

1. **Wall Assembly** -- The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the Individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features: --

A. **Studs** -- Wall framing may consist of either wood studs (max 2 h fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nom 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.

B. **Gypsum Board*** -- Nom 1/2 or 5/8 in. (13 or 16 mm) thick, 4 ft. (122 cm) wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the Individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in. (660 mm).

2. **Through-Penetrant** -- One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in / (0 mm), (point contact) to max 2 in. (51 mm) 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:

- A. **Steel Pipe** -- Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. **Iron Pipe** -- Nom 24 in. (610 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in (305 mm) diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
- C. **Conduit** -- Nom 6-in. (152 mm) diam (or smaller) steel conduit or nom 4 in (102 mm) diam (or smaller) steel electrical metallic tubing
- D. **Copper Tubing** -- Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing
- E. **Copper Pipe** -- Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
- F. **Through Penetrating Product*** -- Flexible Metal Piping The following types of steel flexible metal gas piping may be used:

1. Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

OMEGA FLEX INC

2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

GASTITE, DIV OF TITFLEX

3. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

WARD MFG L L C

3. **Fill, Void or Cavity Material*** -- **Caulk or Sealant** -- Min 5/8. , 1-1/4, 1-7/8 and 2-1/2 in. (16, 32, 48 and 64 mm) thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

Max Pipe or Conduit Diam in (mm)	F Rating Hr	T Rating Hr
1 (25)	1 or 2	0+, 1 or 2
1 (25)	3 or 4	3 or 4
4 (102)	1 or 2	0
6 (152)	3 or 4	0
12 (305)	1 or 2	0


+When copper pipe is used, T Rating is 0 h.

3M COMPANY -- CP 25WB+ or FB-3000 WT.

Const. Type: VB
 Occupancy: S2
 Allowable No. of Floors: 1
 Wind Velocity: 130 exp c
 Fire Rating of Ext. Walls: 0
 Plan No.: MFTZ-D-9577
 Allow Floor Load: 250 PSF
 Approval Date: 1/16/2014
 Manufacturer: Fibersound

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These prints comply with the Florida Manufactured Building Act and adopted Codes and all required components shall comply with 9B-72

APPROVED BY


*Bearing the UL Classification Mark

Last Updated on 2005-06-15

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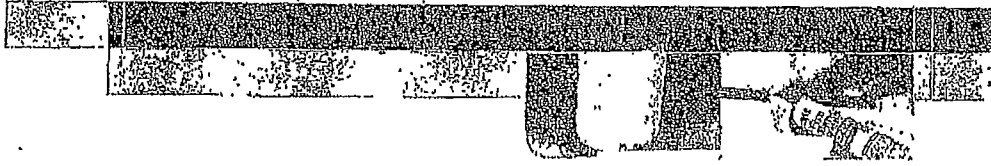
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NIA INC.

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Const. Type:	VB
Occupancy:	S2
Allowable No. of Floors:	1
Wind Velocity:	190 exp c
Fire Rating of Ext. Walls:	0
Plan No.:	MFT27-D-9577
Allow Floor Load:	250 PSF
Approval Date:	1/16/2014
Manufacturer:	Fibrebond



3M™ Fire Barrier Sealant CP 25WB+

Product Data Sheet

1. Product Description

3M™ Fire Barrier Sealant CP 25WB+ is a high-performance, ready-to-use, gun-grade, latex-based, intumescent sealant that dries to form a monolithic firestop seal that also acts as a barrier to airborne sound transmission. 3M™ Fire Barrier Sealant CP 25WB+ helps control the spread of fire, smoke and noxious gases before, during and after exposure to a fire when installed in accordance with a listed through penetration or fire-resistive joint assembly system.

3M™ Fire Barrier Sealant CP 25WB+ firestops blank openings and penetrations passing through fire-rated floor, floor/ceiling or wall assemblies and other fire-rated interior building construction. The unique intumescent property of this material allows 3M™ Fire Barrier Sealant CP 25WB+ to expand and help maintain a firestop penetration seal for up to 4 hours as penetrants are exposed to fire. 3M™ Fire Barrier Sealant CP 25WB+ exhibits excellent adhesion to a full range of construction substrates and penetrants. No mixing is required.

Product Features

- Firestop tested up to 4 hours in accordance with ASTM E 814 (UL 1479) & CANULC S113
- Fire Resistance tested for metal construction joint systems in accordance with ASTM E 1966 (UL 2079)
- Non-deteriorable / repairable
- Meets UL 1479 aging requirements
- Helps minimize sound transmission
- Applied with conventional caulking equipment (excellent work rate)
- Extensive listed systems
- Sag-resistant
- Halogen-free
- Excellent adhesion
- Paintable
- Water clean up



High-performance firestop resistant seal helps minimize sound transfer

Product Color: Red

*Note: The intent of LEED® V2009 requires a reduction in the quantity of indoor air pollutants that may be odorous, irritating and harmful to the comfort and well-being of the installer and occupants. <250 g/L VOC content (per UL) and exempted solvent. *Minimizes noise transfer—STC Rating of 41 when tested in 814 fire-rated wall assembly.*

2. Applications

High-performance 3M™ Fire Barrier Sealant CP 25WB+ is ideal for sealing, single or multiple through penetrations in fire-rated construction. 3M™ Fire Barrier Sealant CP 25WB+ is typically used in mechanical, electrical and plumbing applications to firestop openings created by the following penetrations in fire-rated floors, floor/ceilings or walls: installed pipe, plastic pipe (excluding CPVC), conduit, power and communication cable, cable trays, busways, combos, insulated pipe and HVAC duct penetrations. 3M™ Fire Barrier Sealant CP 25WB+ is also used to firestop blank openings and other construction joints.

3. Specifications

3M™ Fire Barrier Sealant CP 25WB+ shall be a one component, ready-to-use, gun-grade, latex-based, intumescent firestop sealant capable of expanding a minimum of 3 times its dried volume when exposed to temperatures above 1000°F (538°C). The material shall be isotropic and shall be applicable to overhead, vertical and horizontal firestops. The sealant shall be listed by independent test agencies such as UL, Intertek or ETL. 3M™ Fire Barrier Sealant CP 25WB+ shall be tested to and pass the criteria of ASTM E 814 (UL 1479) Standard Test Method for Fire Tests of Penetration Firestop Systems, ASTM E 1966 (UL 2079) Standard Test Method for Fire Resistive Joint Systems and CANULC S113 Standard Method of Fire Tests of Firestop Systems. 3M™ Fire Barrier Sealant CP 25WB+ meets the requirements of the IBC, IRC, IFC, IPC, IMC, NFPA 5000, NBC (NBCA 70) and NFPA 101.

Typically Specified Division Division 7 Section 07 84 00 - Firestopping Related Sections Section 07 84 10 - Annular Space Protection Section 07 85 43 - Fire-Resistive Joint Details Section 07 85 00 - Smoke Seals Section 07 87 00 - Smoke Compartment Barriers Section 07 27 00 - Air Barriers Section 21 00 00 - Fire Suppression Section 23 00 00 - Plumbing Section 26 00 00 - Electrical

For technical support relating to 3M Fire Protection Products and Systems, call 1-800-328-1687
For more information on 3M Fire Protection Products, visit www.3m.com/firestop

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Const. Type:
Occupancy:
Allowable No of Floors:
Wind Velocity
Fire Rating of Ext. Walls.
Plan No.
Allow Floor Load
Approval Date
Manufacturer

VB
S2
1
190 exp c
0
MFT27-D-9577
250 PSF
1/16/2014
Fibrebond



FULLY LISTED THROUGH PENETRATION FIRESTOP SYSTEMS
EXCELLENCE IN PERFORMANCE



LISTED
UL LISTED
UL LISTED



SUBJECT TO THE CONDITIONS OF APPROVAL AS A FLOOR THROUGH PENETRATION FIRESTOP SYSTEMS LISTED AS DESCRIBED WITH CERTAIN LIMITS OF PENETRATION APPROVALS



Intertek
FIRESTOP SYSTEMS
RESISTANCE DESIGN

4. Physical Properties

Color	Red	Hardness (ASTM D 2240 Shore A)	45
Application Temperature Range (ASTM C 1239)	40° to 122°F (4° to 50°C)	Tensile Strength	25 psi (0.59 MPa)
Service Temperature Range	+20° to 180°F (-28° to 82°C)	Volume Shrinkage (ASTM C 1247)	28%
STC (ASTM E 90 and ASTM E 413)	54 when tested in STC 84-rated wall assembly	VOC Less H ₂ O and exempt Solvents	<1 g/L
Surface Burning (ASTM E 84)	Flame Spread 0 Smoke Development 0	Dry (100%) typical conditions of 75°F (23°C) and 50% R.H., sealant becomes tack-free in about ten minutes and dry-to-touch in 20 to 60 minutes. Full dry depends upon ambient conditions and volume of sealant. Typical dry rate is approximately 1/8 inch (3 mm) per day.	

Unit Volume: 10.1 fl. oz. tube (307.7 ml, 18.1 fl. oz.), 20 fl. oz. cartridge (591.5 ml, 36.1 fl. oz.), 27 fl. oz. tube (792.5 ml, 48.7 fl. oz.), 2 gal. pail (7.571, 453 kg), 5 gal. pail (22.9 l, 1155 kg)

5. Packaging, Storage, Shelf Life

Packaging	Product packaged in cartridge or pail is enclosed in HDPE plastic containers, emulsion is packaged in aluminum foil wrap
Storage	3M™ Fire Barrier Sealant CP 25WB+ should be stored indoors in dry conditions between 40°F and 90°F (4°C and 32°C) in the original unopened package. Avoid repeated freezes / thaw exposures of the 3M™ Fire Barrier Sealant CP 25WB+ prior to installation.
Shelf Life	3M™ Fire Barrier Sealant CP 25WB+ shelf life is 12 months in original unopened containers (200 cartridges or 200 tubes) when stored above 68°F (20°C). Lot numbering (e.g. W183AB): First digit = Last digit of year manufactured, second to fourth digit = Julian Date, Letters = Random in distribution between lot numbers

6. Installation Techniques

Consult a 3M Authorized Fire Protection Products Distributor / Dealer or Sales Representative for applicable UL, Intertek or other third-party drawings and system details.

Preparatory Work	The surface of the opening and any penetrating items should be cleaned to allow for the proper adhesion of 3M™ Fire Barrier Sealant CP 25WB+. Ensure that the surface of the substrates are not wet and are frost-free. Sealant can be installed with a standard caulking gun, pneumatic pumping equipment or it can be easily applied with a putty knife or trowel.
Installation Details	Install the applicable depth of backing material, if required, as detailed within the applicable UL, Intertek, FM or other third-party listed system. Cut the end of the 3M™ Fire Barrier Sealant CP 25WB+ tube square to achieve the desired lead width when applying. Install the applicable depth of 3M™ Fire Barrier Sealant CP 25WB+ into the opening flush with the surface of the substrate, or as detailed within the applicable listed system, at the depth for the assembly and sealing that is required. Tool within 5 minutes. Clean all tools immediately after use with water.
Limitations	Do not apply 3M™ Fire Barrier Sealant CP 25WB+ when surrounding temperature is less than 40°F (4°C) and in conditions where sealant may be exposed to rain or water spray within 18 hours of application. Do not apply 3M™ Fire Barrier Sealant CP 25WB+ to building materials that bleed oil, plasticizers or solvent (e.g. impregnated wood, oil-based sealants, or green or partially vulcanized rubber). Do not apply 3M™ Fire Barrier Sealant CP 25WB+ to wet or frost-coated surfaces or to areas that are continuously damp or immersed in water.

NOTICE: This product is not acceptable for use with chlorinated polyvinylchloride (CPVC) pipes.

7. Maintenance

No maintenance should be required when installed in accordance with the applicable UL, Intertek, FM or other third-party listed system. Once installed, if any section of the 3M™ Fire Barrier Sealant CP 25WB+ is damaged, the following procedure will apply: remove and refasten the damaged section in accordance with the applicable listed system, with a minimum 1/2 in. (12.7 mm) overlap onto the adjacent material.

8. Availability

3M™ Fire Barrier Sealant CP 25WB+ is available from 3M Authorized Fire Protection Products Distributors and Dealers. 3M™ Fire Barrier Sealant CP 25WB+ is available in 10.1 fl. oz. cartridges (19 cases), 20.0 fl. oz. cartridges (19 cases), 27.0 fl. oz. cartridges (19 cases), 2 gallon pails (1 case) and 5 gallon pails (1 case). For additional technical and purchasing information regarding this and other 3M Fire Protection Products, please call: 1-800-528-1687 or visit www.3m.com/firestop.

9. Safe Handling Information

Consult product's Material Safety Data Sheet (MSDS) prior to handling and disposal.

Important Note to Users:
Technical Information: The technical information, recommendations and other data presented in this document are based upon tests or experience that the 3M Corporation or its subsidiaries or representatives of such information is representative.
Product Use: Always read and understand the entire MSDS and other technical information and performance data of the 3M product in its particular application. Given the variety of factors that can affect the use and performance of a 3M product, users are solely responsible for evaluating the 3M product and determining whether it is the most suitable product for their use and method of application.
Warranty and Limited Remedy: 3M warrants that each 3M Fire Protection Product will perform in accordance with the specifications for 90 days from the date of purchase from 3M and does not discriminate. 3M MAKES NO OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. If a 3M product does not conform to the warranty, the only and exclusive remedy is that 3M will, at its option, repair, replace or refund the purchase price.
Liability: 3M is not liable for any loss or damage arising from the use of 3M products, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted.



Building and Operational Services Division
3M Center, Building 223-261-21
St. Paul, MN 55144-1000 USA
1-800-528-1687
www.3m.com/firestop

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Literature Order Form DS-6100-5010-6

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Const. Type:	VB
Occupancy:	S2
Allowable No. of Floors:	1
Wind Velocity:	190 exp c
Fire Rating of Ext. Walls:	0
Plan No:	MFT27-D-9577
Allow Floor Load:	250 PSF
Approval Date:	1/16/2014
Manufacturer:	Firebond

BUILDING

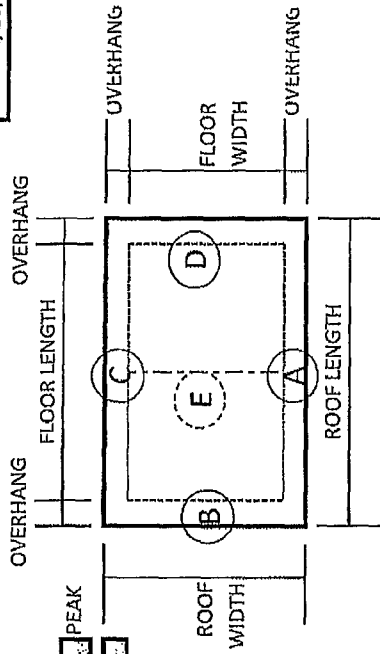
D-9577 AT&T

12/20/2013

FLOOR WIDTH = 11.42 feet
 FLOOR LENGTH = 12.00 feet
 WALL CONCRETE THICKNESS = 4.00 in.
 TOTAL WALL THICKNESS = 6.375 inches
 WALL A & C LENGTH = 12.00 feet
 WALL HEIGHT = 9.00 feet
 WALL B & D LENGTH = 11.42 feet

FLOOR THICKNESS = 6.00 in.
 ROOF THICKNESS = 6.00 in.
 RISE = 1.00 in.
 PEAK ROOF = 2
 PEAK ROOF = 2
 SINGLE SLOPE = 1
 Metal Stud Partition Wall = NO

FLAT ROOF = 0
 (INCLUDES SHEETROCK, NU-POLY, INSULATION, ETC.)



GROSS AREA (sq. ft.)			
	INSULATED	SOLID	TOTAL
ROOF	81.625	29.856	111.481
FLOOR	0.000	111.481	111.481
WALL A	0.000	95.087	95.087
WALL B	0.000	89.977	89.977
WALL C	0.000	95.087	95.087
WALL D	0.000	89.977	89.977

OK

R-VALUE		U	
Calculated	U	Calculated	U
23.35	0.043	0.043	
1.35	0.742	0.742	
14.73	0.068	0.068	
14.73	0.068	0.068	
14.73	0.068	0.068	
14.73	0.068	0.068	

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Const. Type:
 Occupancy:
 Allowable No. of Floors:
 Wind Velocity:
 Fire Rating of Ext. Walls:
 Plan No.
 Allow Floor Load:
 Approval Date:
 Manufacturer:

VB
82
1
190 exp c
0
MFT27-D-9577
250 PSF
1/19/2014
Fibreband



Fibrebond Corporation
 1300 Davenport Drive
 Minden, LA 71055
 800-824-2614

BUILDING COMPONENT

D-9577 AT&T
 ROOF

12/20/2013

Concrete Thickness = 6" OK

Width 10.271 ft x Length 10.854 ft = 111.481 sq. ft.
 A_{total} = 111.481 sq. ft.
 A_{corners} = 3 sq. ft.
 A_{insulated} = 81.625 sq. ft. OK
 A_{void} = 29.8563 sq. ft.
 A_{solid} = 29.8563 sq. ft.

CAST-IN INSULATION	Concrete Thickness = 6" OK
EPS - StarR Foam	4" OK
NOT USED	0" OK
Dow Blue Board	0.5" OK
Thermasheath	1.5" OK
NOT USED	0" OK
OSB + NU POLY?	Yes OK
1/2" DRYWALL?	Yes OK

TOTAL THICKNESS = 8.875"

CONC. THICKNESS USED = 6.50 in.
 AVG CONC. THICKNESS = 3.44 in.

Panel as System	4" Insulation	0" Insulation
Outside Surface	0.17	0.17
Concrete	2.5" x 0.083	6.5" x 0.083
EPS - StarR Foam	4"	
NOT USED	0"	
Dow Blue Board	0.5"	0.5"
Thermasheath	1.5"	1.5"
NOT USED	0"	0"
OSB + NU POLY	3/8 in	3/8 in
1/2" DRYWALL	1/2 in	1/2 in
Inside Surface	0.68	0.68
TOTAL	R = 29.41	R = 14.94
	U = 1/R = 0.03400	U = 1/R = 0.06694

Zone Method

U_{equiv} = 0.04282 U_{equiv} = 0.03400 x 81.63 + 0.06694 x 29.86
 111.48 sq. ft.

R_{equiv} = 1 / U_{equiv}

R_{equiv} = 23.35 OK

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Const. Type.
 Occupancy Allowable No. of Floors.
 Wind Velocity:
 Fire Rating of Ext. Walls.
 Plan No.
 Allow Floor Load:
 Approval Date.
 Manufacturer:

VB
S2
1
190 exp c
0
MFT27-D-9577
260 PSF
1/16/2014
Fibrebond

D-9577 AT&T



Fibreboard Corporation
 1300 Davenport Drive
 Minden, LA 71055
 800-824-2614

BUILDING COMPONENT

D-9577 AT&T FLOOR

12/20/2013

Concrete Thickness = 6" OK

Width 10.271 ft x Length 10.854 ft = 111.481 sq. ft.
 $A_{\text{total}} = 111.481 \text{ sq. ft.}$
 $A_{\text{INS Consumed}} = 0 \text{ sq. ft.}$
 $A_{\text{CONCRETE Consumed}} = 0 \text{ sq. ft.}$
 $A_{\text{INSULATED}} = 0 \text{ sq. ft.}$ OK

CAST-IN INSULATION	NOT USED	6"	OK
NOT USED	NOT USED	6"	OK
NOT USED	NOT USED	6"	OK
NOT USED	NOT USED	6"	OK
OSB + NU POLY?	NO	6"	OK
1/2" DRYWALL?	NO	6"	OK

TOTAL THICKNESS = 6"

AVG CONC. THICKNESS = 6.00 in.

Panel as System	0" Insulation	0" Insulation	0" Insulation
Outside Surface	0.17	0.17	0.17
Concrete	0.50	6" x 0.083	0.50
NOT USED	0"		
NOT USED	0"		
NOT USED	0"		
OSB + NU POLY	0.00	3/8 in	0.00
1/2" DRYWALL	0.00	1/2 in	0.00
Inside Surface	0.68		0.68
TOTAL	R = 1.35	R = 1.35	R = 1.35
	U = 1/R = 0.74184	U = 1/R = 0.74184	U = 1/R = 0.74184

Zone Method

$$U_{\text{equiv}} = 0.74184 \quad U_{\text{equiv}} = 0.74184 \times 0.00 + 0.74184 \times 111.48 \text{ sq. ft.}$$

$$R_{\text{equiv}} = 1 / U_{\text{equiv}}$$

$$R_{\text{equiv}} = 1.35 \text{ OK}$$

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Const. Type:	VB
Occupancy Allowable No. of Floors:	S2
Wind Velocity:	1
Fire Rating of Ext. Walls:	160 exp c
Plan No.:	0
Allow. Floor Load:	MFT27-D-9577
Approval Date:	250 PSF
Manufacturer:	1/16/2014
	Fibreboard

D-9577 AT&T

BUILDING COMPONENT

12/20/2013

D-9577 AT&T	
WALL A	
Door Width	Door Length
3:00 feet	7:00 feet
Length	
Width	10.854 ft x
8.760 ft x	74.087 sq. ft.
A _{total} =	
A _{INS Consumed} = 0 sq. ft.	
A _{VOIDS} = 0 void(s)	
A _{INSULATED} = 0 sq. ft. OK	
A _{SOLID} = 74.087 sq. ft.	

Concrete Thickness =	4"	OK
CAST-IN INSULATION	NOT USED	0"
NOT USED	NOT USED	0"
Dow Blue Board	0.5"	OK
Thermasheath	1.5"	OK
NOT USED	0"	OK
OSB + NU POLY?	Yes	OK
1/2" DRYWALL?	Yes	OK
TOTAL THICKNESS =	6.875"	OK

Panel as System	0" Insulation	0" Insulation	0" Insulation
Outside Surface	0.17	0.17	0.17
Concrete	4" x 0.083	0.33	0.33
NOT USED	0"	0.00	0.00
NOT USED	0"	0.00	0.00
Dow Blue Board	0.5"	3.00	3.00
Thermasheath	1.5"	9.60	9.60
NOT USED	0"	0.00	0.00
OSB + NU POLY	3/8 in	0.50	0.50
1/2" DRYWALL	1/2 in	0.45	0.45
Inside Surface	0.68	0.68	0.68
TOTAL	R = 14.73	R = 14.73	R = 14.73
	U = 1/R = 0.06788	U = 1/R = 0.06788	U = 1/R = 0.06788

AVG CONC. THICKNESS = 4.00 in.

Zone Method	
U _{equiv} =	0.06788 x 0.00 + 0.06788 x 74.09
	74.09 sq. ft.

R _{equiv} =	1 / U _{equiv}
R_{equiv} = 14.73	OK

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Const. Type	VB
Occupancy	S2
Allowable No. of Floors	1
Wind Velocity	190 exp o
Fire Rating of Ext. Walls	0
Plan No.	MFT27-D-9577
Allow Floor Load	260 PSF
Approval Date	1/16/2014
Manufacturer	Fibrebond



FIBREBOND

Fibrebond Corporation
1300 Davenport Drive
Minden, LA 71055
800-824-2614

BUILDING COMPONENT

12/20/2013

D-9577 AT&T
WALL C

Door Width: 8.760 ft x
Door Length: 10.854 ft x
Area Consumed = 95.087 sq. ft.

Width: 8.760 ft
Length: 10.854 ft
Area Consumed = 95.087 sq. ft.

CAST-IN INSULATION: NOT USED

Concrete Thickness = 4" OK

OSB + NU POLY: YES OK

1/2" DRYWALL: YES OK

TOTAL THICKNESS = 6.875"

Avg Consumed = 0 sq. ft.
VOIDS = 0 void(s)
A INSULATED = 0 sq. ft. OK

A SOLID = 95.087 sq. ft. OK

Panel as System	0" Insulation	0" Insulation
Outside Surface	0.17	0.17
Concrete	0.33	0.33
NOT USED	0"	4" x 0.083
NOT USED	0"	0.00
Dow Blue Board	3.00	0.5"
Thermasheath	9.60	1.5"
NOT USED	0"	0"
OSB + NU POLY	0.50	3/8 in
1/2" DRYWALL	0.45	1/2 in
Inside Surface	0.68	0.68
TOTAL	R = 14.73	R = 14.73
	U = 1/R = 0.06788	U = 1/R = 0.06788

AVG CONC. THICKNESS = 4.00 in.

TOTAL THICKNESS = 6.875"

OK

Zone Method

U_{equiv} = 0.06788 + 0.06788 x 0.00 = 0.06788 x 95.09 = 95.09 sq. ft.

R_{equiv} = 1 / U_{equiv}

R_{equiv} = 14.73 OK

These prints comply with the Florida Manufactured Building Act and adopted Codes and all required components shall comply with 9B-72

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Const. Type:	VB
Occupancy:	S2
Allowable No of Floors:	1
Wind Velocity:	160 exp c
Fire Rating of Ext. Walls:	0
Plan No.:	MFT27-D-9577
Allow Floor Load:	260 PSF
Approval Date:	1/16/2014
Manufacturer:	Fibrebond

D-9577 AT&T



FIBREBOND

Fibrebond Corporation
1300 Davenport Drive
Minden, LA 71055
800-824-2614

12/20/2013

BUILDING COMPONENT

D-9577 AT&T	
WALL D	
Door Width	Door Length
0.00 feet	0.00 feet
Width Length	
10.271 ft = 89.9768 sq. ft.	
A CORNERS = 0 sq. ft.	

Concrete Thickness = 4" OK

CAST-IN INSULATION	NOT USED	0"	OK
Dow Blue Board	0.5"	0"	OK
Thermasheath	1.5"	0"	OK
OSB + NU POLY	NOT USED	0"	OK
1/2" DRYWALL?	Yes	0"	OK
TOTAL THICKNESS =	6.875"		

A_{total} = 8.760 ft. x 10.271 ft = 89.9768 sq. ft.
A_{INS Consumed} = 0 sq. ft.
A_{VOIDS} = 0 void(s)
A_{INSULATED} = 0 sq. ft. OK

A_{SOLID} = 89.9768 sq. ft. OK

Panel as System	0" Insulation	0" Insulation
Outside Surface	0.17	0.17
Concrete	4" x 0.083	4" x 0.083
NOT USED	0"	0.00
NOT USED	0"	0.00
Dow Blue Board	0.5"	3.00
Thermasheath	1.5"	9.60
NOT USED	0"	0.00
OSB + NU POLY	3/8 in	0.50
1/2" DRYWALL	1/2 in	0.45
Inside Surface	0.68	0.68
TOTAL	R = 14.73	R = 14.73
	U = 1/R = 0.06788	U = 1/R = 0.06788

AVG CONC. THICKNESS = 4.00 in.

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Const. Type:	VB
Occupancy:	S2
Allowable No. of Floors:	1
Wind Velocity:	190 exp c
Fire Rating of Ext. Walls:	0
Plan No.:	MFT27-D-9577
Allow. Floor Load:	250 PSF
Approval Date:	1/16/2014
Manufacturer:	Fibrebond

Zone Method

U_{equiv} = 0.06788 U_{equiv} = 0.06788 x 0.00 + 0.06788 x 89.98

R_{equiv} = 1 / U_{equiv}

R_{equiv} = 14.73 OK

D-9577 AT&T

MODULE D-9577

DESIGN CRITERIA

STRUCTURE DESCRIPTION

PRECAST PANEL TELECOMMUNICATIONS EQUIPMENT BUILDING
 OCCUPANCY RISK CATEGORY III
 PRECAST CONCRETE BEARING WALL / INTERMEDIATE PRECAST SHEAR WALL
 UNHEATED ENCLOSED BUILDING STRUCTURE WITH LOW SLOPE ROOF
 DIMENSIONS

WIDTH 137 in
 LENGTH 144 in
 HEIGHT 108 in

DESIGN CODE

2012 INTERNATIONAL BUILDING CODE
 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES ASCE 7-10
 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE ACI 318-08
 OSHA REGULATIONS

DESIGN LOADS

LIVE LOAD

FLOOR LIVE LOAD = 250 psf
 ROOF LIVE LOAD = 105 psf
 WALL LIVE LOAD = 10 psf

SNOW LOAD

GROUND SNOW LOAD p_g = 80 psf
 THERMAL FACTOR C_t = 1.2
 IMPORTANCE FACTOR I = 1.1
 EXPOSURE FACTOR C_e = 1.1
 ROOF SNOW LOAD 81 psf

SEISMIC LOAD

MAPPED SHORT PERIOD S_S = 1.00
 MAPPED LONG PERIOD S_1 = 0.60
 DAMPED ACCELERATION S_{DS} = 0.73
 DAMPED ACCELERATION S_{M1} = 0.60
 IMPORTANCE FACTOR I = 1.25
 SEISMIC DESIGN CATEGORY D
 SEISMIC RESPONSE FACTOR C_s = 0.23
 SITE CLASS 'D'
 RESPONSE COEFF. R = 4
 OVERSTRENGTH FACTOR Ω_0 = 2.5
 FACTORED LOAD ACCELERATION 0.23 g

WIND LOAD

3 SECOND GUST SPEED 190 mph
 EXPOSURE CATEGORY C
 ROOF ELEVATION H = 10 ft
 PRESSURE COEFF. K_z = 0.85
 VELOCITY PRESSURE q_z = 66 psf
 MAIN FORCE RESISTING SYSTEM
 NET PRESSURE P = 72 psf
 ELEMENTS & COMPONENTS
 AWAY FROM WALL P = 87 psf
 TOWARDS WALL P = 77 psf
 AWAY FROM ROOF P = 84 psf
 TOWARDS ROOF P = 31 psf
 $G_c p_i = (+/-) 0.18$

EQUIVALENT LATERAL FORCE PROCEDURE

INTERMEDIATE PRECAST SHEAR WALL

MATERIAL DATA

CONCRETE STRENGTH 5000 psi
 STEEL YIELD 60 ksi
 CONCRETE WEIGHT 115 pcf
 LT. WT. FACTOR 0.85

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Const. Type:	VB
Occupancy:	S2
Allowable No. of Floors:	1
Wind Velocity:	190 exp c
Fire Rating of Ext. Walls:	0
Plan No.:	MFT27-D-9577
Allow Floor Load:	250 PSF
Approval Date:	1/16/2014
Manufacturer:	Fibrebond

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 Minden, LA 71055
 318-377-1030

DEC 23 2013



MODULE D-9577

ROOF SLAB

INPUT

DIMENSIONAL DATA

SLAB THICKNESS
 JOIST SPACING 24 in
 JOIST WEB WIDTH 6 in
 JOIST THICKNESS 6.5 in
 JOIST SPAN 133 in

JOIST

REINF AREA 0.44 in²
 CENTER REINF DEPTH 5.87 in
 END REINF DEPTH 4.87 in
 SHEAR LENGTH OFFSET 10 in

SLAB

REINF. AREA 0.10 in²/ft
 REINF DEPTH 1.0 in

LOAD DATA

LIVE LOAD 105 psf
 SNOW LOAD 81 psf
 SEISMIC ACCELERATION 0.147 g

MATERIAL DATA

CONCRETE STRENGTH 5000 psi
 STEEL YIELD 60 ksi

CALCULATIONS

PANEL AREA DEAD LOAD 30 psf

SLAB

SPAN = 18 in
 wd 19 psf
 Wl 105 psf
 Ws 81 psf
 We 15 psf
 Wu = 191 psf
 Mu = 43 ft-lb/ft
 Vu = 143 plf
 φMu = 424 ft-lb/ft OK
 φVu = 1082 plf OK

JOIST

SPAN = 11.08 ft
 wd 60 plf
 Wl 210 plf
 Ws 163 psf
 We 4 plf
 Wu = 408 plf
 Mu = 6263 ft-lb
 Vu = 1920 lb
 φMu = 10598 ft-lb OK
 φVu = 3159 lb OK

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Const. Type:	VB
Occupancy:	S2
Allowable No. of Floors:	1
Wind Velocity:	190 exp c
Fire Rating of Ext Walls:	0
Plan No.:	MFT27-D-9577
Allow. Floor Load:	250 PSF
Approval Date:	1/16/2014
Manufacturer:	Fibrebond

NOTES

AVERAGE THICKNESS

#6 BAR WITH 3/4" COVER
 AT MAXIMUM MOMENT
 AT MAXIMUM SHEAR

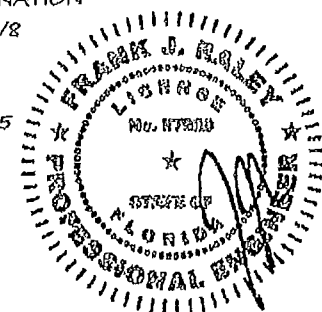
6X6-D5XD5 WWR

DEAD LOAD
 LIVE LOAD
 SNOW LOAD
 SEISMIC LOAD (FACTORED)
 MAXIMUM LOAD COMBINATION
 PARTIALLY FIXED SPAN WL²/10

DEAD LOAD
 LIVE LOAD
 SNOW LOAD
 SEISMIC LOAD (FACTORED)
 MAXIMUM LOAD COMBINATION
 SIMPLE SPAN WL²/8

ACI 318-08 eq. 11-5

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MODULE D-9577

FLOOR SLAB

INPUT

DIMENSIONAL DATA

SLAB THICKNESS	6	in
JOIST SPACING	12	in
JOIST WEB WIDTH	12	in
JOIST THICKNESS	6	in
JOIST SPAN	137	in

JOIST

REINF. AREA	0.88	in ²
REINF. DEPTH	4.87	in
SHEAR LENGTH OFFSET	10	in

SLAB

REINF. AREA	0.10	in ² /ft
REINF. DEPTH	1.0	in

LOAD DATA

LIVE LOAD	250	psf
SNOW LOAD	0	psf
SEISMIC ACCELERATION	0.147	g

MATERIAL DATA

CONCRETE STRENGTH	5000	psi
STEEL YIELD	60	ksi

CALCULATIONS

PANEL AREA DEAD LOAD	58	psf
----------------------	----	-----

SLAB

SPAN =	0	in
w _d	58	psf
w _l	250	psf
w _s	0	psf
w _e	8	psf
w _u =	469	psf
M _u =	0	ft-lb/ft
V _u =	0	plf
φM _u =	424	ft-lb/ft <u>OK</u>
φV _u =	1082	plf <u>OK</u>

JOIST

SPAN =	11.42	ft
w _d	58	plf
w _l	250	plf
w _s	0	psf
w _e	8	plf
w _u =	469	plf
M _u =	7641	ft-lb
V _u =	2286	lb
φM _u =	17235	ft-lb <u>OK</u>
φV _u =	5746	lb <u>OK</u>

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Const. Type:	VB
Occupancy:	S2
Allowable No. of Floors:	1
Wind Velocity:	180 exp c
Fire Rating of Ext. Walls:	0
Plan No.	MFT27-D-9577
Allow. Floor Load	250 PSF
Approval Date:	1/16/2014
Manufacturer:	Fibrebond

NOTES

SOLID AVERAGE THICKNESS

#6 BAR @ 6' OCEW WITH 3/4" COVER

6X6-D5XD5 WWR

SOLID SLAB

DEAD LOAD

LIVE LOAD

SNOW LOAD

SEISMIC LOAD (FACTORED)

MAXIMUM LOAD COMBINATION

PARTIALLY FIXED SPAN WL3/10

DEAD LOAD

LIVE LOAD

SNOW LOAD

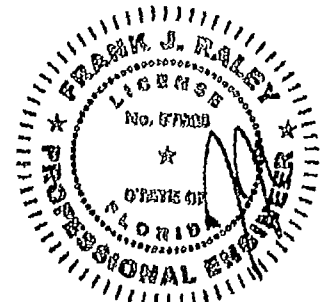
SEISMIC LOAD (FACTORED)

MAXIMUM LOAD COMBINATION

SIMPLE SPAN WL3/8

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MODULE D-9577

WALL PANEL

INPUT

DIMENSIONAL DATA

SLAB THICKNESS	4	in
RIB SPACING	12	in
RIB WEB WIDTH	12	in
RIB THICKNESS	4	in
RIB SPAN	108	in

RIB

EXT. FACE REINF. AREA	0.16	in ²
EXT. FACE REINF. DEPTH	2.00	in
INT. FACE REINF. AREA	0.16	in ²
INT. FACE REINF. DEPTH	2.00	in
SHEAR LENGTH OFFSET	10.00	in

SLAB

REINF. AREA	0.16	in ² /ft
REINF. DEPTH	2.00	in

MATERIAL DATA

CONCRETE STRENGTH	5000	psi
STEEL YIELD	60	ksi

LOAD DATA

LIVE LOAD	10	psf
WIND LOAD - AWAY	87	psf
WIND LOAD - TOWARDS	77	psf
SEISMIC ACCELERATION	0.37	g

CALCULATIONS

PANEL AREA DEAD LOAD	38	psf
----------------------	----	-----

SLAB

SPAN =	0	in
Wu =	87	psf
Mu =	0	ft-lb/ft
Vu =	0	plf
ØMu =	1372	ft-lb/ft <u>OK</u>
ØVu =	2164	plf <u>OK</u>

RIB - WIND AWAY FROM WALL

SPAN =	9.00	ft
Wu =	87	plf
Mu =	880.9	ft-lb
Vu =	319	lb
ØMu =	1372	ft-lb <u>OK</u>
ØVu =	2060	lb <u>OK</u>

RIB - WIND TOWARDS WALL

SPAN =	9.00	ft
Wu =	77	plf
Mu =	779.6	ft-lb
Vu =	282.3	lb
ØMu =	1372	ft-lb <u>OK</u>
ØVu =	2060	lb <u>OK</u>

VERTICAL LOADS HAVE BEEN CONSIDERED IN THE DESIGN OF THE WALLS
 SECOND ORDER EFFECTS OF THE VERTICAL LOADS HAVE BEEN DETERMINED TO BE NEGLIGIBLE

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These prints comply with the Florida Manufactured Building Act and adopted Codes and all required components shall comply with 9B-72

Const. Type:	VB
Occupancy:	S2
Allowable No. of Floors:	1
Wind Velocity:	130 exp c
Fire Rating of Ext. Walls:	0
Plan No.:	MFT27-D-9577
Allow. Floor Load:	250 PSF
Approval Date:	1/16/2014
Manufacturer:	Fibrebond

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SOLID
AVERAGE THICKNESS

6X6-D8XD8 WWR

6X6-D8XD8 WWR

6X6-D8XD8 WWR

MAXIMUM OF 0.10 OR 0.40 * S_{DS} * I

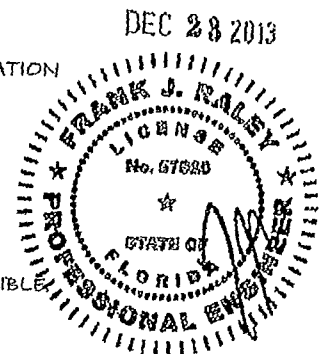
MAXIMUM LOAD COMBINATION
 PARTIALLY FIXED SPAN WL₁/10

MAXIMUM LOAD COMBINATION
 SIMPLE SPAN WL₂/8

ACI 318-08 Eq. 11-5

MAXIMUM LOAD COMBINATION
 SIMPLE SPAN WL₂/8

ACI 318-08 Eq. 11-5



MODULE D-9577
LATERAL ANALYSIS

INPUT

NOTES

DIMENSIONAL DATA

TOTAL WIDTH	137	in	
TOTAL LENGTH	144	in	
TOTAL HEIGHT	108	in	
WALL THICKNESS	4	in	
WALL HEIGHT	108	in	
TOTAL STRUCTURE WEIGHT	28.1	kip	
SHEAR WALL SEGMENT LENGTH	50	in	
NUMBER OF BASE CONNECTORS	3		CONNECTORS ARE DAYTON SUPERIOR F42
NUMBER OF VERT. EDGE CONNECTORS	5		INSERT WITH 5/8" 11.3 B7 THREADB ROD
WALL CONNECTOR SPACING	24	in	

CALCULATIONS

BASE LOADS

TRANSVERSE DIRECTION GOVERNS

WIND BASE SHEAR & MOMENT	4.9	kip	21.9	ft-kip	WORKING STRESS
SEISMIC BASE SHEAR & MOMENT	5	kip	20.7	ft-kip	WORKING STRESS

DIAPHRAGM

FACTORED SHEAR STRESS $V_u =$	7	psi	
SHEAR STRENGTH $\phi V_c =$	80	psi	OK

Due to the module height to width ratio and the diaphragm thickness, the diaphragm shear stress for the seismic load or wind load is low. Therefore, the diaphragms are OK by inspection and no further analysis is required.

SHEAR WALL

The rigid diaphragm will distribute the lateral load to the shear walls according to relative shear wall rigidity. Without performing a rigid diaphragm analysis it can be reasonably assumed the end walls resist half of the total lateral load.

WALL HEIGHT/LENGTH	2.2	
TOTAL FACTORED LOAD $V_u =$	2.0	kip
SHEAR STRENGTH $\phi V_c =$	13.5	kip

CONNECTORS

SHEAR FORCE $V_u =$	0.7	kip
SHEAR STRENGTH $\phi V_n =$	4.9	kip

WALL OUT OF PLANE LOADING

The wall reinforcement has been checked for out of plane load on page 4 of these calculations. The connectors will be checked for out of plane load below.

WIND LOAD	392	plf	FACTORED LOAD
SEISMIC LOAD	158	plf	FACTORED LOAD
LOAD PER CONNECTOR $V_u =$	0.78	kip	
CONNECTOR STRENGTH $\phi V_c =$	1.22	kip	OK

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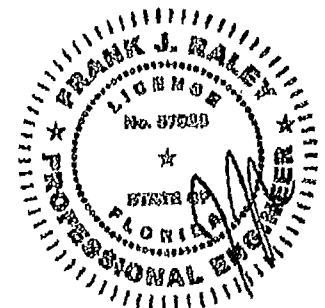


Const. Type:	VB
Occupancy	S2
Allowable No of Floors.	1
Wind Velocity	190 exp c
Fire Rating of Ext. Walls	0
Plan No.	MFT27-D-9577
Allow. Floor Load.	250 PSF
Approval Date	1/16/2014
Manufacturer	Fibrebond

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 318-377-1030



ASCE 7-10 WIND LOAD

V := 190-mph $K_d := 0.85$ $K_{zt} := 1.0$ G := 0.85 $GC_{pi} := 0.18$ $h_{max} := 15$ -ft

Exposure "C" --> $K_z(h) := \ln[h < 15, 0.85, 0.480 \cdot (h)^{0.2105}]$ $q_z := 0.00256 \cdot K_z \left(\frac{h_{max}}{ft} \right) \cdot K_{zt} \cdot K_d \cdot V^2 \cdot \frac{psf}{mph^2}$ $q_z = 67$ -psf

Elements & Components LRFD pressures

Away from wall	$GC_p := -1.4$	$P_{wwa} := q_z (GC_p - GC_{pi})$	$P_{wwa} = -105$ -psf
Towards wall	$GC_p := 1.0$	$P_{wwt} := q_z (GC_p + GC_{pi})$	$P_{wwt} = 79$ -psf
Away from roof	$GC_p := -2.8$	$P_{wra} := q_z (GC_p - GC_{pi})$	$P_{wra} = -199$ -psf
Towards roof	$GC_p := 0.3$	$P_{wrt} := q_z (GC_p + GC_{pi})$	$P_{wrt} = 32$ -psf

Elements & Components ASD pressures

Away from wall	$0.6 \cdot P_{wwa} = -63$ -psf
Towards wall	$0.6 \cdot P_{wwt} = 47$ -psf
Away from roof	$0.6 \cdot P_{wra} = -119$ -psf
Towards roof	$0.6 \cdot P_{wrt} = 19$ -psf

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Const. Type:	VB
Occupancy:	S2
Allowable No. of Floors:	1
Wind Velocity:	190 exp c
Fire Rating of Ext. Walls:	0
Plan No.:	MFT27-D-9577
Allow Floor Load:	250 PSF
Approval Date:	1/16/2014
Manufacturer:	Fibrebond

