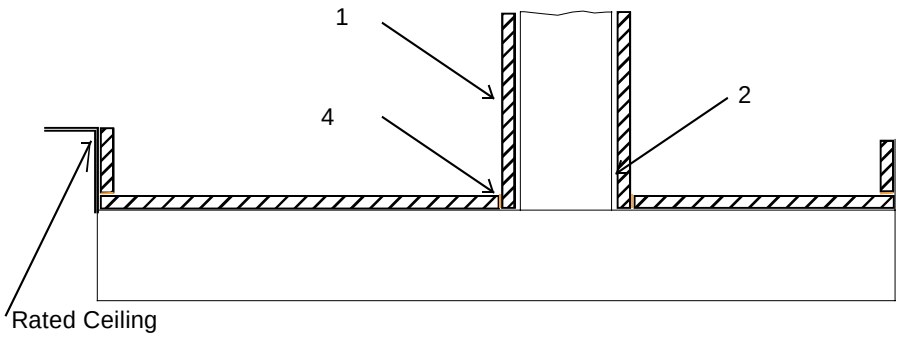


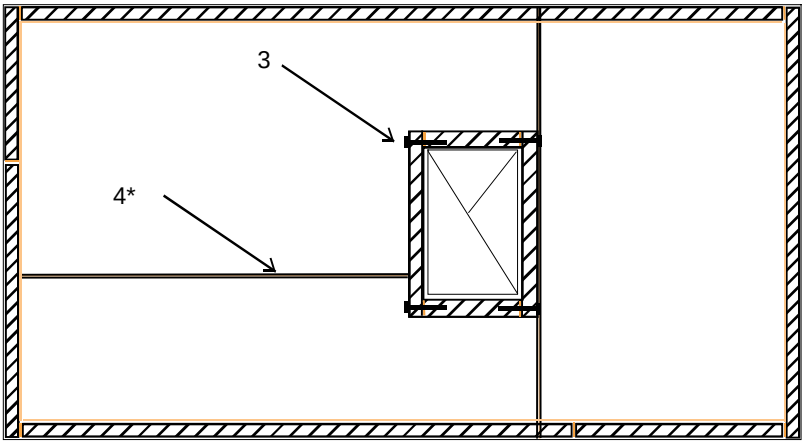


	LEGEND
1	SUPER FIRETEMP BOARD
2	1/4" AIR GAP OR 1/2" FOR DUCTS > 24"
3	DRYWALL SCREWS
4	ALL JOINTS GLUED WITH CALSTIK ADHESIVE
*	SEE INSTALLATION GUIDE FOR ADDITIONAL DETAILS

SUGGESTED INSTALLATION
FOR GREASE HOOD DETAIL

FOR SUPER FIRETEMP BOARD
1 OR 2 HR SYSTEM

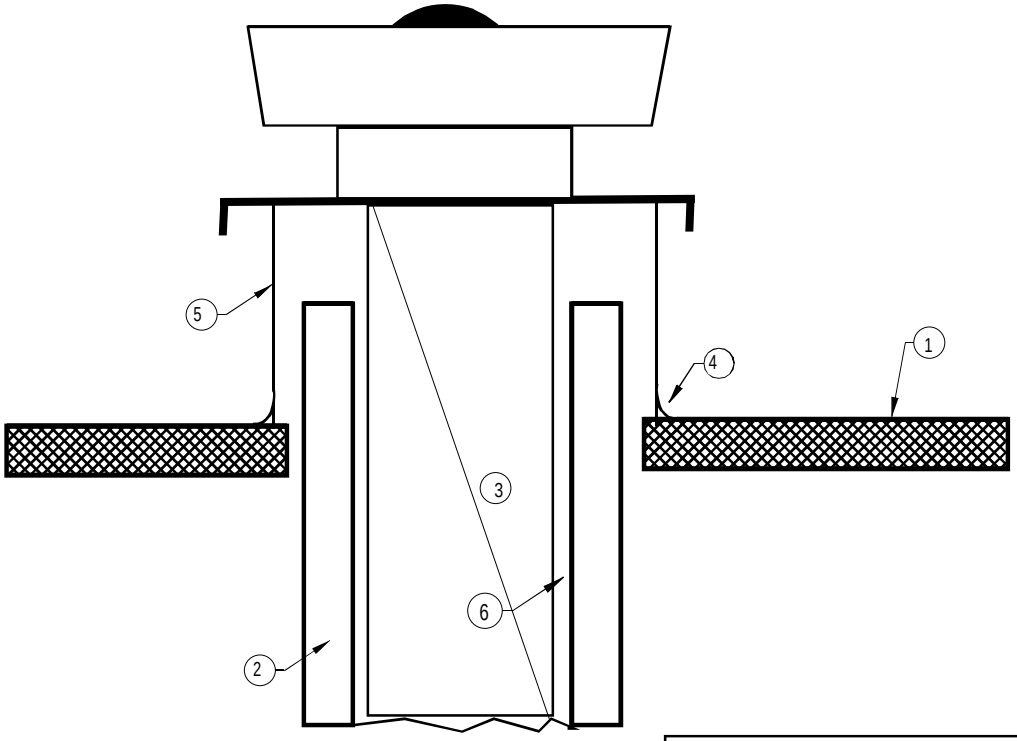




	LEGEND
1	SUPER FIRETEMP BOARD
2	1/4" AIR GAP OR 1/2" FOR DUCTS > 24"
3	DRYWALL SCREWS 4"
4	ALL JOINTS GLUED WITH CALSTIK ADHESIVE
*	SEE INSTALLATION GUIDE FOR ADDITIONAL DETAILS

SUGGESTED INSTALLATION FOR DUCT EXITING ROOF

SUPER FIRETEMP BOARD

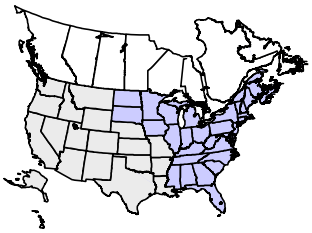


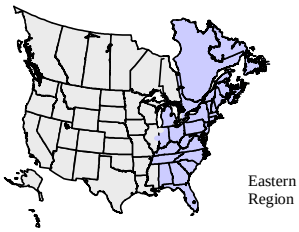
NOTE: DUCTS AND INSULATION MUST BE SUPPORTED USING STANDARD ROD AND TRAPEZE . FOLLOW UMC OR SMACA GUIDELINES.

LEGEND	
1	ROOF
2	SUPER FIRETEMP BOARD
3	DUCT
4	FLASHING
5	VENT EXTERIOR - FLASHING
6	MINIMIUM 1/4" AIR GAP (1/2" FOR DUCTS > 24"

Building Insulations

Mechanical Insulations





Product Information
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