

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR MEDICARE & MEDICAID SERVICES

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PRINTED: 09/17/2024
FORM APPROVED
OMB NO. 0938-0391

OCT 09 2024

STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION		(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER: 205120	(X2) MULTIPLE CONSTRUCTION A. BUILDING 01 BY: _____ B. WING _____		(X3) DATE SURVEY COMPLETED 09/10/2024
NAME OF PROVIDER OR SUPPLIER WATERVILLE CENTER FOR HEALTH AND REHAB			STREET ADDRESS, CITY, STATE, ZIP CODE 7 HIGHWOOD ST WATERVILLE, ME 04901		
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E 000	Initial Comments Federal Survey date: 9/10/2024 Waterville Center for Heath & Rehab, a long term care facility, is in substantial compliance with 42 Code of Federal Regulations Part 483.73 Requirement for Long Term Care Facilities Emergency Preparedness.	E 000			
K 000	INITIAL COMMENTS Federal Recertification Survey: Date: 09-10-2024 Waterville Center for Health & Rehabilitation, a Long Term Care Facility, was surveyed to the National Fire Protection Association 101 Life Safety Code 2012 Edition as reference on 42 CFR 483.90 (a-d) physical environment and is not in substantial compliance.	K 000			
K 133 SS=F	Multiple Occupancies - Construction Type CFR(s): NFPA 101 Multiple Occupancies - Construction Type Where separated occupancies are in accordance with 18/19.1.3.2 or 18/19.1.3.4, the most stringent construction type is provided throughout the building, unless a 2-hour separation is provided in accordance with 8.2.1.3, in which case the construction type is determined as follows: * The construction type and supporting construction of the health care occupancy is based on the story in which it is located in the building in accordance with 18/19.1.6 and Tables 18/19.1.6.1 * The construction type of the areas of the building enclosing the other occupancies shall be based on the applicable occupancy chapters. 18.1.3.5, 19.1.3.5, 8.2.1.3	K 133	The 2 hour fire barrier separations located between the new and existing building sections on the 1st, 2nd, 3rd and 4th floor as well as the separation barrier between the apartments and the healthcare areas will be repaired/filled with 3M fire stop caulking/product by Maintenance Director and/or designee who have demonstrated knowledge of 3M products by completing the necessary training Modules. Consulting with General Insulation to ensure appropriate specifics for system rating. All fire stop penetrations will be installed in accordance with listed firestop system. UL listed fire system paperwork will be completed and on file for verification. Please see attached documentation.	10/29/24	

LABORATORY DIRECTOR'S OR PROVIDER/SUPPLIER REPRESENTATIVE'S SIGNATURE

TITLE

(X6) DATE

Christine L. Yarni

Administrator

10/9/2024

Any deficiency statement ending with an asterisk (*) denotes a deficiency which the institution may be excused from correcting providing it is determined that other safeguards provide sufficient protection to the patients. (See instructions.) Except for nursing homes, the findings stated above are disclosable 90 days following the date of survey whether or not a plan of correction is provided. For nursing homes, the above findings and plans of correction are disclosable 14 days following the date these documents are made available to the facility. If deficiencies are cited, an approved plan of correction is requisite to continued program participation.

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K 133	Continued From page 1 This REQUIREMENT is not met as evidenced by: K133 Multiple Occupancies - Construction Type Based on observation, the facility failed to meet the requirements of the National Fire Protection Association (NFPA) 101, Life Safety Code, 2012 edition chapter 19 section 19.1.1.4 for construction type and supporting construction for health care and/or other building occupancies. A 2-hour separation was not provided in accordance with section 8.2.1.3 between existing healthcare occupancies and new and between the apartment occupancy and the healthcare. Findings include: On 09/10/2024 between hours of 10:00 am and 3:30 PM. this surveyor accompanied with Director of Facilities and the Administrator did observe the following: 1. The 2-hour fire barrier separations located between new and existing building sections on the first floor, second floor, third floor, and fourth floor, as well as the 2-hour fire separation barrier between apartment occupancy and the healthcare/chapel area on the first, second and third floors. All barriers are penetrated by wires, ductwork, conduit, or had approximately 4"x4"holes cut in various locations where firestopping assemblies are required to maintain the integrity of the 2-hour fire resistive barrier. The surveyor confirmed this finding with the Maintenance Director and the Administrator at the time of the observation.	K 133	2 Hour fire barrier separations will be clearly marked and visibly labelled as such. Maintenance Director and/or designee will inspect any area in the future requiring vendor work pre and post work completion to ensure continued compliance Maintenance Director and/or designee will conduct a complete audit of all 2 hour fire barriers to identify any additional areas of penetration Maintenance Director and/or designee will conduct routine inspections bi-annually to monitor for continued compliance and identify any new penetrations	10/29/24	
K 200 SS=D	Means of Egress Requirements - Other CFR(s): NFPA 101	K 200			

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FORM CMS-2567(02-99) Previous Versions Obsolete

Even ID: 47N021

Facility ID: 1113

If continuation sheet Page 3 of 26

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K 211 SS=E	Means of Egress - General CFR(s): NFPA 101 Means of Egress - General Aisles, passageways, corridors, exit discharges, exit locations, and accesses are in accordance with Chapter 7, and the means of egress is continuously maintained free of all obstructions to full use in case of emergency, unless modified by 18/19.2.2 through 18/19.2.11. 18.2.1, 19.2.1, 7.1.10.1 This REQUIREMENT is not met as evidenced by: Based on observation and interview, the long-term care facility failed to maintain the minimum headroom clearance at an exterior exit door. NFPA 101, Life Safety Code, 2012 Edition, 7.1.5 in Means of Egress Requirements. Findings: On 09/10/2024 between hours of 10:00 am and 3:30 pm. this surveyor accompanied with Director of Facilities and the Administrator did observe the following: 1. Wall mounted fan was found in the second floor corridor mounted below 6'8". 2. Ceiling fans in the corridors in the residential care area were found protruding below 6'8". The surveyor confirmed this finding with the Maintenance Director and the Administrator at the time of the observation.	K 211	1. Wall mounted fan in second floor corridor was removed immediately during survey 2. Ceiling fans in the corridors in residential care were removed	9/10/24	
K 222 SS=D	Egress Doors CFR(s): NFPA 101 Egress Doors	K 222			

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K 222	Continued From page 4 Doors in a required means of egress shall not be equipped with a latch or a lock that requires the use of a tool or key from the egress side unless using one of the following special locking arrangements: CLINICAL NEEDS OR SECURITY THREAT LOCKING Where special locking arrangements for the clinical security needs of the patient are used, only one locking device shall be permitted on each door and provisions shall be made for the rapid removal of occupants by: remote control of locks; keying of all locks or keys carried by staff at all times; or other such reliable means available to the staff at all times. 18.2.2.2.5.1, 18.2.2.2.6, 19.2.2.2.5.1, 19.2.2.2.6 SPECIAL NEEDS LOCKING ARRANGEMENTS Where special locking arrangements for the safety needs of the patient are used, all of the Clinical or Security Locking requirements are being met. In addition, the locks must be electrical locks that fail safely so as to release upon loss of power to the device; the building is protected by a supervised automatic sprinkler system and the locked space is protected by a complete smoke detection system (or is constantly monitored at an attended location within the locked space); and both the sprinkler and detection systems are arranged to unlock the doors upon activation. 18.2.2.2.5.2, 19.2.2.2.5.2, TIA 12-4 DELAYED-EGRESS LOCKING ARRANGEMENTS Approved, listed delayed-egress locking systems installed in accordance with 7.2.1.6.1 shall be permitted on door assemblies serving low and ordinary hazard contents in buildings protected throughout by an approved, supervised automatic		K 222 1. Second floor patio gate will be fixed to swing with the path of egress 10/01/24 2. Badge access system will be removed from the egress doors and replaced with motion detectors which releases the maglock upon approach. Additionally, a push button system will be installed, which when pushed, removes power from the maglock providing readily accessible exit access at all times. See updated contract for further details 10/29/24		

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K 222 Continued From page 5

fire detection system or an approved, supervised automatic sprinkler system.
18.2.2.2.4, 19.2.2.2.4
ACCESS-CONTROLLED EGRESS LOCKING ARRANGEMENTS
Access-Controlled Egress Door assemblies installed in accordance with 7.2.1.6.2 shall be permitted.
18.2.2.2.4, 19.2.2.2.4
ELEVATOR LOBBY EXIT ACCESS LOCKING ARRANGEMENTS
Elevator lobby exit access door locking in accordance with 7.2.1.6.3 shall be permitted on door assemblies in buildings protected throughout by an approved, supervised automatic fire detection system and an approved, supervised automatic sprinkler system.
18.2.2.2.4, 19.2.2.2.4
This REQUIREMENT is not met as evidenced by:
Based on observations, the facility failed to ensure that doors at the means of egress meet the requirements of NFPA 101 life safety code 2012 edition sections 7.2.1.4.2 for door leaf swing direction, and sections 7.2.1.5.3 and 7.2.1.6.2 under requirements for door locks, latches, and alarm devices.
Findings:

On 9/10/2024, between 10:00 am and 3:30 pm, a surveyor, with the Maintenance Supervisor and Administrator present, observed the following:
1. The second floor patio gate was found to swing opposite the path of egress.
2. Egress doors throughout the facility are equipped with badge access in order to exit. Door locking arrangements shall not require the use of a key, a tool, or special knowledge or effort for operation from the egress side. The facility failed

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K 222	Continued From page 6 to provide exit access that was readily accessible at all times by having special locking arrangements in accordance with LSC Section 19.2.2.2.4, 19.2.2.2.5, 19.2.2.2.5.2 and 7.2.1.6. The surveyor confirmed these findings with the Maintenance Supervisor and the Administrator at the time of observation.	K 222			
K 223 SS=F	Doors with Self-Closing Devices CFR(s): NFPA 101 Doors with Self-Closing Devices Doors in an exit passageway, stairway enclosure, or horizontal exit, smoke barrier, or hazardous area enclosure are self-closing and kept in the closed position, unless held open by a release device complying with 7.2.1.8.2 that automatically closes all such doors throughout the smoke compartment or entire facility upon activation of: * Required manual fire alarm system; and * Local smoke detectors designed to detect smoke passing through the opening or a required smoke detection system; and * Automatic sprinkler system, if installed; and * Loss of power. 18.2.2.2.7, 18.2.2.2.8, 19.2.2.2.7, 19.2.2.2.8 This REQUIREMENT is not met as evidenced by: Based on observation, the facility failed to ensure that doors in an exit passageway, stairway enclosure, or horizontal exit, smoke barrier, or hazardous area enclosure are self-closing and kept in the closed position, unless held open by a release device complying with 7.2.1.8.2 that automatically closes all such doors throughout the smoke compartment or entire facility upon activation of required manual fire alarm system,	K 223	1. Door separating the basement corridor from the garage will be fixed to latch. Metal rod/magnetic hold removed 2. The employee entrance door latch was repaired during survey 3. This was corrected during survey. 4. Propping device removed on the doors leading into the kitchen to ensure doors will self-close	10/29/2024 9/10/2024 9/10/2024 9/10/2024	

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K 223	Continued From page 7 and local smoke detectors designed to detect smoke passing through the opening or a required smoke detection system; and automatic sprinkler system, if installed; and loss of power per the requirements of NFPA 101 2012 edition. Findings: On 09/10/2024 between hours of 10:00 am and 3:30 pm, this surveyor accompanied with Director of Facilities and the Administrator did observe the following: 1. The door separating the basement corridor from the garage in the tunnel does not latch and was held open with a metal rod due to the magnetic hold not functioning properly. 2. The employee entrance door was found unable to latch. This was repaired during the survey. 3. The coat hanging room door was found propped open with a wedge. This was corrected during survey. 4. Doors leading to the kitchen were found propped open with a device installed on the self-closer pinning it in the open position unless closed manually. The surveyor confirmed this finding with the Maintenance Director and the Administrator at the time of the observation.	K 223			
K 271	Discharge from Exits SS=D CFR(s): NFPA 101				K 271

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K 271	Continued From page 8 Discharge from Exits Exit discharge is arranged in accordance with 7.7, provides a level walking surface meeting the provisions of 7.1.7 with respect to changes in elevation and shall be maintained free of obstructions. Additionally, the exit discharge shall be a hard packed all-weather travel surface. 18.2.7, 19.2.7 This REQUIREMENT is not met as evidenced by: Based on observation, the facility failed to ensure that exit discharge is arranged in accordance with 7.7, provides a level walking surface meeting the provisions of 7.1.7 with respect to changes in elevation and shall be maintained free of obstructions. Additionally, the exit discharge shall be a hard packed all-weather travel surface in accordance with survey and and certification letter 05-38. On 9/10/2024, between 9:00 am and 12:00 pm, a surveyor, with the Maintenance Supervisor and Administrator present, observed the following: 1. The patio exits on to a lawn not on to a hard packed, all-weather, level travel surface. The surveyor confirmed these findings with the Maintenance Supervisor and the Administrator at the time of observation.			10/02/24	
K 291 SS=D	Emergency Lighting CFR(s): NFPA 101 Emergency Lighting Emergency lighting of at least 1-1/2-hour duration is provided automatically in accordance with 7.9. 18.2.9.1, 19.2.9.1		K 291 Emergency lighting will be installed in the basement	10/29/24	

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K 291	Continued From page 9 This REQUIREMENT is not met as evidenced by: Based on observations, the facility failed to provide Emergency lighting of at least 1-1/2-hour duration is provided automatically in accordance with NFPA 2012 edition 7.9. Findings: On 09/10/2024 between hours of 10:00 am and 3:30 pm, this surveyor accompanied with Director of Facilities and the Administrator did observe the following: 1. The basement lacks the appropriate emergency lighting throughout areas accessible by staff. The surveyor confirmed this finding with the Maintenance Director and the Administrator at the time of the observation.	K 291			
K 293 SS=D	Exit Signage 2012 EXISTING Exit and directional signs are displayed in accordance with 7.10 with continuous illumination also served by the emergency lighting system. 19.2.10.1 (Indicate N/A in one-story existing occupancies with less than 30 occupants where the line of exit travel is obvious.) This REQUIREMENT is not met as evidenced by: Based on observations, the facility failed to meet	K 293	Appropriate exit signage will be installed in the areas of the basement that is accessible to staff.	10/29/2024	

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K 293	Continued From page 10 the requirements of the National Fire Protection Association (NFPA) 101, Life Safety Code, 2012 edition for exit and directional signs that are displayed in accordance with 7.10, 19.2.10.1, 19.2.10.2, 19.2.10.3, and 19.2.10.4. Findings: On 09/10/2024 between hours of 10:00 am and 3:30 pm. this surveyor accompanied with Director of Facilities and the Administrator did observe the following: 1. The basement lacks the appropriate exit signage throughout areas accessible by staff. The surveyor confirmed this finding with the Maintenance Director and the Administrator at the time of the observation.	K 293				
K 321 SS=F	Hazardous Areas - Enclosure CFR(s): NFPA 101 Hazardous Areas - Enclosure Hazardous areas are protected by a fire barrier having 1-hour fire resistance rating (with 3/4 hour fire rated doors) or an automatic fire extinguishing system in accordance with 8.7.1 or 19.3.5.9. When the approved automatic fire extinguishing system option is used, the areas shall be separated from other spaces by smoke resisting partitions and doors in accordance with 8.4. Doors shall be self-closing or automatic-closing and permitted to have nonrated or field-applied protective plates that do not exceed 48 inches from the bottom of the door. Describe the floor and zone locations of hazardous areas that are deficient in REMARKS.	K 321	1. Penetrations in the 1-hour rated fire wall in the boiler room separating the kitchen and lobby will be repaired/filled with 3M fire stop caulking/product by Maintenance Director or designee who have demonstrated knowledge of 3M products by completing the necessary training Modules. Consulting with General Insulation to ensure appropriate specifics for system rating. All fire stop penetrations will be installed in accordance with listed firestop system. UL listed fire system paperwork will be completed and on file for verification. Please see attached documentation			10/29/24

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K 321	Continued From page 11 19.3.2.1, 19.3.5.9 Area Automatic Sprinkler Separation N/A a. Boiler and Fuel-Fired Heater Rooms b. Laundries (larger than 100 square feet) c. Repair, Maintenance, and Paint Shops d. Soiled Linen Rooms (exceeding 64 gallons) e. Trash Collection Rooms (exceeding 64 gallons) f. Combustible Storage Rooms/Spaces (over 50 square feet) g. Laboratories (if classified as Severe Hazard - see K322) This REQUIREMENT is not met as evidenced by: Based on observation, the facility failed to ensure that hazardous areas are protected per the requirements of NFPA 101 2012 edition by a fire barrier having 1-hour fire resistance rating (with 3/4 hour fire rated doors) or an automatic fire extinguishing system in accordance with 8.7.1 or 19.3.5.9. When the approved automatic fire extinguishing system option is used, the areas shall be separated from other spaces by smoke resisting partitions and doors in accordance with 8.4. Findings: On 09/10/2024 between hours of 10:00 am and 3:30 pm. this surveyor accompanied with Director of Facilities and the Administrator did observe the following: 1. Penetrations in 1-hour rated fire wall in boiler room separating the kitchen and lobby from the boiler room.	K 321	2. Penetrations in the 1 hour rated ceiling separating the boiler room from the nursing home will be repaired/filled with 3M fire stop caulking/product by Maintenance Director or designee who have demonstrated knowledge of 3M products by completing the necessary training Modules. Consulting with General Insulation to ensure appropriate specifics for system rating. All fire stop penetrations will be installed in accordance with listed firestop system. UL listed fire system paperwork will be completed and on file for verification. Please see attached documentation 3. Penetrations found in the floor/ceiling assembly in the basement area and corridor leading to the adjacent building/garage will be repaired/sealed with appropriate 3M firestop product. Work to be completed by Vendor Standard Waterproofing, Inc Please see attached contract and appointment schedule 1 Hour fire barrier separations will be clearly marked and visibly labelled as such. Maintenance Director and/or designee will inspect any area in the future requiring vendor work pre and post work completion to ensure continued compliance Maintenance Director and/or designee will conduct a complete audit of all 1 hour fire barriers to identify any additional areas of penetration Maintenance Director and/or designee will conduct routine inspections bi-annually to monitor for continued compliance and identify any new penetrations	10/29/2024	

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K 321	Continued From page 12	K 321			
	2. Penetrations in the 1-hour rated ceiling separating the boiler room from the nursing home above. 3. Penetrations found in the floor/ ceiling assembly in the basement area and corridor leading to the adjacent building/garage. 4. Power wheelchair battery charging was being done in the library which is open to the corridor. Rooms with battery charging are higher hazard and require separation with a 1-hour barrier or a smoke partition and sprinkler coverage. The surveyor confirmed this finding with the Maintenance Director and the Administrator at the time of the observation.				
K 324 SS=D	Cooking Facilities Cooking equipment is protected in accordance with NFPA 96, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, unless: * residential cooking equipment (i.e., small appliances such as microwaves, hot plates, toasters) are used for food warming or limited cooking in accordance with 18.3.2.5.2, 19.3.2.5.2 * cooking facilities open to the corridor in smoke compartments with 30 or fewer patients comply with the conditions under 18.3.2.5.3, 19.3.2.5.3, or * cooking facilities in smoke compartments with 30 or fewer patients comply with conditions under 18.3.2.5.4, 19.3.2.5.4. Cooking facilities protected according to NFPA 96				
		K 324	The oven on the fourth floor was disabled, by removing the power cord, and is no longer in use. See attached photo	9/10/2024	

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K 324	Continued From page 13 per 9.2.3 are not required to be enclosed as hazardous areas, but shall not be open to the corridor. 18.3.2.5.1 through 18.3.2.5.4, 19.3.2.5.1 through 19.3.2.5.5, 9.2.3, TIA 12-2 This REQUIREMENT is not met as evidenced by: Based on observation, the facility failed to ensure that cooking facilities in smoke compartments with 30 or fewer patients comply with conditions under NFPA 101 2012 edition 19.3.2.5.4. Findings: On 09/10/2024 between hours of 10:00 am and 3:30 pm. this surveyor accompanied with Director of Facilities and the Administrator did observe the following: 1. On the fourth floor, an oven with a cook top was being used to prepare food for the residents of the fourth floor while being open to the corridor, and without smoke detection within 20ft. The surveyor confirmed this finding with the Maintenance Director and the Administrator at the time of the observation.	K 324			
K 325	Alcohol Based Hand Rub Dispenser (ABHR) SS=D CFR(s): NFPA 101 Alcohol Based Hand Rub Dispenser (ABHR) ABHRs are protected in accordance with 8.7.3.1, unless all conditions are met:	K 325	ABHR in room R334 and 2nd floor cafe, were removed immediately during survey	9/10/2024	

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K 325	Continued From page 14 * Corridor is at least 6 feet wide * Maximum individual dispenser capacity is 0.32 gallons (0.53 gallons in suites) of fluid and 18 ounces of Level 1 aerosols * Dispensers shall have a minimum of 4-foot horizontal spacing * Not more than an aggregate of 10 gallons of fluid or 135 ounces aerosol are used in a single smoke compartment outside a storage cabinet, excluding one individual dispenser per room * Storage in a single smoke compartment greater than 5 gallons complies with NFPA 30 * Dispensers are not installed within 1 inch of an ignition source * Dispensers over carpeted floors are in sprinklered smoke compartments * ABHR does not exceed 95 percent alcohol * Operation of the dispenser shall comply with Section 18.3.2.6(11) or 19.3.2.6(11) * ABHR is protected against inappropriate access 18.3.2.6, 19.3.2.6, 42 CFR Parts 403, 418, 460, 482, 483, and 485 This REQUIREMENT is not met as evidenced by: Based on observation, the facility failed to ensure that Alcohol Based Hand Rub Dispenser (ABHR) are not installed within 1 inch of an ignition source Per the requirements of NFPA 101 2012 edition 19.3.2.6. Findings: On 09/10/2024 between hours of 10:00 am and 3:30 pm. this surveyor accompanied with Director of Facilities and the Administrator did observe the following: 1. In room R334 and in the 2nd floor cafe, an ABHR was found mounted above within 1 inch of	K 325			

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K 325	Continued From page 15 a light switch. The surveyor confirmed this finding with the Maintenance Director and the Administrator at the time of the observation.		K 325		
K 341	Fire Alarm System - Installation SS=F CFR(s): NFPA 101 Fire Alarm System - Installation A fire alarm system is installed with systems and components approved for the purpose in accordance with NFPA 70, National Electric Code, and NFPA 72, National Fire Alarm Code to provide effective warning of fire in any part of the building. In areas not continuously occupied, detection is installed at each fire alarm control unit. In new occupancy, detection is also installed at notification appliance circuit power extenders, and supervising station transmitting equipment. Fire alarm system wiring or other transmission paths are monitored for integrity. 18.3.4.1, 19.3.4.1, 9.6, 9.6.1.8 This REQUIREMENT is not met as evidenced by: Based on observation, the facility failed to ensure that A fire alarm system is installed with systems and components approved for the purpose in accordance with NFPA 70 2011 edition, National Electric Code, and NFPA 72 2010 edition, National Fire Alarm Code to provide effective warning of fire in any part of the building. Findings:		K 341	1. Fire alarm notification device will be installed in the basement. Vendor to begin work on 10/15/2024. Contract/Schedule date attached. 2. Fire alarm pull stations will be installed in the basement. Vendor scheduled to begin work on 10/15/24. Contract/Schedule date attached	10/29/2024

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K 341	Continued From page 16 On 09/10/2024 between hours of 10:00 am and 3:30 pm. this surveyor accompanied with Director of Facilities and the Administrator did observe the following: 1. No fire alarm notification devices were found located in the basement. 2. No fire alarm pull stations were found located in the basement. The surveyor confirmed this finding with the Maintenance Director and the Administrator at the time of the observation.	K 341			
K 351 SS=F	Sprinkler System - Installation CFR(s): NFPA 101 Spinkler System - Installation 2012 EXISTING Nursing homes, and hospitals where required by construction type, are protected throughout by an approved automatic sprinkler system in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems. In Type I and II construction, alternative protection measures are permitted to be substituted for sprinkler protection in specific areas where state or local regulations prohibit sprinklers. In hospitals, sprinklers are not required in clothes closets of patient sleeping rooms where the area of the closet does not exceed 6 square feet and sprinkler coverage covers the closet footprint as required by NFPA 13, Standard for Installation of Sprinkler Systems. 19.3.5.1, 19.3.5.2, 19.3.5.3, 19.3.5.4, 19.3.5.5, 19.4.2, 19.3.5.10, 9.7, 9.7.1.1(1)	K 351	Sprinkler heads will be installed at the main entrance, outside of Physical Therapy room exit, outside of boiler room and above entrances to courtyard. Vendor scheduled to begin work on 10/14/2024 Contract/schedule date attached	10/29/2024	

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K 351	Continued From page 17 This REQUIREMENT is not met as evidenced by: Based on observation, the facility failed to ensure that sprinklers are installed under exterior roofs, canopies, porte-cocheres, balconies, decks, or similar projections exceeding 4ft per the requirements of 18.5.7.1 in NFPA 13 2010 edition. Findings: On 09/10/2024 between hours of 10:00 am and 3:30 pm, this surveyor accompanied with Director of Facilities and the Administrator did observe the following: 1. Projections from the building consisting of combustible materials exceeding 4ft without sprinkler coverage were found at the main entrance, outside of the physical therapy room exit, outside of the boiler room, and above entrances into the courtyard. The surveyor confirmed this finding with the Maintenance Director and the Administrator at the time of the observation.	K 351			
K 353 SS=D	Sprinkler System - Maintenance and Testing CFR(s): NFPA 101 Sprinkler System - Maintenance and Testing Automatic sprinkler and standpipe systems are inspected, tested, and maintained in accordance with NFPA 25, Standard for the Inspection, Testing, and Maintaining of Water-based Fire Protection Systems. Records of system design, maintenance, inspection and testing are maintained in a secure location and readily available.	K 353	Sprinkler head in the medical supply room on the first floor will be replaced. Vendor scheduled to begin work on 10/14/2024. Contract/schedule date attached		10/29/2024

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K 353	Continued From page 18 a) Date sprinkler system last checked b) Who provided system test c) Water system supply source Provide in REMARKS information on coverage for any non-required or partial automatic sprinkler system. 9.7.5, 9.7.7, 9.7.8, and NFPA 25 This REQUIREMENT is not met as evidenced by: Based on observation and record review, the long-term care facility failed to ensure that Automatic sprinkler and standpipe systems are inspected, tested, and maintained in accordance with NFPA 25, Standard for the Inspection, Testing, and Maintaining of Water-based Fire Protection Systems sections 7.3.1 and 14.2.1.1 Findings: On 09/10/2024, between 10:00 AM and 3:30 PM, surveyor, with the Maintenance Director, and Administrator, observed the following: 1. Paint was found on a sprinkler head located in the medical supply room on the first floor. The surveyor confirmed this finding with the Maintenance Director, and Administrator at the time of the observation and review.	K 353		
K 754 SS=D	Soiled Linen and Trash Containers CFR(s): NFPA 101 Soiled Linen and Trash Containers	K 754	Mobile trash and soiled linen carts will not be stored in the hallways, they will be stored in the dirty utility closets, this was corrected immediately upon survey	9/10/2024

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	K 754 Continued From page 19 Soiled linen or trash collection receptacles shall not exceed 32 gallons in capacity. The average density of container capacity in a room or space shall not exceed 0.5 gallons/square feet. A total container capacity of 32 gallons shall not be exceeded within any 64 square feet area. Mobile soiled linen or trash collection receptacles with capacities greater than 32 gallons shall be located in a room protected as a hazardous area when not attended. Containers used solely for recycling are permitted to be excluded from the above requirements where each container is less than or equal to 96 gallons unless attended, and containers for combustibles are labeled and listed as meeting FM Approval Standard 6921 or equivalent. 18.7.5.7, 19.7.5.7 This REQUIREMENT is not met as evidenced by: Based on observation, the facility failed to ensure that Mobile soiled linen or trash collection receptacles with capacities greater than 32 gallons shall be located in a room protected as a hazardous area when not attended as required in NFPA 101 2012 edition 19.7.5.7. Findings: On 09/10/2024 between hours of 10:00 am and 3:30 pm, this surveyor accompanied with Director of Facilities and the Administrator did observe the following: 1. Mobile trash and soiled linen carts were found unattended in the corridors outside of rooms 228 and 221 on the second floor. This was corrected during survey.	K 754	

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K 754	Continued From page 20 The surveyor confirmed this finding with the Maintenance Director and the Administrator at the time of the observation.		K 754		
K 761	Maintenance, Inspection & Testing - Doors SS=F CFR(s): NFPA 101 Maintenance, Inspection & Testing - Doors Fire doors assemblies are inspected and tested annually in accordance with NFPA 80, Standard for Fire Doors and Other Opening Protectives. Non-rated doors, including corridor doors to patient rooms and smoke barrier doors, are routinely inspected as part of the facility maintenance program. Individuals performing the door inspections and testing possess knowledge, training or experience that demonstrates ability. Written records of inspection and testing are maintained and are available for review. 19.7.6, 8.3.3.1 (LSC) 5.2, 5.2.3 (2010 NFPA 80) This REQUIREMENT is not met as evidenced by: Based on observation, the facility failed to ensure that Fire doors assemblies are inspected and tested annually in accordance with NFPA 80 2010 edition, Standard for Fire Doors and Other Opening Protectives.		K 761	1 Fire door assemblies that are equipped with lower latching hardware will have the required floor strike plates installed. Vendor scheduled to begin work on 10/22/2024 2. Paint removed from labels. This was corrected during survey	10/29/2024 9/10/2024
	Findings: On 09/10/2024 between hours of 10:00 am and 3:30 pm, this surveyor accompanied with Director of Facilities and the Administrator did observe the following: 1. Fire door assemblies throughout the building				

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K 761	Continued From page 21 are equipped with lower latching hardware but the required floor strike plates were not present. 2. Fire doors and rated door frames throughout the facility had paint rendering the labels unreadable. This was corrected during survey. The surveyor confirmed this finding with the Maintenance Director and the Administrator at the time of the observation.	K 761			
K 920 SS=D	Electrical Equipment - Power Cords and Extens CFR(s): NFPA 101 Electrical Equipment - Power Cords and Extension Cords Power strips in a patient care vicinity are only used for components of movable patient-care-related electrical equipment (PCREE) assemblies that have been assembled by qualified personnel and meet the conditions of 10.2.3.6. Power strips in the patient care vicinity may not be used for non-PCREE (e.g., personal electronics), except in long-term care resident rooms that do not use PCREE. Power strips for PCREE meet UL 1363A or UL 60601-1. Power strips for non-PCREE in the patient care rooms (outside of vicinity) meet UL 1363. In non-patient care rooms, power strips meet other UL standards. All power strips are used with general precautions. Extension cords are not used as a substitute for fixed wiring of a structure. Extension cords used temporarily are removed immediately upon completion of the purpose for which it was installed and meets the conditions of 10.2.4. 10.2.3.6 (NFPA 99), 10.2.4 (NFPA 99), 400-8 (NFPA 70), 590.3(D) (NFPA 70), TIA 12-5 This REQUIREMENT is not met as evidenced	K 920	1. Coffee maker in Business Office was removed upon survey 2. Mini Fridge in the Director of Life Enrichment office was relocated to enable it to be plugged in directly to the wall receptacle during survey 3. Staff educated regarding usage of extension cords.	9/10/2024	

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K 920	Continued From page 22 by: Based on observation and interview, the long-term care facility failed to ensure that power strips are not used for non-PCREE (Patient-care-related electrical equipment) and that power strips are not used as a substitute for fixed wiring in accordance with NFPA 99 Chapter 10, NFPA 70 chapter 4 (400.8(1)) On 09/10/2024, between 10:00 AM and 3:30 PM, surveyor, with the Maintenance Director, and Administrator present observed the following: 1. In the business office, a coffee maker was found plugged in to a relocatable power tap. 2. In the life enrichment office, a mini fridge was found plugged in to an extension cord. The surveyor confirmed this finding with the Maintenance Director, and Administrator at the time of the observation.	K 920			
K 923 SS=D	Gas Equipment - Cylinder and Container Storage CFR(s): NFPA 101 Gas Equipment - Cylinder and Container Storage Greater than or equal to 3,000 cubic feet Storage locations are designed, constructed, and ventilated in accordance with 5.1.3.3.2 and 5.1.3.3.3. >300 but <3,000 cubic feet Storage locations are outdoors in an enclosure or within an enclosed interior space of non- or limited-combustible construction, with door (or gates outdoors) that can be secured. Oxidizing	K 923	1. This was corrected immediately during survey	9/10/2024	

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STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION		(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER: 205120	(X2) MULTIPLE CONSTRUCTION A. BUILDING 01 BY: _____ B. WING _____		(X3) DATE SURVEY COMPLETED 09/10/2024
NAME OF PROVIDER OR SUPPLIER WATERVILLE CENTER FOR HEALTH AND REHAB			STREET ADDRESS, CITY, STATE, ZIP CODE 7 HIGHWOOD ST WATERVILLE, ME 04901		
(X4) ID PREFIX TAG	SUMMARY STATEMENT OF DEFICIENCIES (EACH DEFICIENCY MUST BE PRECEDED BY FULL REGULATORY OR LSC IDENTIFYING INFORMATION)	ID PREFIX TAG	PROVIDER'S PLAN OF CORRECTION (EACH CORRECTIVE ACTION SHOULD BE CROSS-REFERENCED TO THE APPROPRIATE DEFICIENCY)	(X5) COMPLETION DATE	
K 920	Continued From page 22 by: Based on observation and interview, the long-term care facility failed to ensure that power strips are not used for non-PCREE (Patient-care-related electrical equipment) and that power strips are not used as a substitute for fixed wiring in accordance with NFPA 99 Chapter 10, NFPA 70 chapter 4 (400.8(1)) On 09/10/2024, between 10:00 AM and 3:30 PM, surveyor, with the Maintenance Director, and Administrator present observed the following: 1. In the business office, a coffee maker was found plugged in to a relocatable power tap. 2. In the life enrichment office, a mini fridge was found plugged in to an extension cord. The surveyor confirmed this finding with the Maintenance Director, and Administrator at the time of the observation.	K 920			
K 923 SS=D	Gas Equipment - Cylinder and Container Storag CFR(s): NFPA 101 Gas Equipment - Cylinder and Container Storage Greater than or equal to 3,000 cubic feet Storage locations are designed, constructed, and ventilated in accordance with 5.1.3.3.2 and 5.1.3.3.3. >300 but <3,000 cubic feet Storage locations are outdoors in an enclosure or within an enclosed interior space of non- or limited- combustible construction, with door (or gates outdoors) that can be secured. Oxidizing	K 923	1. This was corrected immediately during survey	9/10/2024	

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR MEDICARE & MEDICAID SERVICES

PRINTED: 09/17/2024

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STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION	(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER: 205120	(X2) MULTIPLE CONSTRUCTION A. BUILDING 01 B. WING _____ BY: _____	(X3) DATE SURVEY COMPLETED 09/10/2024
NAME OF PROVIDER OR SUPPLIER WATERVILLE CENTER FOR HEALTH AND REHAB		STREET ADDRESS, CITY, STATE, ZIP CODE 7 HIGHWOOD ST WATERVILLE, ME 04901	
(X4) ID PREFIX TAG	SUMMARY STATEMENT OF DEFICIENCIES (EACH DEFICIENCY MUST BE PRECEDED BY FULL REGULATORY OR LSC IDENTIFYING INFORMATION)	ID PREFIX TAG	PROVIDER'S PLAN OF CORRECTION (EACH CORRECTIVE ACTION SHOULD BE CROSS-REFERENCED TO THE APPROPRIATE DEFICIENCY)
K 923	Continued From page 23 gases are not stored with flammables, and are separated from combustibles by 20 feet (5 feet if sprinklered) or enclosed in a cabinet of noncombustible construction having a minimum 1/2 hr. fire protection rating. Less than or equal to 300 cubic feet In a single smoke compartment, individual cylinders available for immediate use in patient care areas with an aggregate volume of less than or equal to 300 cubic feet are not required to be stored in an enclosure. Cylinders must be handled with precautions as specified in 11.6.2. A precautionary sign readable from 5 feet is on each door or gate of a cylinder storage room, where the sign includes the wording as a minimum "CAUTION: OXIDIZING GAS(ES) STORED WITHIN NO SMOKING." Storage is planned so cylinders are used in order of which they are received from the supplier. Empty cylinders are segregated from full cylinders. When facility employs cylinders with integral pressure gauge, a threshold pressure considered empty is established. Empty cylinders are marked to avoid confusion. Cylinders stored in the open are protected from weather. 11.3.1, 11.3.2, 11.3.3, 11.3.4, 11.6.5 (NFPA 99) This REQUIREMENT is not met as evidenced by: Based on observation and interview, the facility failed to ensure that Cylinder and Container Storage areas were safeguarded in accordance with NFPA 99, Health Care Facilities code, 2012 edition, section 5.1.3.3.2 and 5.1.3.3.3 in 1 Oxygen storage closet inspected in the facility at the entrance of the facility. This deficient practice could affect the corridor located at the main entrance to the facility. Deficient practices have the potential of obstructing egress capabilities to the main entrance.	K 923	

DEPARTMENT OF HEALTH AND HUMAN SERVICES
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STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION	(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER: 205120	(X2) MULTIPLE CONSTRUCTION A. BUILDING 01 B. WING _____	OCT 02 2024 BY: _____	(X3) DATE SURVEY COMPLETED 09/10/2024
NAME OF PROVIDER OR SUPPLIER WATERVILLE CENTER FOR HEALTH AND REHAB		STREET ADDRESS, CITY, STATE, ZIP CODE 7 HIGHWOOD ST WATERVILLE, ME 04901		
(X4) ID PREFIX TAG	SUMMARY STATEMENT OF DEFICIENCIES (EACH DEFICIENCY MUST BE PRECEDED BY FULL REGULATORY OR LSC IDENTIFYING INFORMATION)	ID PREFIX TAG	PROVIDER'S PLAN OF CORRECTION (EACH CORRECTIVE ACTION SHOULD BE CROSS-REFERENCED TO THE APPROPRIATE DEFICIENCY)	(X5) COMPLETION DATE
K 923	Continued From page 24	K 923		
	Findings Include: On 09/10/2024 between hours of 10:00 am and 3:30 pm, this surveyor accompanied with Director of Facilities and the Administrator did observe the following: 1. The Oxygen cylinder and container storage closet located next to the main entrance of the facility in the corridor had combustible items stored within 5 feet of the oxygen cylinders. 5.1.3.3.2* Design and Construction. Locations for central supply systems and the storage of positive-pressure gases shall meet the following requirements: (9) They shall have racks, shelves, and supports, where provided, constructed of noncombustible materials or limited-combustible materials. 11.3.2 Storage for nonflammable gases greater than 8.5 m3 (300 ft3), but less than 85 m3 (3000 ft3), at STP shall comply with the requirements in 11.3.2.1 through 11.3.2.3. 11.3.2.3 Oxidizing gases such as oxygen and nitrous oxide shall be separated from combustibles or materials by one of the following: (2) Minimum distance of 1.5 m (5 ft) if the entire storage location is protected by an automatic sprinkler system designed in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems. 11.6.5.2 If empty and full cylinders are stored within the same enclosure, empty cylinders shall be segregated from full cylinders. 11.6.5.3 Empty cylinders shall be marked to avoid confusion and delay if a full cylinder is needed in a rapid manner. NFPA 99, 2012 edition. A. The oxygen storage closet near room 247 on the second floor contained 27 e tanks exceeding the allowable volume for the room. This was			

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STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION	(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER: 205120	(X2) MULTIPLE CONSTRUCTION A. BUILDING 01 B. WING _____ BY: _____	OCT 02 2024 09/10/2024
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NAME OF PROVIDER OR SUPPLIER WATERVILLE CENTER FOR HEALTH AND REHAB	STREET ADDRESS, CITY, STATE, ZIP CODE 7 HIGHWOOD ST WATERVILLE, ME 04901
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(X4) ID PREFIX TAG	SUMMARY STATEMENT OF DEFICIENCIES (EACH DEFICIENCY MUST BE PRECEDED BY FULL REGULATORY OR LSC IDENTIFYING INFORMATION)	ID PREFIX TAG	PROVIDER'S PLAN OF CORRECTION (EACH CORRECTIVE ACTION SHOULD BE CROSS-REFERENCED TO THE APPROPRIATE DEFICIENCY)	(X5) COMPLETION DATE
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K 923 Continued From page 25
corrected during the survey.

K 923

The surveyor confirmed this finding with the
Maintenance Director and the Administrator at the
time of the observation.

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OCT 09 2024

BY: K222



We have prepared a quote for you

Mt Joseph's Release Button Adds

Quote # 035540
Version 2

Prepared for:

Mount Joseph at Waterville

Marcio Biasuz
mbiasuz@mountjosephwaterville.com

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BY: _____


MINUTEMAN™
 security & life safety

 42 Industrial Park Rd.
 Saco, ME 04072
<https://www.minutemanst.com>

> Scope of Work

Project details: Replace card readers with pneumatic push buttons and install request to exit motions on the egress side of 14 doors to release maglocks. Replace defective maglock with new maglock.

MST Scope:

- Pull cable from maglock to the reader location.
- Install pushbutton in place of the reader.
- Connect pushbutton to remove power from the maglock when pushed.
- Install request to exit motion detector at each location.
- Connect motion detector to door access system so maglock releases when someone approaches the door.
- Replace defective maglock at door to the Harbor wing.
- Test to verify maglock releases when button is pushed.

Customer Scope:

- Allow access.
- Pull cables for request to exit motions.

Equipment & Labor

Product Description	Qty
Universal Button - Pneumatic Timer Switch	17
18-02 UNS STR CMP Pnk Jkt	200
PIR REQUEST TO EXIT SENSOR GRAY	14
Cable 22-04 OAS STR CMP Blu Stp	2000
Pwr Supply/ Chgr 12/24V 1 Amp W/ Enclosure & Tw	3
600LB MAGLCK W/ BOND SNSR, LED	1
Misc Security Installation Materials	1
Shipping & Handling	1
Labor - Installation / Programming	1

 Subtotal: **\$18,998.49**

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Mt Joseph's Release Button Adds



Prepared by:
Maine - Security
Wes Brooks
207-883-3473
wesb@minutemanst.com

Prepared for:
Mount Joseph at Waterville
7 Highwood Street
Waterville, ME 04901
Marcio Biasuz
(207) 873-0705
mbiasuz@mountjosephwaterville.com

Quote Information:
Quote #: 035540
Version: 2
Delivery Date: 10/08/2024
Expiration Date: 11/06/2024

Quote Summary

Description	Amount
Equipment & Labor	\$18,998.49
Total:	\$18,998.49

Payment Terms: Net 30 Days

Maine - Security

Mount Joseph at Waterville

Signature: Wes Brooks
Name: Wes Brooks
Title: Account Executive
Date: 10/08/2024

Signature: Marcio Biasuz
Name: Marcio Biasuz
Date: 10/8/2024

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BY: _____

➤ Sales Agreement T&C's

Standard

OPERATION: Customer shall be responsible for: (i) properly testing and setting the system on every closing and to properly turn off the system on each opening (if applicable); (ii) testing any detection device, or other electronic equipment designated in the Proposal prior to setting the System for closed periods; (iii) notifying Minuteman promptly if such equipment fails to respond to the test; and (iv) using and operating the System and the equipment properly and in accordance with proper operating procedures (if customer requires Minuteman Security Technologies). Whenever Minuteman employees or authorized representatives are sent to the Covered Premises in response to a service call or alarm signal caused by the Customer improperly following operating instructions or failing to close or properly secure a protected point, Customer agrees to pay an additional service charge at Minuteman's prevailing rate per occurrence.

DELAYS - INTERRUPTION OF SERVICE: Minuteman shall not be liable for any delays, however caused, or for interruptions of service caused by strikes, riots, floods, acts of God, loss of communication and or other signal transmission lines, or by any event beyond the control of Minuteman. Minuteman will not be required to furnish service to Customer while such interruption shall continue.

EXCLUSIONS: Services to be provided by Minuteman pursuant to this Agreement do not include:

- Repair of damage or increase in service time caused by failure to continually provide a suitable operating environment for the System as prescribed by Minuteman and/or the manufacturer of any equipment used in the System, including, but not limited to, the failure to provide, or the failure of, adequate and regulated electrical power, air conditioning or humidity control; or such special requirements as contained in the Proposal hereto.
- Repair of damage or increase in service time caused by use of the equipment for other than the ordinary use for which the equipment was designed or purpose for which it was intended.
- Repair of damage, replacement parts (due to other than normal wear) or repetitive service calls caused by the use of unauthorized supplies or equipment.
- Repair of damage or increase in service time caused by: accident, disaster, which shall include, but not be limited to, fire, flood, water, wind and lightning; transportation, neglect or misuse, alterations, which shall include, but not be limited to, any deviation from Minuteman's physical, mechanical or electrical machine design; attachments, which are defined as the mechanical, electrical or electronic interconnecting to non-Minuteman equipment and devices not supplied by Minuteman.
- Electrical work external to the equipment or accessories furnished by Minuteman.

ADDITIONAL CHARGES: Unless otherwise specified in the Proposal, service charges for the system are based upon coverage during "normal business hours of operation." Service performed outside this window, or as a result of the failure of the Customer to adhere to the requirements as specified by either the manufacturer or outside the scope of the Agreement, shall be chargeable at Minuteman's prevailing rates. Customer shall not tamper with, adjust, alter, move, remove, or otherwise interfere with equipment without Minuteman's specific permission, nor permit the same by other contractors. Any work performed by Minuteman to correct Customer's breach of the foregoing obligation shall be corrected and paid for by Customer at Minuteman's prevailing rates. Remedial maintenance due to Acts of God or events beyond the control of Minuteman shall be corrected by Minuteman and paid for by Customer in accordance with Minuteman's prevailing rates.

Minuteman shall have the right to increase or decrease the periodic service charge provided above at any time or times after the expiration of one year from the date service is operative under this Agreement, upon giving Customer written notice thirty (30) days in advance of the effective date of such increase or decrease.

RESTOCK FEE:

In the event the customer cancels this project, Minuteman shall have the right to charge a 25% restock fee for any materials that were

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➤ Sales Agreement T&C's

purchased after project acceptance.

LIQUIDATED DAMAGES - MINUTEMAN'S LIMITS OF LIABILITY: Customer understands that Minuteman is not an insurer; that Customer is responsible for obtaining insurance for such reasons or purposes, including theft and vandalism, and in such amounts, as Customer shall determine. Customer further understands and agrees that the sums payable hereunder to Minuteman are based upon the value of services offered and equipment value provided and such sums are not related to the value of property belonging to Customer or to others located on the Covered Premises. Customer does not and shall not seek indemnity under this Agreement from Minuteman, and specifically waives any rights for indemnity for any damages or losses caused by hazards to customers, invitees, guests, or property of customer or third parties. Customer understands and agrees that the System and the services to be supplied hereunder are designed to detect security breaches, and that MINUTEMAN MAKES NO WARRANTY, EXPRESS OR IMPLIED, THAT THE SYSTEM OR THE SERVICES IT FURNISHES WILL AVERT OR PREVENT OCCURRENCES, OR THE CONSEQUENCES THEREFROM. Customer agrees that Minuteman shall not be liable to Customer, its employees, agents or guests, or to any third party, for any losses or damages, irrespective of origin, to person or property, whether directly or indirectly caused by performance or non-performance of obligations imposed upon Minuteman under this Agreement or by negligent acts or omissions of Minuteman, its agents or employees. In all events, it is further agreed that if Minuteman should become liable for any losses or damages for any reason having to do with this Agreement, Minuteman's total liability to Customer shall be limited \$250., which sum the Customer agrees is reasonable. The payment of this amount shall be Minuteman's sole and exclusive liability regardless of the amount of loss or damage incurred by the Customer.

INDEMNIFICATION: Each party shall indemnify and hold harmless the other, their trustees, officers, professional staff, employees and agents from and against any loss, damage, claim or liability, including reasonable attorneys' fees (collectively "liabilities"), arising out of the performance of this Agreement to the extent that such liabilities arise from the acts or omissions, negligence, gross or reckless misconduct, or intentional wrongdoing of the indemnifying party, its trustees, officers, professional staff, employees or agents.

WARRANTY: Minuteman Security Technologies, Inc. Full One Year Limited Warranty:

- **What Is Covered:** This warranty covers any defects in materials or workmanship, including installation, with the exceptions stated below.
- **How Long Coverage Lasts:** This warranty runs for one year from the date your system was installed and accepted.
- **What Is Not Covered:** This warranty does not cover intentional or un-intentional misuse or of any of the system components or software. The warranty does not cover damage as a result of acts of god (lighting, floods, storms, etc...) or electric surge.
- **What Minuteman Will Do:** Minuteman will repair any part of the system that is proved to be defective in materials or workmanship. In the event repair is not possible on certain system components, Minuteman will replace said component with similar specification and price.
- **How To Get Service:** Contact our service department at your nearest service center. A service representative will review your system and take any necessary action to correct problems covered by this warranty.
- **How State Law Applies:** This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Communicator Included

TC-Communicator

This quote may include a communicating device intended to send alarm signals to a remote location. If we are providing monitoring services, then the programming and testing of this communication device will be included at no charge assuming arrangements are made prior to our site visit. Active phone lines and/or internet access will be required. Return visits to program and test this device will be invoiced at our regular hourly rate.

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Saco, ME 04072
<https://www.minutemanst.com>



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BY: _____

➤ Sales Agreement T&C's

For liability reasons we cannot program the communicating device to a monitoring service provider that we are not directly affiliated. If another alarm monitoring service provider is selected then it will be that company's sole responsibility to hire us to assist with the programming and testing, and it must be done during the presence of both parties. The customer acknowledges that errors can occur when programming this device to an unfamiliar monitoring receiver and therefore in choosing to use another monitoring provider the building owners and the selected monitoring service provider all agree to accept all responsibility holding us harmless. Furthermore, most control panels have integral communicating devices and what may appear to be a minor change in any of the system's programming can result in very significant changes in the operation of the system. If someone other than our factory certified technician attempts to program this device, all warranties and the certification testing documentation will automatically be voided.

Escalation Clause

TC-Escalation Clause

Due to recent market volatility and ongoing supply chain issues, Minuteman is incorporating the following clause into all proposals and maintenance contracts:

Through no fault of Minuteman, in the event of a delay in product availability or price increase of materials procured by any manufacture and/or distributor, the contract sum, time of completion, or contract requirements shall be adjusted by a change order in accordance with the procedures of the Contract Documents. A change in price of any item of material from our manufactures or distributors will be considered between the date of this contract and the date of installation. Issuance of a purchase order or signed proposal constitutes acceptance of this clause.



BID FORM

- Proud to be a WBE certified company
- Air Barrier Association of America (ABAA) accredited firm since 2001
- Proud to be the 2019 Mid-Maine Chamber of Commerce Business of the Year

STANDARD WATERPROOFING, INC 1020 Augusta Rd Winslow, ME 04901 ~ TEL: 207-872-5552 ~ FAX: 207-872-5505 ~ www.Standard-Waterproofing.com

PLEASE NOTE THIS PRICING IS HELD FOR 60 DAYS AND AFTER WHICH IS SUBJECT TO CHANGE

DATE: 10/9/2024

SEND TO:

Mount Saint Joseph

ATTENTION:

Marcio Biasuz

EMAIL:

mbiasuz@mountjosephwatervill

FROM: David Poirier

EMAIL: David@Standard-Waterproofing.com

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OCT 09 2024

BY: K321

☐ Budget Numbers Only ☐ RE-BID ☐ For Information ☐ Please Comment ☒ BID

☒ ACCEPT BID - SIGNATURE: *Charles J. York* 10/9/24

MAILING ADDRESS: _____

PROJECT NAME & LOCATION: Saint Joseph, Waterville, Maine

SCOPE OF WORK: DAY RATE

Section: Firestopping

Materials: 3M Firestopping materials, product selection per penetrant and 3M supplied design.

We propose to furnish material and labor on a Time and Material basis to complete penetrant firestopping at tunnel locations as directed by owner. Material and supplies utilized at cost plus 20%.

Labor rates are:

Field Supervisor \$80.00 per hour

General Laborer \$70.00 per hour

For budgeting purposes, we anticipate between 5-8 days for this project with a 2 person crew working 8 hour days.

Project start December 2024 or January of 2025 based upon crew availability but we will complete this as soon as possible with expected completion by February 2025.

Standard Waterproofing is a UL manufacturer certified installer for 3M firestopping products

Notes/Exclusions:

Job is assumed at during regular working hours.

TIME AND MATERIAL WORK:

Any additional work requested to be done outside of the above quoted work will be billed via Time & Material work order at the following rates:

1. Material will be billed at Cost plus a 20% mark up to cover shipping, handling and pick up cost.
2. Labor Rates are billed port to port as follows:
 - a. General Laborer – Per Man Hour Straight Time: \$ 70.00 Overtime: \$ 105.00
 - b. Field Supervisor – Per Man Hour Straight Time: \$ 80.00 Overtime: \$ 120.00

ASSUMPTIONS

☐ All applicable Maine State taxes are included

☒ Non – Taxable

☒ No Prevailing Wage

☐ Prevailing Wage

☒ No Performance and Payment Bond

☐ Other _____

Terms and conditions attached shall be incorporated as part of this bid document.



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BY: _____

Terms and Conditions:

Waterproofing:

1. We propose to meet the manufacturers recommendations regarding warranty.
2. Surfaces to receive products provided by Standard Waterproofing, Inc. shall be free from any substance that would impair adhesion. Preparation of the substrates is not included in pricing. Excluding prep at concrete wall surfaces, i.e. Smoothing down fins, filling in bug holes, patching at shelf conditions.
3. Concrete walls that are covered in snow or ice-removal and drying to be considered excluded and to be handled on a T&M basis.
4. CMU walls to have joints struck flush, the shelf and brick ties cleaned of mortar droppings, as well as any holes within the walls repaired.
5. Secondary transitions of membranes are excluded, pricing includes the primary air barrier system only.
6. Third party testing is excluded in pricing and to be paid for and coordinated by owner.
7. Standard caulking colors only, custom color options will be charged an additional fee.
8. We shall not be required to start work until the job is sufficiently ready for us to proceed in a continuous operation without any undue interference or delay from other trades.
9. General contractor to furnish all necessary light, power, heat, water, and temporary enclosures when required without charge.
10. General contractor to make available areas to store materials if necessary, that meet manufacturer recommendations.
11. No back charges to our contract will be accepted unless agreed to by both parties in writing.
12. We reserve the right to not commence any work due to any project conditions that may void manufacturer warranty such as weather and substrate conditions.
13. Work area shall be free of debris or clutter and/or items stored that will interfere with our applications. Protection of these items is not the responsibility of Standard Waterproofing.
14. Standard Waterproofing, Inc. is not responsible for any over-spray on any surface, tools, materials, equipment, or other objects left in the area where such applications occur.

Fireproofing:

1. We propose to meet the hourly fire resistive requirements of the plans and specifications only, the applicability of these documents to laws, statutes, building codes and regulations are not the responsibility of this contractor.
2. Surfaces to receive fireproofing shall be free from any substance that would impair adhesion. Preparation of the substrates is not included in above price.
3. We shall not be required to start work until the job is sufficiently ready for us to proceed in a continuous operation without any undue interference or delay from other trades. Specifically, structural steel free of primer/paints (for Grace Monokote work item only), oils, grease, loose mill scale, dirt or other foreign substances impairing adhesion.
4. Ducts, piping, equipment, or other suspended matter that interfere with fireproofing access shall not be positioned until fireproofing is complete. If these items or other such are installed prior to FP application, the resulting over-spray cleanup is not to be considered the responsibility of Standard Waterproofing. Prior to application hangers, clips, support sleeves and other attachments required to penetrate the fireproofing shall be in place.
5. General contractor to furnish all necessary light, power, heat water and temporary enclosures when required, without charge. Specifically, to have a convenient and constant water source with adequate pressure and volume. To have a minimum of 110-volt 30-amp independent power source for the fireproofing activity. Minimum requirement of 20 gallons of water per minute per machine.
6. General contractor to provide adequate ventilation and temperature for our application of fireproofing in accordance with manufacturers recommendations. This job may require GC to provide enclosures with heat to maintain temperature and force ventilation until material is substantially dry.
7. General contractor to make available a permanent location for our mixing and pump station for the duration of our activity. The location must be located conveniently for our work to have a single centralized station. It must be able to accommodate truckload deliveries, space for trailer parking, material and equipment storage. Be well drained; be suitable for priming and washing out of the material conveying system.
8. Work area to be clear of clutter, debris and/or items stored that will interfere with our application. Protection of these items is not the responsibility of Standard Waterproofing.
9. All patching and repairing of fireproofing due to damage (intentional or unintentional) by others shall be completed by Standard Waterproofing and paid for by the General Contractor on a T&M basis. None is factored into our price.
10. After completion of fireproofing work, we shall remove all our equipment and all exposed floor areas shall be left in a scraped clean condition. Scraping debris will be deposited in dumpsters provided by GC.
11. No back charges to our contract will be accepted unless previously agreed to by both parties in writing.
12. Testing to be paid for and coordinated by owner and test results to be provided to the fireproofing contractor.

Terms and conditions shall be incorporated as part of bid documents.

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3M Fire Protection Products

MATRIX OF UL TESTED AND APPROVED SYSTEMS FOR FIRESTOPPING

ELECTRICAL PENETRATIONS

IN RATED GYPSUM WALLS AND CONCRETE FLOOR & WALL CONSTRUCTION.

*Note: Final selection of UL system numbers subject to field conditions meeting parameters listed in the respective UL system number.

Penetrating Item	Assembly Penetrated	F Rating	System Number	3M FPP Product Solutions
Metal Pipe/Conduit	Framed Gypsum Walls	1 & 2 Hr.	WL1296	IC15WB+, CP25WB+ or FB3000WT
Metal Pipe/Conduit (Continuous Point of Contact)	Framed Gypsum Walls	1 & 2 Hr.	WL1450	IC15WB+, CP25WB+ or FB3000WT
Jacketed cables	Framed Gypsum Walls	1 & 2 Hr.	WL3195	IC15WB+, CP25WB+ or FB3000WT
Metallic Pull Box/ Steel conduit combination	Framed Gypsum Walls	1 & 2 Hr.	WL1521	IC15WB+, CP25WB+ or FB3000WT
Max. 2" Bundle of Jacketed Cables in a Membrane Penetration	Framed Gypsum Walls	1 & 2 Hr.	WL3436	IC15WB+, CP25WB+ or FB3000WT
Insulated Cables via device	Framed Gypsum Walls	1, 2, 3 and 4 Hr.	WL3289	Pass-Through Device and MP+ Putty
Cable Tray	Framed Gypsum Walls	1 & 2 Hr.	WL4037	Fire Barrier Pillows and MP+ Putty
Cables max 48% fill in Sleeve	Framed Gypsum Walls	1 & 2 Hr.	WL3426	3M Fire Barrier Plug & FIP One Step
Cables 50% fill in EMT sleeve	Framed Gypsum Walls	1 & 2 Hr.	WL3347	IC15WB+, CP25WB+, FB3000WT or FIP One Step
Multiple Conduit (Max opening Framed 182 sq. in.)	Framed Gypsum Walls	1 & 2 Hr.	WL1299	IC15WB+, CP25WB+ or FB3000WT
Multiple Penetrants	Framed Gypsum Walls	1 & 2 Hr.	WL8106	FIP One Step and B258 or PK39
Multiple Conduit (Max opening 225 sq. in.)	Framed Gypsum Walls	1 & 2 Hr.	WL1255	Fire Barrier Pillows and MP+ Putty
Oversized hole addressed with Gypsum patch with multiple Metallic penetrants per WL1466	Framed Gypsum Walls	1 & 2 Hr.	WL1466	IC15WB+, CP25WB+ or FB3000WT
Outlet Boxes	Framed Gypsum Walls	1 & 2 Hr.	R9700 CLIV	MPP+ Putty Pads
Metal Pipe/Conduit	Concrete Floor & Walls	2 Hr.	CAJ1427	IC15WB+, CP25WB+ or FB3000WT
Metal Pipe/Conduit	Concrete Floor	2 Hr. F & T	FA1057 or CAJ1473	3M Duct wrap 615+ with either CP25WB+ or FB3000WT
Multiple Metal Pipe/Conduit	Concrete Floor & Walls	2 Hr.	CAJ1429	IC15WB+, CP25WB+ or FB3000WT
Jacketed cables	Concrete Floor & Walls	2 Hr.	CAJ3321	FIP One Step
Jacketed cables	Concrete Floor & Walls	2 Hr.	CAJ3200	IC15WB+, CP25WB+ or FB3000WT
Insulated Cables via device	Concrete Floor & Walls	2 & 3 Hr.	CAJ3250	Pass-Through Device and IC15WB+ or MP+ Putty
Metal Conduit via Cast in Device	Concrete Floor & Walls	2 Hr.	FA1041	2MCID, 3MCID or 4MCID
Cables Min 12% to max 40% in Sleeve	Concrete Floor & Walls	2 Hr.	CAJ3021	MP+ Stix
Multiple EMT via Composite Sheet	Concrete Floor & Walls	2 Hr.	CAJ8001	CS-195, FS-195, (IC15WB+, CP25WB+ or FB3000WT), Putty Stix, Ultra GS Wrap strip
Multiple Penetrants (details per UL system WJ8052)	Concrete Wall	2 Hr.	WJ8052	FIP One Step and Pillows
Max of nine multiple metallic max 4" conduits	Concrete Floor & Walls	2 Hr.	CAJ1672	Blocks B258 & Plank PK39 with either CP25WB+ or FB3000WT

3M Fire Protection Products

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Date: April 6, 2017

Subject: GENERAL CERTIFICATE OF CONFORMANCE
3M FIRE PROTECTION PRODUCTS

BY: _____

Product Category: Through Penetration Firestop Products

3M™ Aluminum Foil Tape 425	3M™ Fire Barrier Sealant FD 150+
3M™ Expantrol™ Flexible Intumescent Strip E-FIS	3M™ Fire Barrier Sealant IC 15WB+
3M™ Fire Barrier 2" Plug PLG2	3M™ Fire Barrier Self-Locking Pillows
3M™ Fire Barrier 4" Plug PLG4	3M™ Fire Barrier Silicone Sealant 2000+
3M™ Fire Barrier Block B258	3M™ Fire Barrier Tuck-In Wrap Strips
3M™ Fire Barrier Cast-In Devices & Accessories	3M™ Fire Barrier Ultra Plastic Pipe Device (UPPD)
3M™ Fire Barrier Composite Sheet CS-195+	3M™ Fire Barrier Water Tight Sealant 1000 NS
3M™ Fire Barrier Sealant CP 25WB+	3M™ Fire Barrier Water Tight Sealant 1003 SL
3M™ Fire Barrier Moldable Putty+ Pads (MPP+)	3M™ Fire Barrier Water Tight Sealant 3000 WT
3M™ Fire Barrier Moldable Putty+ Sticks (MP+)	3M™ Fire Barrier Watertight Spray
3M™ Fire Barrier Mortar	3M™ Fire Barrier Wrap Strips FS-195+
3M™ Fire Barrier Packing Material PM4	3M™ Fire Barrier Wrap Ultra GS
3M™ Fire Barrier Pass-Through Devices	3M™ Fire Block Foam FB-Foam
3M™ Fire Barrier Pillows	3M™ Fire Block Sealant FB 136
3M™ Fire Barrier Plank PK39	3M™ FireDam™ Spray 200
3M™ Fire Barrier Plastic Pipe Device (PPD)	3M™ Interam™ Stainless Steel Foil Tape T-65
3M™ Fire Barrier Putty Sleeve Kits	3M™ Marine Fire Wrap
3M™ Fire Barrier Rated Foam FIP 1-Step	3M™ Smoke and Sound Sealant SS 100
3M™ Fire and Water Barrier Tape FWBT	3M™ Fire Barrier RC-1 Restricting Collar
3M™ Smoke and Sound Tape SST	

The above listed products are tested to one or more of the following standards:

- ASTM E 119 (ANSI/UL 263) Standard Test Methods for Fire Tests of Building Construction and Materials
- ASTM E 814 (ANSI/UL 1479) Standard Test Method for Fire Tests of Penetration Firestop Systems (under positive furnace pressure of minimum .01 inches of water column)
- ASTM E 84 (ANSI/UL 723) Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM E 1966 (ANSI/UL 2079) Standard Test Method for Fire-Resistive Joint Systems
- NFPA 252 Standard Methods of Fire Test and Door Assemblies
- UBC Standard 7-2(97)
- IMO Res. A.754(18)
- ASTM E 2307 Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus
- ASTM E 136 Standard Test Method for Behavior of Material in a Vertical Tube Furnace at 750° C

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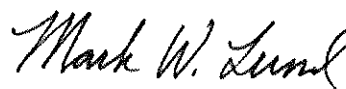
- ASTM C 1338 Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings
- ISO 6944-1985 Fire resistance tests -- Ventilation ducts
- ASTM C 1241 Standard Test Method for Volume Shrinkage of Latex Sealants During Cure
- CAN/ULC S115 Standard Method of Fire Tests of Firestop Systems
- ASTM E 90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

These products are formulated without asbestos, polychlorinated biphenyls (PCBs), or lead.

Issued by:



Quality Manager or Designee



Technical Manager, or Designee

Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for user's particular purpose and suitable for user's method of application.

Technical Information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Warranty and Limited Remedy: 3M warrants that each 3M Fire Protection Product will be free from defects in material and manufacture for 90 days from the date of purchase from 3M's authorized distributor. 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 this warranty, the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price. **Limitation of Liability:** Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted."



Industrial Adhesives and Tapes Division
St. Paul, MN 55144-1000
1-800-328-1687
www.3M.com/firestop



Broadcast Number: T20-001
Date: 07-20-2020
Issued by: 3M IATD EH&R Department and
FPP Application Engineering

Title: LEED® v4 BD+C (New Construction and Major Renovation) Credit Contribution
and Compliance for 3M™ Fire Protection Products

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Indoor Environmental Quality (IEQ)

BY: _____

Low-Emitting Materials:

Product Name	VOC Content (g/l)	Total VOC Emissions CDPH Spec 01350 v1.1
3M™ Fire and Water Barrier Tape FWBT	N/A	Complies
3M™ Smoke and Sound Tape SST	N/A	Complies
3M™ FPP Watertight Spray	131.2	Complies
3M™ FireDam Spray 200	2.9	Complies
3M™ Fire Barrier Sealant FD 150+	114.6	Complies
3M™ Fire Barrier Sealant IC 15 WB+	3.96	Complies
3M™ Fire Barrier Sealant CP 25WB+	5.69	Complies
3M™ Fire Barrier Water Tight Sealant 1000NS	47.3	Complies
3M™ Fire Barrier Water Tight Sealant 1003SL	52.6	Complies
3M™ Fire Barrier Silicone Sealant 2000+	29.0	Complies
3M™ Fire Barrier Water Tight Sealant 3000 WT	64.7	Complies
3M™ Fire Barrier Composite Sheet CS-195+	N/A	Complies
3M™ Fire Barrier Duct Wrap 615+	N/A	Complies
3M™ Interam™ E-5A-4 Endothermic Mat	N/A	Complies
3M™ Fire Barrier Tuck-In Wrap Strip	N/A	Complies
3M™ Fire Barrier Moldable Putty Pads MPP+	0.1	Complies
3M™ Fire Barrier Moldable Putty Stix MP+	0.3	Complies
3M™ Fire Barrier Rated Foam FIP 1-Step	6.6	Complies
3M™ Fire Barrier Blocks, Plugs, and Planks	N/A	Complies
3M™ Smoke and Sound Sealant SS 100	114.6	Complies

VOC content was measured per EPA Method 24 or SCAQMD Method 304 (less H₂O and exempt solvents per SCAQMD Rule 1168).

All tested samples comply with limits specified in CDPH Spec 01350 v1.1 for Targeted VOC and Formaldehyde limits in a private office and classroom. All samples were found to have a measured range of total VOCs, per LEED v4 for total VOC and Target Chemical listed in CDPH v 1.1 Table 4-1, of 0.5 mg/m³ or less after 14 days.

All samples were tested at Intertek Testing Services NA Inc. or UL LLC, ISO/IEC Standard 17025 accredited laboratories. VOC Emission test certificates and reports available at 3M.com/firestop or upon request.

Materials and Resources

Building Product Disclosure and Optimization - Environmental Product Declaration (EPD)
3M IATD chooses not to pursue this declaration at this time.

Building Product Disclosure and Optimization - Sourcing of Raw Materials
Raw Material source and extraction information
3M Company publishes Corporate Sustainability Report (CSR) reports annually. This report is available at https://www.3m.com/3M/en_US/sustainability-report/.

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Building Product Disclosure and Optimization - Material Ingredients Reporting
3M IATD chooses the Health Product Declaration repository to demonstrate the chemical inventory of the product to at least 0.1% (1000 ppm).

HPDs have been created for the products indexed below.

Product Name
3M™ Fire and Water Barrier Tape FWBT
3M™ Smoke and Sound Tape SST
3M™ FPP Watertight Spray
3M™ FireDam Spray 200
3M™ Fire Barrier Sealant FD 150+
3M™ Fire Barrier Sealant IC 15 WB+
3M™ Fire Barrier Sealant CP 25WB+
3M™ Fire Barrier Water Tight Sealant 1000NS
3M™ Fire Barrier Water Tight Sealant 1003SL
3M™ Fire Barrier Silicone Sealant 2000+
3M™ Fire Barrier Water Tight Sealant 3000 WT
3M™ Fire Barrier Composite Sheet CS-195+
3M™ Fire Barrier Duct Wrap 615+
3M™ Interam™ E-5A-4 Endothermic Mat
3M™ Fire Barrier Tuck-In Wrap Strip
3M™ Fire Barrier Moldable Putty Pads MPP+
3M™ Fire Barrier Moldable Putty Stix MP+
3M™ Fire Barrier Rated Foam FIP 1-Step
3M™ Fire Barrier Blocks, Plugs, and Planks
3M™ Smoke and Sound Sealant SS 100

Visit <https://hpdrepository.hpd-collaborative.org> to view the HPDs.
Search by Manufacturer Name = 3M Company.

Construction and Demolition Waste Management:

Recycled Content: The above listed products do not contain any pre- or post-consumer recycled material at this time.

Salvaged/Refurbished: The above listed products do not contain any salvaged/refurbished materials at this time.

Rapidly Renewable Materials: The above listed products do not contain any rapidly renewable materials.

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Product Data - Sustainable Attributes Table

Product	Env. Product Declaration (EPD)?	FSC Certified Wood Products (%)	Post-Consumer Recycled Content (%)	Pre-Consumer Recycled Content (%)	Mfg. Sustainability Report?	Declare Label	Declared HPD to 1000 ppm ⁱⁱ	C2C version	Extracted, Manuf. & Purchased within 100 miles?	Mfg. Location ⁱⁱⁱ	VOC Content (g/L)	Wet-(L) Applied Products Volume Used ^{iv}	RedList Free ^v	Link to 3M RDS
615+	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	NA	NA	Yes	Link to RDS
CP 25WB+	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	5.69	NA	Yes	Link to RDS
FD 150+	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	CA	114.6	NA	Yes	Link to RDS
IC 15WB+	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	3.96	NA	Yes	Link to RDS
1000NS	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	CA	47.3	NA	No	Link to RDS
2000+	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	29	NA	No	Link to RDS
3000WT	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	CA	64.7	NA	No	Link to RDS
FDS200	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	2.9	NA	Yes	Link to RDS
CS195+	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	NA	NA	No	Link to RDS
FWBT	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	NA	NA	Yes	Link to RDS

ⁱ GRI = Global Reporting Initiativeⁱⁱ <https://hpdrepository.hpd-collaborative.org>ⁱⁱⁱ CA = Canada, EU = European Union, US = United States^{iv} It is 3M's interpretation that regulated product categories under SCAQMD Rule 1168 'Adhesives and Sealants' do not apply to firestopping products^v For more information contact 3M Product Application Support at 1-800-328-1687 and inquire about Environmental, Health & Regulatory support

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Product	Env. Product Declaration (EPD)?	FSC Certified Wood Products (%)	Post-Consumer Recycled Content (%)	Pre-Consumer Recycled Content (%)	Mfg. Sustainability Report? ^{vi}	Declare Label	Declared HPD to 1000 ppm ^{vii}	C2C version	Extracted, Manuf. & Purchased within 100 miles?	Mfg. Location ^{viii}	VOC Content (g/L)	Wet-(L) Applied Products Volume Used ^{ix}	RedList Free ^x	Link to 3M RDS
SST	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	NA	NA	Yes	Link to RDS
SS 100	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	114.6	NA	Yes	Link to RDS
WT Spray	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	131.2	NA	Yes	Link to RDS
Putty	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	0.3	NA	No	Link to RDS
E-Mat	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	NA	NA	Yes	Link to RDS
Tuck-In	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	NA	NA	No	Link to RDS
FIP	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	EU	6.6	NA	Yes	Link to RDS
Block, Plugs, Planks	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	EU	NA	NA	Yes	Link to RDS

Note: For information on product composition greater than 1%, or chemicals of concern, please see www.3m.com/sds for Safety Data Sheets (SDS) and Regulatory Data Sheets (RDS)

^{vi} GRI = Global Reporting Initiative

^{vii} <https://hpdrepository.hpd-collaborative.org>

^{viii} CA = Canada, EU = European Union, US = United States

^{ix} It is 3M's interpretation that regulated product categories under SCAQMD Rule 1168 'Adhesives and Sealants' do not apply to firestopping products

^x For more information contact Product Application Support at 1-800-328-1687 and inquire about Environmental, Health & Regulatory support

Disclaimers: The information provided in this document related to material content represents 3M's knowledge and belief, which may be based in whole or in part on information provided by suppliers to 3M. This is intended to answer commonly asked questions about 3M products and is not intended to be a comprehensive listing of all substances that may be of interest or that may be regulated in this or other 3M products, nor is it intended to be a comprehensive summary of any and all regulations that may apply to this product. Where substances are listed, their listing does not infer or constitute a judgment as to their safety, environmental or health impacts. Information is supplied upon the condition that the persons receiving the same will make their own determination as to its suitability for their purposes prior to use. Customers are encouraged to consult with legal and regulatory experts to determine applicable regulations in light of intended use of the product.

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System No. W-L-1296

February 14, 2008

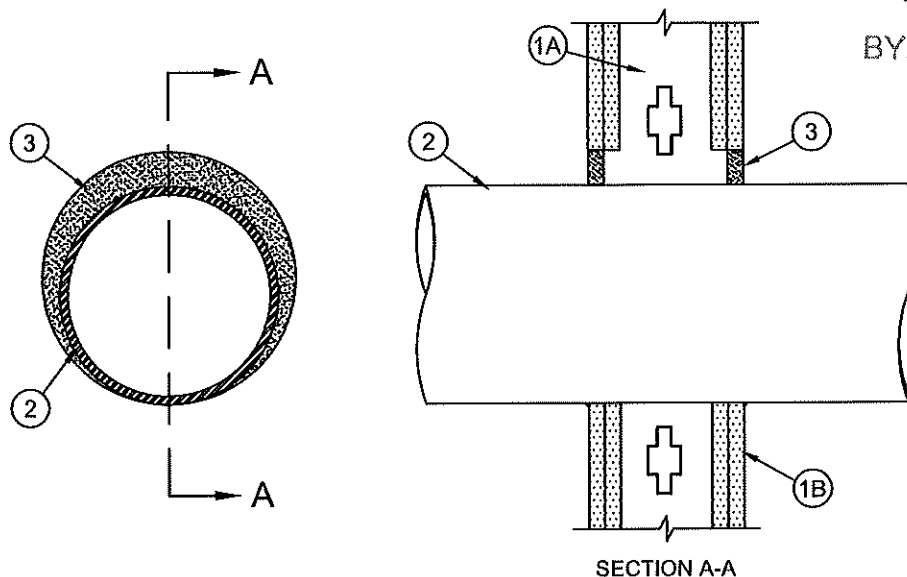
F Ratings – 1 and 2 Hr (See Item 1)

T Ratings – 0 and 1/4 Hr (See Item 1)

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1. **Wall Assembly** – The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Studs** – Wall framing may consist of either wood studs 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. Steel studs to be min 3-1/2 in. (89 mm) wide spaced max 24 in. (610 mm) OC.
- B. **Gypsum Board*** – The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400 or V400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 10-5/8 in. (270 mm).
- C. **Steel Sleeve** – (Optional, Not Shown) - Cylindrical sleeve fabricated from min 0.019 in. thick (0.48 mm) galv sheet steel and having a min 2 in. (51 mm) lap along the longitudinal seam. Length of steel sleeve to be equal to thickness of wall. Sleeve installed by coiling the sheet steel to a diam smaller than the through opening, inserting the coil through the openings and releasing the coil to let it uncoil against the circular cutouts in the gypsum wallboard layers.

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed. The hourly T Rating is 0 and 1/4 Hr for 1 and 2 Hr rated assemblies, respectively.

2. **Through Penetrants** – One metallic pipe, conduit, tubing or flexible metal pipe installed concentrically or eccentrically within opening. Annular space between penetrant and periphery of opening to be min 0 in. (0 mm point contact) to max 2 in. (51 mm). Penetrant to be rigidly supported on both sides of wall. The following types and sizes of penetrants may be used:

- A. **Steel Pipe** – Nom 8 in. (203 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
- B. **Iron Pipe** – Nom 8 in. (203 mm) diam (or smaller) cast or ductile iron pipe.
- C. **Conduit** – Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT) or nom 6 in. (152 mm) rigid steel conduit.
- D. **Copper Tubing** – Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
- E. **Copper Pipe** – Nom 4 in. (102 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 TITEFLEX

- 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 INC

3. **Fill, Void or Cavity Material*** – **Caulk or Sealant** – Min 5/8 in. (16 mm) thickness of caulk 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.

3M COMPANY – IC 15WB+, CP 25WB+ caulk or FB-3000 WT sealant

*Bearing the UL Classification Mark

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System No. W-L-1450

April 07, 2009

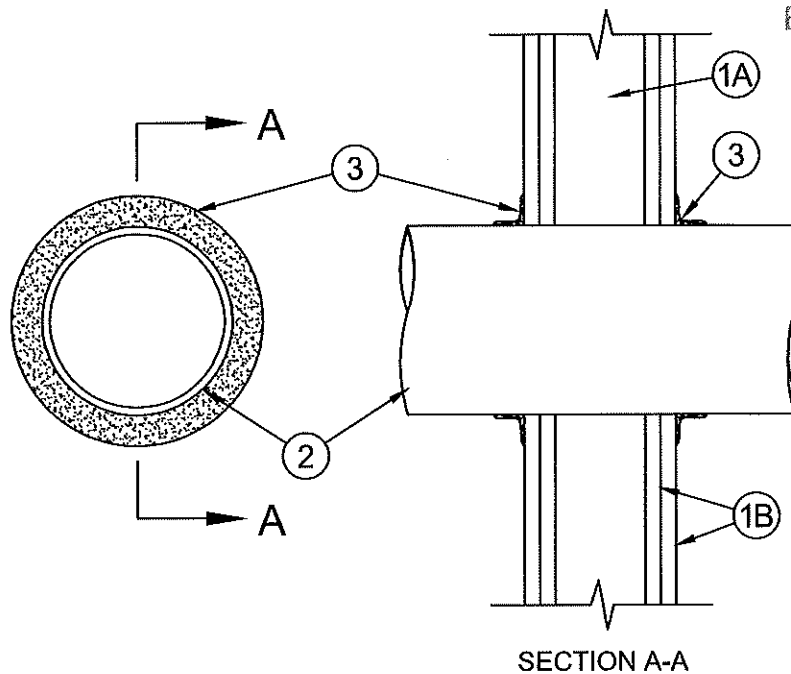
F Ratings – 1 and 2 Hr (See Item 1)

T Rating – 0 Hr

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Through Penetrations

Metallic Pipes

1000 Series

Gypsum

WL

- Wall Assembly** – The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- Studs** – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-5/8 in. (92 mm) wide and spaced max 24 in. (610 mm) OC.
- Gypsum Board*** – The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400 or V400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 12-3/4 in. (324 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

- Through-Penetrant** – One metallic pipe, conduit or tubing installed within the firestop system. The through penetrant to be installed with continuous point contact. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
 - Steel Pipe** – Nom 12 in. (305 mm) (diam (or smaller) Schedule 10 (or heavier) steel pipe.
 - Iron Pipe** – Nom 12 in. (305 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe or Class 50 (or heavier) ductile iron pressure pipe.
 - Conduit** – Nom 6 in. (152 mm) diam (or smaller) galv steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.
 - Copper Tubing** – Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
 - Copper Pipe** – Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
- Fill, Void or Cavity Material*** – **Caulk** – Bead of fill material lapping min 1 in. (25 mm) onto gypsum board and min 1/2 in. (13 mm) onto penetrant around outer circumference of through penetrant on both surfaces of wall assembly.

3M COMPANY

3M FIRE PROTECTION PRODUCTS – CP 25WB+ Caulk, IC 15WB+ Caulk, FB-3000 WT Sealant

*Bearing the UL Classification Mark

This material was extracted and drawn by 3M Fire Protection Products from the 2009 edition of the UL Fire Resistance Directory. cULus

3M Fire Protection Products
www.3m.com/firestop

W-L-1450 • 1 of 1

Product Support Line
 1-800-328-1687

System No. W-L-3195

October 01, 2008

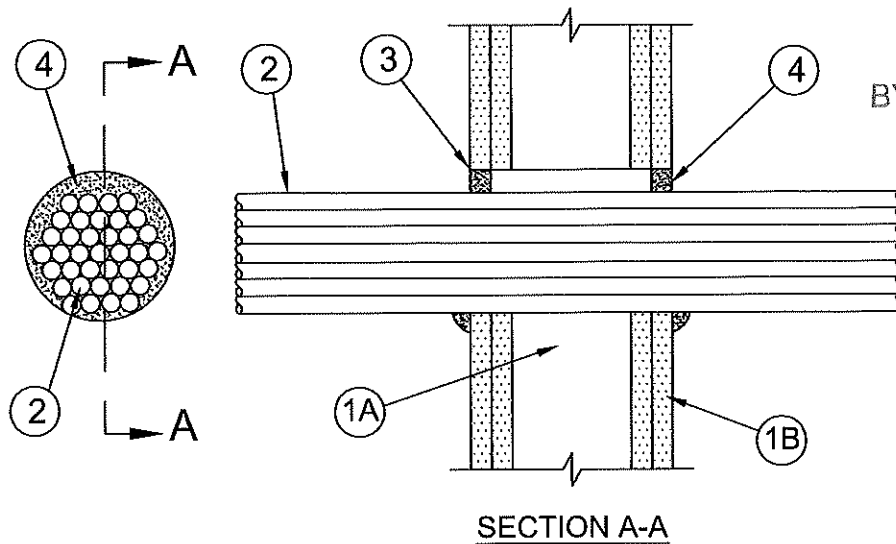
F Ratings – 1 and 2 Hr (See Item 1)

T Ratings – 0 and 1/2 Hr (See Item 1)

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1. **Wall Assembly** – The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Studs** – Wall framing may consist of either wood studs 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. Steel studs to be min 3-1/2 in. (89 mm) wide spaced max 24 in. (610 mm) OC.

B. **Gypsum Board*** – The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Design in the UL Fire Resistance Directory. Max diam of opening is 5 in. (127 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed. The hourly T Rating is 0 and 1/2 Hr for 1 and 2 Hr fire rated assemblies, respectively.

2. **Steel Sleeve** – (Optional) - Cylindrical sleeve fabricated from min 0.018 in. (0.46 mm) thick (No. 28 gauge) galv sheet steel and having a min 1 in. (25 mm) lap along the longitudinal seam. Length of sleeve to be equal to or max 2 in. (51 mm) greater than the thickness of wall. Ends of sleeve to be flush with or extend a max 1 in. (25 mm) beyond each surface of wall.

3. **Cable** – Max 4 in. (102 mm) diam cable bundle installed eccentrically or concentrically within opening. Annular space between cable bundle and periphery of opening or sleeve to be min 0 in. (0 mm, point contact) to max 1 in. (25 mm). Cable bundle to be rigidly supported on both sides of wall. The following types and sizes of cables may be used:

A. Max 200 pair No. 22 AWG (or smaller) copper conductor with polyvinyl chloride (PVC) insulation and jacketing material.

B. Max 1/C No. 350 kcmil (or smaller) copper conductor cable with cross-linked polyethylene (XLPE) or PVC jacket.

C. Max 7/C No. 12 AWG (or smaller) copper conductor power and control cables with XLPE or PVC insulation with XLPE or PVC jacket.

D. Max 3/C No. 4/0 AWG (or smaller) copper or aluminum conductor SER cables with XLPE or PVC insulation and jacket.

E. Max 4/C No. 2/0 AWG (or smaller) copper conductor, aluminum clad or steel clad TECK 90 cable with or without PVC jacketed.

F. Max 110/125 fiber optic (F.O.) cable with PVC insulation and jacket.

G. Max 3/C with ground No. 8 AWG (or smaller) copper conductor NM cable with PVC insulation and jacket.

H. Max RG/U coaxial cable with fluorinated ethylene insulation and jacket.

I. Max 4 pair No. 24 AWG (or smaller) copper conductor data cable with Hylar jacket and insulation.

J. **Through Penetrating Product*** – Any cables, Armored Cable+ or Metal Clad Cable+ currently Classified under the Through Penetrating Product category.

See Through Penetrating Product (XHLY) category in the Fire Resistance Directory for names of manufacturers.

4. **Fill, Void or Cavity Material*** – Caulk or Sealant – Min 5/8 in. (16 mm) thickness of caulk applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/cable bundle interface at point contact location on both sides of wall.

3M COMPANY – IC 15WB+, CP 25WB+ caulk or FB-3000 WT sealant

*Bearing the UL Classification Mark

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Through Penetrations

Cables

3000 Series

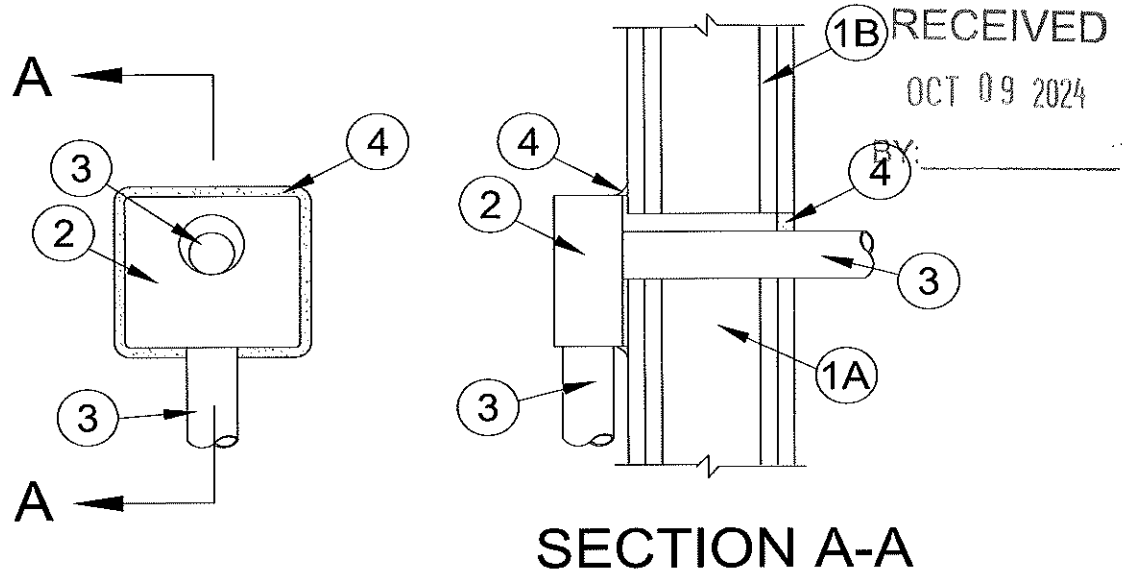
Gypsum

WL

System No. W-L-1521

February 19, 2016

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Ratings — 0 Hr	FT Rating — 0 Hr
	FH Ratings — 1 and 2 Hr (See Item 1)
	FTH Rating — 0 Hr



Through Penetrations

Metallic Pipes

1000 Series

Gypsum

WL

1. **Wall Assembly** — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and 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 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. Steel studs to be min 3 1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.

B. **Gypsum Board*** — 5/8 in. (16 mm) thick, 4 ft (1.2 m) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory. Diam of opening to be 1/2 in. (13 mm) to 1 in. (25 mm) larger than outside diam of through penetrant. Max diam of opening is 2-1/4 in. (57 mm).

The F and FH Rating of the firestop system is equal to the fire rating of the wall assembly.

2. **Pull or Junction Box+** — Min 16 ga steel pull or junction box mounted flush with or max 1/4 in. (6 mm) from surface of wall.

See **Junction and Pull Boxes (BGUZ)** category in the Electrical Construction Material Directory for names of manufacturers.

3. **Conduit** — One nom 1 in. (25 mm) diam (or smaller) steel conduit or steel electrical metallic tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. (point contact) to max 1 in. (25 mm). Conduit or EMT to be secured to back surface of pull or junction box with steel connector and rigidly supported on both sides of wall assembly.

4. **Fill, Void or Cavity Material* — Sealant** — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with surface of wall opposite the pull or junction box. A min 1/2 in. (13 mm) diam bead of fill material shall be applied at the point contact location between the conduit and wall. A min 1/2 in. (13 mm) diam bead of fill material shall be applied around the entire perimeter of the pull or junction box at its interface with the wall surface. The fill material shall lap min 1/2 in. (13 mm) onto both the wall and the sides of the pull or junction box.

3M COMPANY 3M FIRE PROTECTION PRODUCTS — FD 150+ Sealant, IC 15 WB+ Caulk, CP 25WB+ Caulk, 1000 NS Sealant or FB-3000 WT Sealant

+ Bearing the UL Listing Mark

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.





UL System No. W-L-3436
XHEZ – Through-penetration Firestop Systems
XHEZ7 – Through-penetration Firestop Systems Certified for Canada

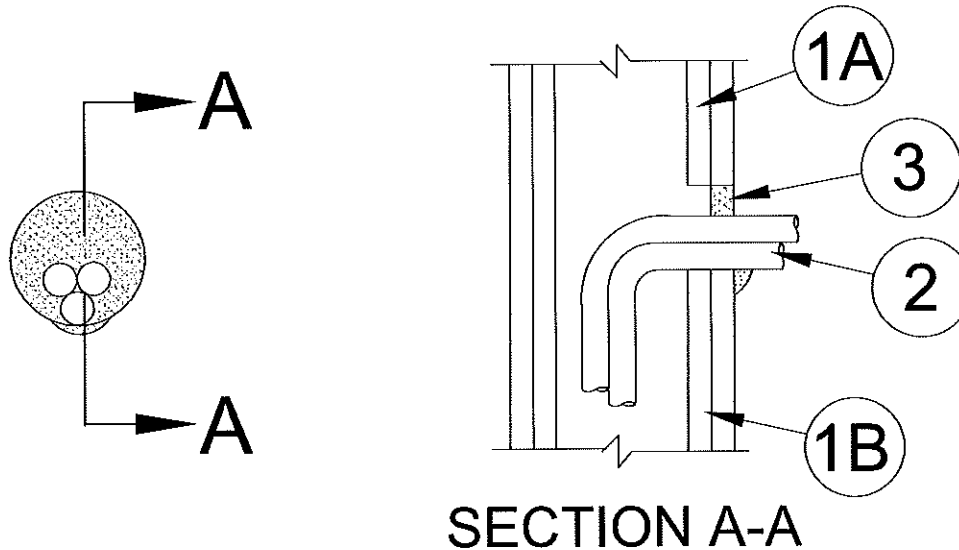
March 17, 2017

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OCT 09 2024

BY: _____

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings – 1 and 2 Hr (See Item 1)	F Ratings – 1 and 2 Hr (See Item 1)
T Rating – 0 Hr	FT Rating – 0 Hr
	FH Ratings – 1 and 2 Hr (See Item 1)
	FTH Rating – 0 Hr



SECTION A-A

1. **Wall Assembly** – The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and 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 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. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.

B. **Gypsum Board*** – One or two layers of nom 5/8 in. (16 mm) thick gypsum board as specified in the individual Wall and Partition Design. Max diam of opening is 3 in. (76 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly.

2. **Cables** – Max 2 in. (51 mm) diam tight bundle of cables to be installed either concentrically or eccentrically within the opening. The annular space between the cable bundle and the periphery of the opening to be min 0 in. (point contact) to max 1 in. (25 mm). Any combination of the following types and sizes of cables may be used:

A. Max 150 pair No. 24 AWG (or smaller) copper conductor with polyvinyl chloride (PVC) insulation and jacket.

B. Max 1/C 350 kcmil (or smaller) copper conductor cable with cross-linked polyethylene (XLPE) jacket.

C. Max 3/C No. 2/0 AWG (or smaller) aluminum or copper conductor cable with XLPE insulation and PVC jacket.

D. Max 7/C No. 12 AWG (or smaller) copper conductor cable with PVC insulation and jacket.

E. Max No. 18 AWG RG 6/U coaxial cable with PVC insulation and jacket.

F. Max 3/C with ground No. 12 AWG (or smaller) NM cable with PVC insulation and jacket.

G. Max 3/C No. 2/0 aluminum or copper SE cable with PVC insulation and jacket.

H. Max 3/C No. 2/0 (or smaller) copper conductor PVC jacketed aluminum clad or steel clad TEK cable.

3. **Fill, Void or Cavity Material* – Sealant** – Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with surface of wall. Min 1/2 in. (13 mm) diam bead of sealant applied at point contact location.

3M COMPANY – IC 15WB+, CP 25WB+, FB-3000 WT or FD 150+

*Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

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3M Industrial Adhesive and Tapes
Fire Protection Products
3M Center, Building 230-B-S-37
St. Paul, MN 55144-1000

W-L-3436 • 1 of 1

3M Fire Protection Products
Applicator and Specifier Guide
<http://3M.com/firestop> 1-800-328-1687

Through Penetrations

Cables

3000 Series

WL

System No. W-L-3289

August 18, 2011

F Ratings – 1, 2, 3 and 4 Hr (See Item 1)

T Rating – 0 Hr

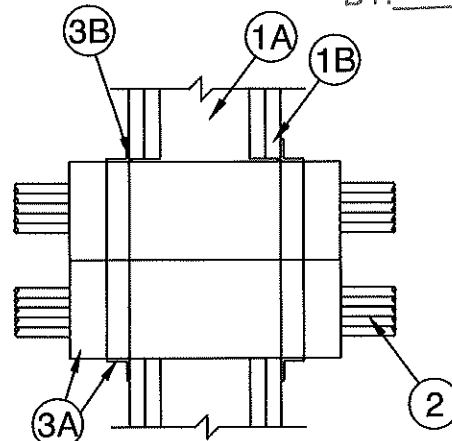
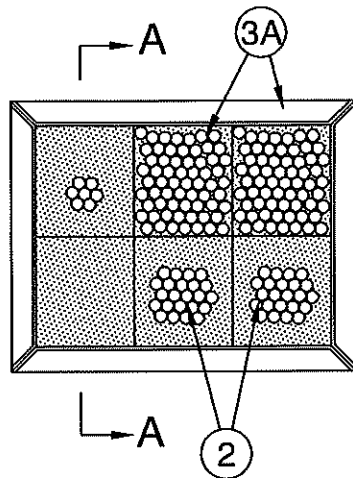
L Rating At Ambient - 4 to 7 CFM/sq ft (See Item 3B)

L Rating At 400 F - Less Than 1 CFM/sq ft (See Item 3B)

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**Section A-A**

Through Penetrations

Cables

3000 Series

Gypsum

WL

1. **Wall Assembly** – The 1, 2, 3 or 4 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Studs** – Wall framing may consist of either wood 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. Steel studs to be min 3-1/2 in. (89 mm) wide spaced max 24 in. (610 mm) OC.
- B. **Gypsum Board*** – The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory. Max area of opening is 98.5 in.2 (635 cm2) with a max dimension of 12-1/8 in. (308 mm) for square devices. Max diam of opening is 2-1/4 in. (57 mm) for nom 2 in. (51 mm) round devices and 4-1/4 in. (108 mm) for 4 in. (102 mm) round devices.

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. **Cables** – Within the loading area of each firestop device module the cables may represent a 0 to 100 percent visual fill. Cable bundles to be rigidly supported on both sides of wall assembly. Any combination of the following types and sizes of cables may be used:

- A. Max 2/C No. 18 AWG copper conductor thermostat cable with polyvinyl chloride (PVC) insulation and jacket materials.
- B. Max 4 pair No. 24 AWG copper conductor Cat5e or Cat 6 telephone cable with PVC insulation and jacket materials.
- C. Max RG/U (or smaller) coaxial cable with foam high density polyethylene insulation and PVC jacket materials.
- D. Max 3/C (with ground) No. 14 AWG (or smaller) nonmetallic sheathed (Romex) cable with PVC insulation and jacket materials.
- E. Max 1/C No. 8 AWG copper conductor cable with PVC insulation and nylon jacket materials.
- F. Max 12 core No. 26 AWG shielded multi coax cable with foam high density polyethylene insulation and PVC jacket.
- G. Max 48MM62.5 micron fiber optic cables with having a min FT-6 rating.
- H. Max 62.5/125 micron micron fiber optic cables with having a min Riser rating.
- I. Max 1/C 3/0 AWG copper conductor cable with PVC insulation and jacket materials.
- J. Max three copper conductors (with ground) No. 12 AWG Metal Clad Cable+.
- K. Max four copper conductors No. 2 AWG Metal Clad Cable+.

AFC CABLE SYSTEMS INC

- L. Max 1/C 2/0 AWG non halogen copper conductor cable.
- M. Max 300 pair No. 24 AWG copper conductor telephone cable with PVC insulation and jacket materials.
- N. Max 30 pair No. 22 copper conductor shielded switchboard cable with PVC insulation and jacket materials.
- O. Max RG/6 (or smaller) coaxial cable with fluorinated ethylene (FE) or PVC insulation and jacket materials.
- P. Max RG/U (or smaller) coaxial cable with fluorinated ethylene (FE) or PVC insulation and jacket materials.
- Q. Max 7/C No. 12 AWG copper conductors with PVC insulation and jacket materials.
- R. Max 4 pair No. 23 AWG copper conductor Cat 6 telephone cable with PVC insulation and jacket materials.
- S. Max three copper conductors (with ground) No. 12 AWG steel Armored Cable+.
- T. Max 04-02 2 5M fiber optic cables having a max diameter of 0.450 in. (11.4 mm).
- U. Max 1/C No. 750 kcmil copper conductors with PVC insulation and fabric jacket materials.
- V. Max 3/C with ground No. 4/0 AWG copper or aluminum conductor SER cable with cross linked polyethylene (XLPE) or PVC insulation and jacket.

System No. W-L-3289 *continued*

3. Firestop System – The firestop system shall consist of the following:

- A. **Firestop Device*** – A max of six square firestop devices may be ganged together for 1 and 2 hr rated assemblies. A max of three square firestop devices may be ganged together for 3 and 4 hr rated assemblies. As an alternate, one round device may be centered within a round opening. Each device consists of a nom 2-1/2 by 2-1/2 by 10 in. (64 by 64 by 254 mm), a nom 4 by 4 by 10 in. (102 by 102 by 254 mm) long, a nom 2 in. (51 mm) diam by 10 in. (254 mm) or a nom 4 in. (102 mm) diam by 10 in. (254 mm) long powder coated steel transit incorporating internal intumescent material, foam plugs and mounting flanges. Firestop device(s) to be installed within opening with ends projecting an equal distance beyond each surface of wall assembly in accordance with the accompanying installation instructions. The annular space between device(s) and periphery of opening shall be min 0 in. (0 mm, point contact) to max 1/8 in. (3 mm). Firestop device(s) secured in place by means of steel split mounting flanges sized to accommodate the firestop device. Steel split mounting flanges installed on both sides of wall and secured together with supplied steel set screws. Nom 1 in. (25 mm) thick pre-cut foam plugs sized to accommodate the cables and installed flush with each end of device on both sides of wall assembly. The foam plug in one or both ends of the device is optional except when L Rating is required (See Item 3B).

3M COMPANY – 3M Fire Barrier Pass-Through Device

- B. **Fill, Void or Cavity Materials*** – Putty or Caulk – Min 1/8 in. (3 mm) bead of fill material shall be applied at interface of gypsum board and firestop devices immediately prior to the installation of the mounting flanges. If three or less devices (Item 3A) are ganged together, the fill material may be optional. As an option to attain L Ratings, foam plugs of firestop device modules shall be recessed into device to accommodate the required thickness of fill material. When annulus around firestop device module(s) is filled with putty or caulk and when both ends of each firestop device module are filled with a min 1/8 in. (3.2 mm) depth of putty or caulk flush with both ends of the devices, the following L Ratings apply:

Max Percent Cable Fill In Device	L Rating At Ambient, CFM/sq ft (CFM/firestop device module)	L Rating At 400 F, CFM/sq ft (CFM/firestop device module)
0	4 (Less Than 1)	Less Than 1 (Less Than 1)
50	7 (1)	Less Than 1 (Less Than 1)

3M COMPANY – Moldable Putty+, CP 25WB+, IC 15WB+, 3000 WT

+ Bearing the UL Listing Mark

*Bearing the UL Classification Mark

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W-L-4037

September 20, 2011

ANSI/UL1479 (ASTM E814)

F Ratings – 1 and 2 Hr (See Item 1)

T Ratings – 0 and 1/2 Hr (See Item 1)

L Ratings At Ambient – 7 and 22 CFM/sq ft (See Item 4)

L Ratings At 400 F – 4 and 21 CFM/sq ft (See Item 4)

CAN/ULC S115

F Ratings – 1 and 2 Hr (See Item 1)

FT Ratings – 0 and 1/2 Hr (See Item 1)

FH Ratings – 1 and 2 Hr (See Item 1)

FTH Ratings – 0 and 1/2 Hr (See Item 1)

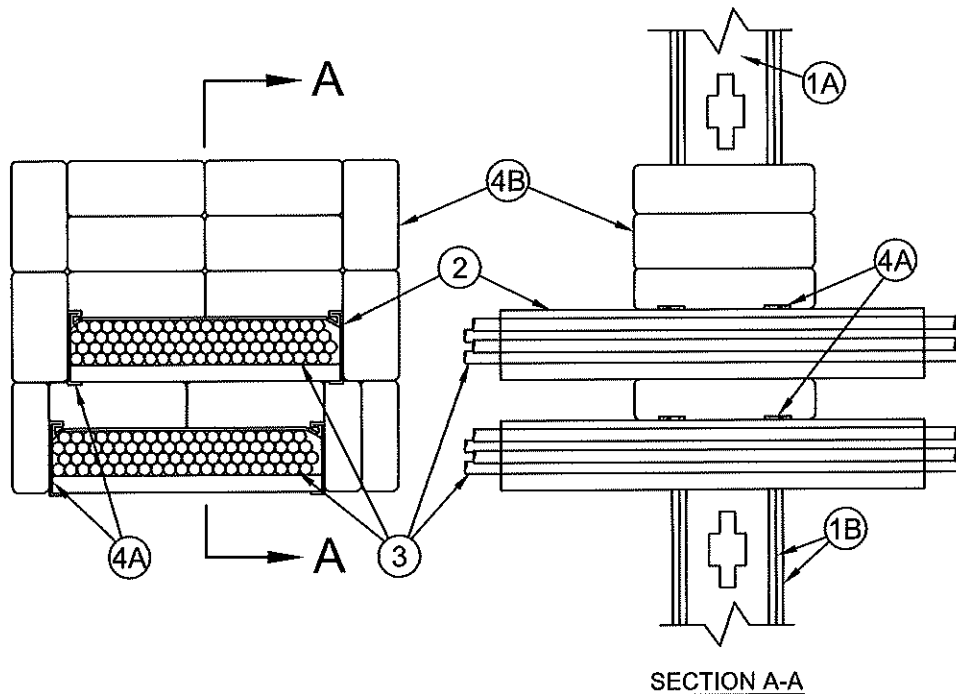
L Ratings At Ambient – 7 and 22 CFM/sq ft (See Item 4)

L Ratings At 400 F – 4 and 21 CFM/sq ft (See Item 4)

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OCT 09 2024

BY: _____

**SECTION A-A**

1. **Wall Assembly** – The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and 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 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. Steel studs to be min 3-5/8 in. (92 mm) wide and spaced max 24 in. (610 mm) OC. Additional framing members shall be used to completely frame around opening.
- B. **Gypsum Board*** – Thickness, type, number of layers and fasteners as required in the individual Wall and Partition Design. Max area of opening is 540 sq. in. (0.35 m²) with a max dimension of 30 in. (762 mm).

The hourly F and FT Ratings for the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed. The hourly T, FT and FTH Ratings for the firestop system are 0 and 1/2 hr for 1 and 2 hr rated assemblies, respectively.

2. **Cable Tray** – Max 24 in. (610 mm) wide by max 4 in. (102 mm) deep open ladder cable tray with channel-shaped side rails formed of min 0.058 in. (1.5 mm) thick (16 gauge) galv steel with nom 1 in. (25 mm) diam rungs spaced 9 in. (229 mm) OC or max 24 in. (610 mm) wide by max 4 in. (102 mm) deep open ladder cable tray with channel-shaped side rails formed from 0.060 in. (1.5 mm) thick aluminum with nom 1 in. (25 mm) diam rungs spaced 9 in. (229 mm) OC. Max two cable trays per opening. The annular space between the cable trays is a min 6 in. (152 mm) to max 10 in. (254 mm). The annular space between the cable trays and the periphery of the opening will be min 0 in. (0 mm, point contact) to max 5 in. (127 mm). Cable trays to be rigidly supported on both sides of wall assembly.
3. **Cables** – Aggregate cross-sectional area of cables in cable tray not to exceed 40 percent of the cross-sectional area of the cable tray based on a max 3 in. (76 mm) cable loading depth within the tray. Any combination of the following types and sizes of cables may be used:
 - A. Max 1/C 750 kcmil (or smaller) copper conductor cable with cross-linked polyethylene (XLPE) jacket.
 - B. Max 300 pair No. 22 AWG (or smaller) copper conductor telecommunication cables with polyvinyl chloride (PVC) insulation and jacket.
 - C. Max 7/C No. 12 AWG copper conductor power and control cables with XLPE or PVC insulation with XLPE or PVC jacket.
 - D. Max 4/C No. 2/0 AWG copper or aluminum conductor cables with PVC insulation and jacket..
 - E. Max 1-10/125 Fiber Optic (F.O) cable with PVC insulation and jacket.
 - F. Max No. 18 AWG Type RG coaxial cable with polyvinyl chloride insulation.

Through Penetrations

Cable Trays

4000 Series

Gypsum

WL

OCT 09 2024

System No. W-L-4037 *continued*

BY: _____

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

- A. **Fill Void or Cavity Material* – Putty** – Min 1/2 in. (13 mm) thickness of putty formed to a min 1 in. (25 mm) width and applied within annulus at all corners of opening and extending a min 1 in. (25 mm) in both directions from each corners, flush with both surfaces of wall. Additional putty installed inside cable tray side rails to completely fill side rails within the opening and extending approximately 1/2 in. (13 mm) beyond both surfaces of wall. After installation of pillows (Item 4B) all voids within the opening shall be filled with a min 1 in. (13 mm) thickness of putty. The individual cables may be wrapped with a min 1/4 in. (6 mm) thickness, min 2 in. (51 mm) width of putty such that the putty extends approximately 1/2 in. (13 mm) beyond both surfaces of wall.

3M COMPANY – MP+ or Cable Wrap

L Ratings are 7 and 4 CFM/sq ft. at ambient and 400° F, respectively, when individual cables are wrapped with 3M Cable Wrap or MP+ putty in accordance with the installation instructions. L Ratings are 22 and 21 CFM/sq ft. at ambient and 400° F, respectively, when individual cables are not wrapped with 3M Cable Wrap or MP+ putty.

- B. **Fill Void or Cavity Material* – Pillows** – Max 9 in. (229 mm) long by 6 in. (152 mm) wide by 2 and 3 in. (51 and 76 mm) thick plastic covered pillows tightly-packed to fill annular space between cable tray and periphery of opening. Pillows installed with 9 in. (229 mm) dimension projecting through wall and centered within the opening.

3M COMPANY – Fire Barrier Pillow or Fire Barrier Self-Locking Pillows

*Bearing the UL Classification Mark

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Through Penetrations

Cable Trays

4000 Series

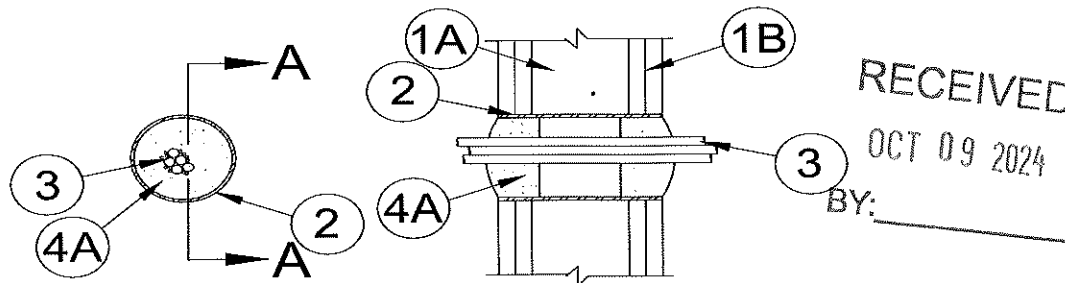
Gypsum

W-L

System No. W-L-3426

July 01, 2016

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Ratings — 0 and 1/2 Hr (See Item 1)	FT Ratings — 0 and 1/2 Hr (See Item 1)
	FH Ratings — 1 and 2 Hr (See Item 1)
	FTH Ratings — 0 and 1/2 Hr (See Item 1)



SECTION A-A

1. **Wall Assembly** — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified if the individual U300, U400 or V400 Series Wall and Partition Designs in the Fire Resistance Directory and shall include the following construction features:

A. **Studs** — Wall framing shall consist of either wood studs or channel shaped steel studs. Wood studs to consist of 2 by 4 in. (51 by 102 mm) lumber spaced max 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide, fabricated from min 25 MSG galvanized steel, spaced max 24 in. (610 mm) OC.

B. **Gypsum Board*** — Nom 5/8 in. (16 mm) thick with square or tapered edges. The gypsum board type, number of layers and sheet orientation shall be as specified in the individual Wall and Partition Design Number. Max diam of opening is 2 in. (51 mm) or 4-1/2 in. (114 mm).

The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed. The hourly T, FT and FTH Ratings of the firestop system are 1/2 hr when installed in 2 hr fire rated walls and 0 hr when installed in 1 hr fire rated walls.

2. **Steel Sleeve** — Cylindrical sleeve fabricated from min 0.016 in. (0.41 mm) thick (No. 28 MSG) galv sheet steel and having a min 1 in. (25 mm) lap along the longitudinal seam. Sleeve installed by coiling the sheet steel to a diam smaller than the through opening, inserting the coil through the openings and releasing the coil to let it uncoil against the circular cutouts in the gypsum board layers. The ends of the steel sleeve shall be flush with each surface of the wall.

3. **Cables** — Aggregate cross-sectional area of bundled cables in opening to be max 60 percent of the cross-sectional area of the opening. Cables to be tightly bundled together and rigidly supported on both sides of the wall assembly. The annular space between cable bundle and periphery of opening shall be min 1/2 in. (13 mm). Any combination of the following types and sizes of cables may be used:

- A. Max 300 pair No. 22 AWG (or smaller) copper conductor telecommunication cables with polyvinyl chloride (PVC) insulation and jacket.
- B. Max 1/C 750 kcmil (or smaller) copper conductor cable with cross-linked polyethylene (XLPE) insulation and jacket.
- C. Max 3/C No. 3/0 AWG aluminum conductor SER cable with PVC insulation and jacket.
- D. Max 7/C No. 12 AWG copper conductor power and control cables with PVC or cross-linked polyethylene (XLPE) insulation and jacket and PVC jacket.
- E. 110/125 fiber optic communication cable with PVC insulation and jacket.

F. Max 3/C copper conductor No. 10 AWG (or smaller) with bare aluminum ground, PVC insulated steel or aluminum Metal-Clad cable.

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

A. **Fill, Void or Cavity Material*** — Plug sized for the steel sleeved opening per Table below friction-fitted within the sleeve at each side of wall such that the outer circumference of the dome-shaped plug is flush with both surfaces of the wall. Plug cut to fit around the cable bundle and installed tightly within the opening.

Max. Sleeve/Opening Diam in. (mm)	Plug
2 (51)	PLG2**
4.5 (114)	PLG4**
** Cut wedge from plug to fit smaller sleeve/opening size. See 3M Installation Instructions for specific size of wedge cuts required.	

3M COMPANY 3M FIRE PROTECTION PRODUCTS — 3M™ Fire Barrier Plug PLG2, 3M™ Fire Barrier Plug PLG4

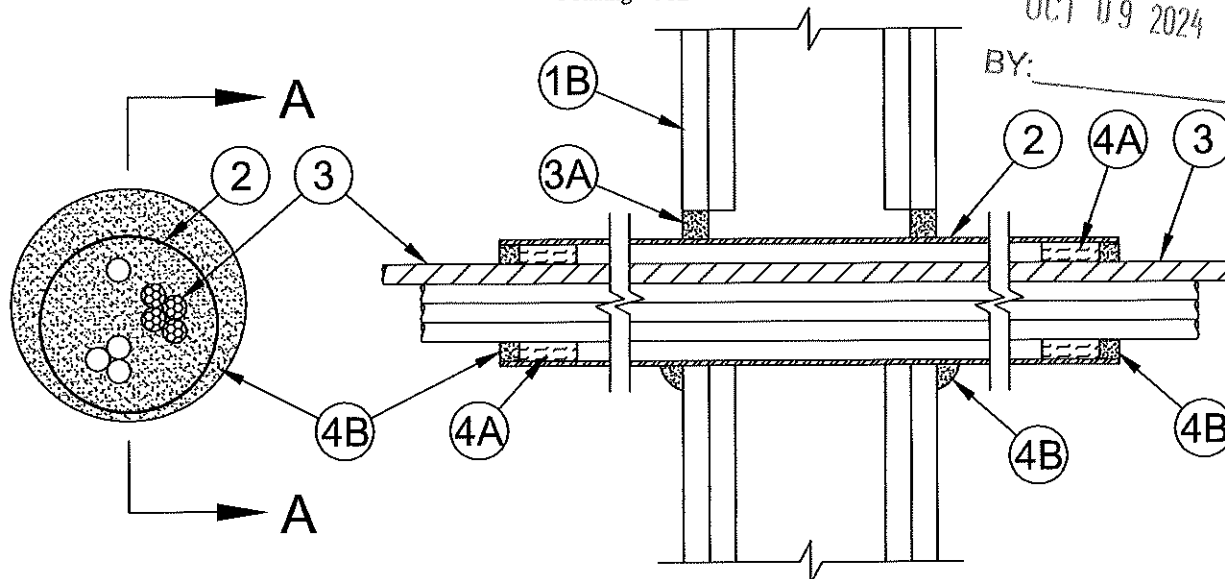
B. **Fill, Void or Cavity Material*** — Foam — (Not Shown) — Fill material to be injected into all voids and interstices of cables to full depth of plugs to max extent possible.

3M COMPANY 3M FIRE PROTECTION PRODUCTS — Fire Barrier Rated Foam, FIP 1-Step

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



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SECTION A-A

- Wall Assembly** – The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- Studs** – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC.
- Gypsum Board*** – 5/8 in. (16 mm) thick, The gypsum board 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 6-1/2 in. (165 mm)

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

- Steel Sleeve** – Nom 6 in. (152 mm) diam (or smaller) steel electrical metallic tubing (EMT) or Schedule 5 steel pipe. The annular space between steel sleeve and periphery of opening shall be min 0 in. (point contact) to max 1/2 in. (13mm) Sleeve may extend up to 18 in. (457 mm) beyond each surface of the wall.
- Cables** – Aggregate cross-sectional area of cables in steel sleeve to be max 50 percent of the aggregate cross-sectional area of the sleeve. Cables to be rigidly supported on both sides of wall assembly. The annular space between cables and periphery of sleeve shall be min 0 in. (point contact) to max 1/2 in. (13mm) The annular space between cables shall be min 0 in. (point contact) to max 1 in. (25mm). Any combination of the following types and sizes of cables may be used:
 - Max 300 pair No. 24 AWG (or smaller) copper conductor with polyvinyl chloride (PVC) insulation and jacket.
 - Max 1-10/125 Fiber Optic (F.O.) cable, PVC insulation and jacket.
 - Max 3/C No. 2/0 AWG (or smaller) aluminum or copper conductor cable with XLPE insulation and PVC jacket.
 - Max 7/C No. 12 AWG (or smaller) copper conductor cable with PVC insulation and jacket.
 - Max No. 18 AWG RG 6/U coaxial cable with PVC insulation and jacket.
 - Max 4 Pair No 22 AWG (or smaller) Cat 6 copper conductor with PVC insulation and jacket
 - Max 3/C No. 2/0 aluminum or copper SE cable with PVC insulation and jacket.
 - Max four aluminum conductor No. 10 AWG (or smaller) aluminum or steel, Armored cable# or Metal-Clad Cable+.

AFC CABLE SYSTEMS INC – MC Lite

- Firestop System** – The firestop system shall consist of the following:

- Packing Material** – Min 2 in. (51 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into each end of sleeve as a permanent form. Packing material to be recessed from each end of sleeve to accommodate the required thickness of fill material.
- Fill, Void or Cavity Material* – Sealant or Putty** – Sealant or Putty – Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both sides of wall. At point contact, a min 1/2 in. (13mm) bead of fill material shall be applied at sleeve/wall interface on both sides of wall when sleeve extends beyond surface of wall. Min 1/2 in. (13 mm) thickness of fill material applied within the sleeve, flush with both ends. Min 1/2 in. (13 mm) thickness of fill material applied within the interstices of the cable bundles.

3M COMPANY

3M FIRE PROTECTION PRODUCTS – IC 15WB+, CP 25WB+ or FB-3000 WT

Through Penetrations

Cables

3000 Series

Gypsum

WL

System No. W-L-3347 *continued*

- C. **Fill, Void or Cavity Material*** – (Not Shown) - As an alternate to Item 4B above, min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both sides of the wall. At point contact, a min. 1/2 in. (13 mm) bead of fill material at sleeve/wall interface on both sides of both sides of wall when sleeve extends beyond surface of the wall. Min. 2-1/2 in. (63 mm) thickness of fill material applied within the sleeve, flush with both ends. Foam to be injected into the interstices between all cables. When this fill material is used, item 4A is not required.

3M COMPANY – Fire Barrier rated Foam, FIP 1 - Step

*Bearing the UL Classification Mark

+Bearing the UL Listing Mark

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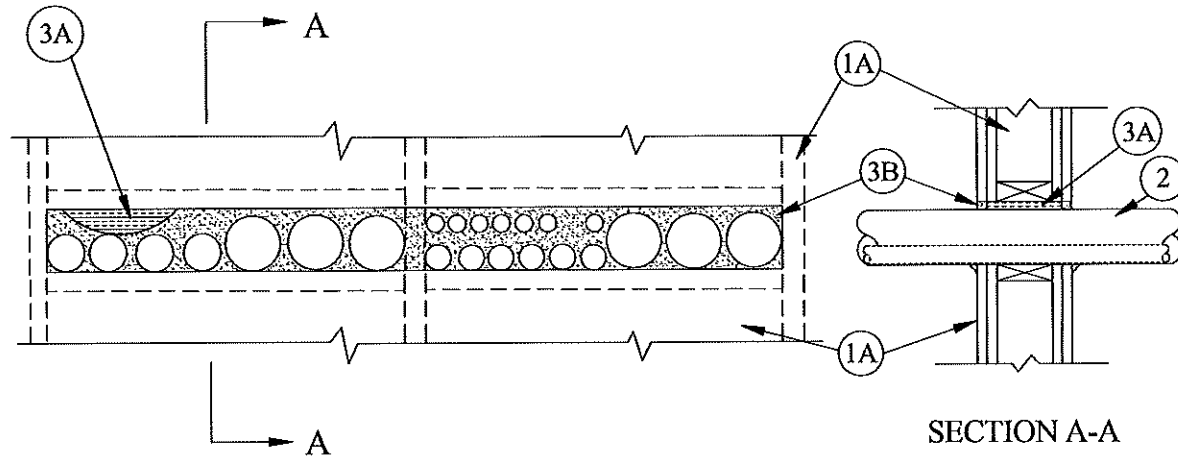
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BY: _____

OCT 09 2024

System No. W-L-1299
 May 23, 2005
 F Ratings – 1 & 2 Hr (See Item 1)
 T Rating – 0 Hr

BY: _____



Through Penetrations

Metallic Pipes

1000 Series

Gypsum

WL

123

1. **Wall Assembly** – The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Studs** – Wall framing shall consist of min 3-1/2 in. (89 mm) wide steel channel studs spaced max 24 in. (610 mm) OC. Additional min 3-1/2 in. (89 mm) wide steel studs shall be used to completely frame opening.
- B. **Gypsum Board*** – The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U400 Series Design in the UL Fire Resistance Directory. Max size of opening to be 182 in.² (1174 cm²) with a max dimension of 45-1/2 in. (1156 mm). All vertical studs in opening to remain intact.

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. **Through Penetrants** – One or more metallic pipes or conduits installed within opening. Annular space between penetrants and periphery of opening to be min 0 in. (point contact) to max 2 in. (0 mm to max 51 mm). Space between penetrants to be min 1/4 in. to max 2 in. (6 mm to max 51 mm). Penetrants to be rigidly supported on both sides of wall. The following types and sizes of penetrants may be used:

- A. **Steel Pipe** – Nom 3 in. (76 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
- B. **Conduit** – Nom 3 in. (76 mm) diam (or smaller) rigid steel conduit or steel electrical metallic tubing.

3. **Firestop System** – The firestop system shall consist of the following:

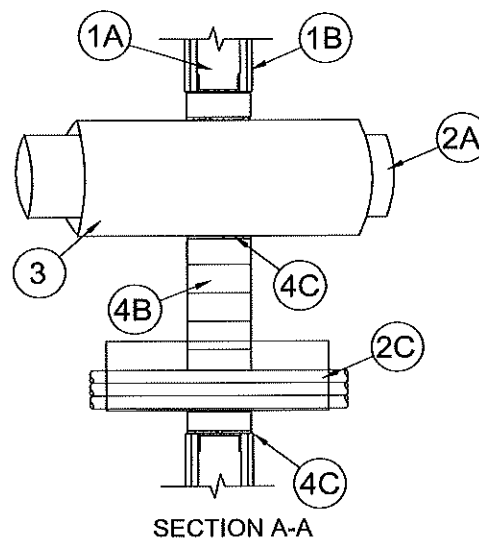
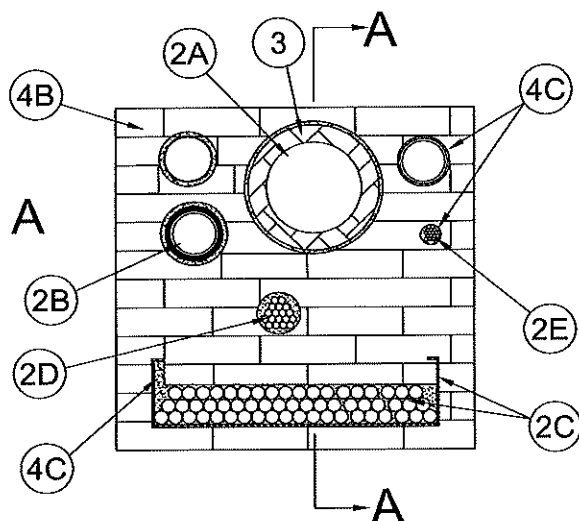
- A. **Packing Material** – Min 3-3/4 in. or 5 in. (95 mm or 127 mm) thickness of min 4 pcf (64 kg/m³) mineral-wool batt insulation firmly packed into opening for 1 and 2 hr rated assemblies, respectively. Packing material to be recessed from both sides of wall assembly to accommodate the required thickness of fill material.
- B. **Fill, Void or Cavity Material* – Caulk or Sealant** – Min 1/2 in. (13 mm) thickness of caulk 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.

3M COMPANY – IC 15WB+, CP 25WB+ caulk or FB-3000 WT sealant.

*Bearing the UL Classification Marking

This material was extracted and drawn by 3M Fire Protection Products from the 2007 edition of the UL Fire Resistance Directory. cULus

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Ratings — 1/4 and 1/2 Hr (See Item 2)	FT Ratings — 1/4 and 1/2 Hr (See Item 2)
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Ratings — 1 and 2 Hr (See Item 1)
L Rating At 400 F — Less Than 1 CFM/sq ft	FTH Ratings — 1/4 and 1/2 Hr (See Item 2)
	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — Less Than 1 CFM/sq ft



SECTION A-A

System tested with a pressure differential of 2.5 Pa between the exposed and the unexposed surfaces with the higher pressure on the exposed side.

1. **Wall Assembly** — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Studs** — Wall framing to consist of wood studs or channel shaped steel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC. Additional studs shall be used to completely frame the opening.
- B. **Gypsum Board*** — The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory. Max area of opening is 900 in.² (5806 cm²) with a max dimension of 30 in. (762 mm).

The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.

2. **Through Penetrants** — One cable tray and one or more pipes, tubes or cable bundles may be installed within the opening. The total number of through-penetrants is dependent on the size of the opening and the types and sizes of the penetrants. Any combination of the penetrants described below may be used provided that the following parameters relative to the annular spaces are maintained. The annular space between penetrants shall be min 3/4 in. (19 mm) to max 9-1/2 in. (241 mm) except for the following: the annular space between cable tray and cable bundle and all other penetrants shall be min 3 in. (76 mm); the annular space between metallic penetrants and insulated penetrants shall be a min 2 in. (51 mm); the annular space between metallic penetrants and non-metallic penetrants (Item 2B) shall be a min 2 in. (51 mm) and the annular space between nonmetallic penetrants shall be min 4 in. (102 mm). The annular space between penetrants and the periphery of opening shall be min 3/4 in. (19 mm) to max 14 in. (356 mm). Penetrants to be rigidly supported on both sides of wall assembly. The types and sizes of penetrants specified below may be used.

The hourly T, FT and FTH Rating for the firestop system is 1/2 hr except that when uninsulated metallic penetrants (Item 2A) are used, the hourly T, FT and FTH Rating is 1/4 hr.

- A. **Metallic Penetrants** — One or more metallic pipe, conduit or tubing may be installed within the opening. The following types and sizes of metallic pipes, conduits or tubing may be used:

1. **Steel Pipe** — Nom 8 in. (203 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe.
2. **Iron Pipe** — Nom 8 in. (203 mm) diam (or smaller) cast or ductile iron pipe.
3. **Conduit** — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or nom 6 in. (152 mm) diam (or smaller) steel conduit.
4. **Copper Tubing** — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
5. **Copper Pipe** — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

- B. **Nonmetallic Pipe** — One or more nonmetallic pipes may be installed within the firestop system. The following types and sizes of nonmetallic pipes, conduits or tubing may be used:

1. **Polyvinyl Chloride (PVC) Pipe** — Nom 4 in. (102 mm) diam (or smaller) solid core Schedule 40 PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

System No. W-L-8106 *continued*

Through Penetrations

Combos

8000 Series

Gypsum

W/L

2. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 4 in. (102 mm) diam (or smaller) SDR 13.5 CPVC pipe for use in closed (process or supply) piping systems.
- C. **Cable Tray*** — Max 24 in. (610 mm) wide by 6 in. (152 mm) deep open-ladder steel or aluminum cable tray. Aggregate cross-sectional area of cable tray to be max 45 percent of the cross-sectional area of the cable tray based on a max 4 in. (102 mm) cable loading depth. Any combination of the types and sizes of cables described below may be used.
1. Max 1/C, 750 kcmil (or smaller) copper conductor cable with cross-linked polyethylene (XLPE) insulation and polyvinyl chloride (PVC) jacket.
 2. Max 7/C No. 12 AWG (or smaller) copper conductor power and control cables with cross-linked polyethylene (XLPE) insulation or polyvinyl chloride (PVC) jacket.
 3. Max 3/C No. 2/0 AWG (or smaller) copper conductor SER cable with polyvinyl chloride (PVC) insulation and jacket.
 4. Max 3/C No. 2/0 AWG (or smaller) copper conductor PVC jacketed aluminum clad or steel clad TECK 90 cable.
 5. Max 300 pair (or smaller) No. 22 AWG copper conductor telephone cable with PVC insulation and jacket materials.
 6. Max 110/125 fiber optic (F.O.) cable with PVC insulation and jacket.
 7. Max 3/C (with ground) No. 14 AWG (or smaller) nonmetallic sheathed (Romex) cable with PVC insulation and jacket materials.
 8. Max RG/U (or smaller) coaxial cable with fluorinated ethylene (FE) or PVC insulation and jacket material.
 9. Max 4 pair No. 24 AWG (or smaller) copper conductor Cat 5e or Cat 6 telephone cable with PVC insulation and jacket materials.
 10. **Through Penetrating Product*** — Any cables, **Armored Cable+** or **Metal Clad Cable+** currently Classified under the Through Penetrating Product category. See **Through Penetrating Product (XHLY)** category in the Fire Resistance Directory for names of manufacturers.
 11. Max three conductor No. 12 AWG (or smaller) MC (BX) copper cable with polyvinyl chloride insulation and jacket materials.
- D. **Cable Bundle** — Max 3 in. (76 mm) diam tightly bundled cables may be installed within the opening. Any combination of the types and sizes of cables listed in Item 2C may be used.
- E. **Cable Bundle** — Max 1-1/2 in. (38 mm) diam tightly bundled 110/125 fiber optic (F.O.) cables (with PVC insulation and jacket) may be installed within the opening.
3. **Pipe Covering Material*** — **Fiberglass Insulation** — (Optional) — May be installed on metallic penetrant Items 2A1 and 2A2. Nom 1-1/2 in. (38 mm) thick hollow cylindrical heavy density (min 3.5 pcf) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product.
- See **Pipe and Equipment Covering** — Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
4. **Firestop System** — The firestop system shall consist of the following:
- A. **Fill, Void or Cavity Materials*** — **Wrap Strip** — (Not Shown) — Used with each nonmetallic penetrant (Item 2B). Min 3/16 in. (5 mm) thick intumescent material supplied in 2-1/2 in. (64 mm) wide strips. Single layer of wrap strip, pre-cut to fit penetrant OD, tightly wrapped around nonmetallic pipe and secured with the adhesive closure tab. Wrap strip to be installed within the opening at each side such that the edge of the wrap strip layer is flush with both surfaces of wall.
3M COMPANY 3M FIRE PROTECTION PRODUCTS — Tuck-In Wrap Strip WS 200, WS 300 or WS 400
 - B. **Fill, Void or Cavity Material*** — Blocks installed with 5 in. (127 mm) dimension projecting through opening and centered in wall such that it is recessed max 1/2 in. (13 mm) from each surface of wall. Blocks to be firmly packed to fill the opening area between and around all penetrants. Blocks can be cut to fit around penetrants and within smaller annular spaces.
3M COMPANY 3M FIRE PROTECTION PRODUCTS — 3M™ Fire Barrier Block B258, 3M™ Fire Barrier Plank PK39
 - C. **Fill, Void or Cavity Materials*** — **Foam** — Fill material to be forced between blocks and periphery of opening to the max extent possible. Fill material to be injected in-between blocks and penetrants to the full depth of the blocks, as well as in any visible voids/openings between blocks (Item 4B). In addition, foam shall be injected to the maximum extent possible within the interstices between all cables in the cable tray and cable bundles.
3M COMPANY 3M FIRE PROTECTION PRODUCTS — Fire Barrier Rated Foam, FIP 1-Step

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

+ Bearing the UL Recognized Component Marking



System No. W-L-1255

September 20, 2011

ANSI/UL1479 (ASTM E814)

F Ratings – 1 and 2 Hr (See Item 1)

T Ratings – 0 and 1/2 Hr (See Item 1)

L Rating At Ambient – 7 CFM/sq ft

L Rating At 400 F – 4 CFM/sq ft

CAN/ULC S115

F Ratings – 1 and 2 Hr (See Item 1)

FT Ratings – 0 and 1/2 Hr (See Item 1)

FH Ratings – 1 and 2 Hr (See Item 1)

FTH Ratings – 0 and 1/2 Hr (See Item 1)

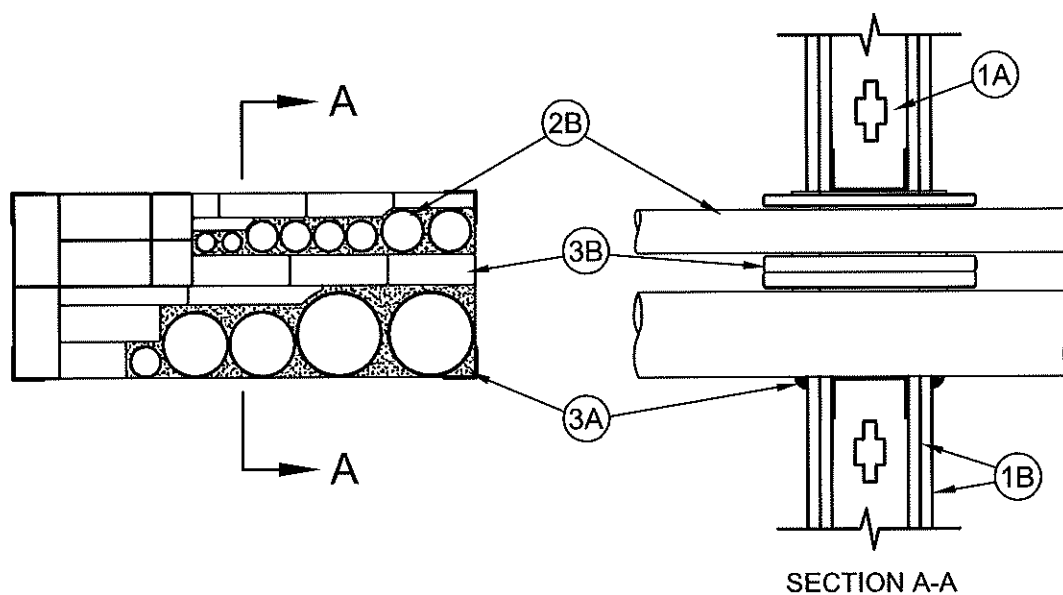
L Rating At Ambient – 7 CFM/sq ft

L Rating At 400 F – 4 CFM/sq ft

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- Wall Assembly** – The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- Studs** – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-5/8 in. (92 mm) wide spaced max 24 in. (610 mm) OC. Additional framing members shall be used to completely frame around opening.
- Gypsum Board*** – Thickness, type, number of layers and fasteners as required in the individual Wall and Partition Design. Max area of opening is 225 sq in. (0.15 m²) with a max dimension of 22-1/2 in. (572 mm).

The hourly F and FH Ratings for the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed. The hourly T, FT and FTH Ratings for the firestop system are 0 and 1/2 hr for 1 and 2 hr rated assemblies, respectively.

- Through-Penetrant** – One or more nom 4 in. (102 mm) diam (or smaller) rigid steel conduit or electrical metallic tubing (EMT) installed either concentrically or eccentrically within the firestop system. The annular space between conduits or tubing and periphery of opening shall be min 0 in. (0 mm) (point contact) to max 4 in. (102 mm). The horizontal space between conduits or tubing shall be min 1/4 in. (6 mm) to max 4 in. (102 mm). The vertical space between conduits or tubing shall be min 1-1/2 in. (38 mm) to max 4 in. (102 mm). Conduit or tubing to be rigidly supported on both sides of wall assembly.
- Firestop System** – The firestop system shall consist of the following:
 - Fill Void or Cavity Material* – Caulk, Sealant or Putty** – Min 1/2 in. (13 mm) thickness of caulk or putty formed to a min 1 in. (25 mm) width and applied within annulus at all corners of opening and extending a min 1 in. (25 mm) in both directions from each corner, flush with both surfaces of wall. Min 1/4 in. (6 mm) thickness, min 2 in. (51 mm) width of caulk or putty wrapped applied around each penetrant such that caulk or putty extends approximately 1/2 in. (51 mm) beyond both surfaces of wall. After installation of pillows (Item 4B) all voids within the opening shall be filled with a min 1 in. (25 mm) thickness of caulk or putty.
3M COMPANY – MPS-2+ or CP 25 WB+ or FB-3000 WT
 - Fill Void or Cavity Material* – Pillows** – Max 9 in. (229 mm) long by 6 in. (152 mm) wide by 2 and 3 in. (51 and 76 mm) thick plastic covered pillows tightly-packed to fill annular space between penetrants and periphery of opening. Pillows installed with 9 in. (229 mm) dimension projecting through wall and centered within the opening.
3M COMPANY – Fire Barrier Pillow or Fire Barrier Self-Locking Pillows

*Bearing the UL Classification Mark

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System No. W-L-1466

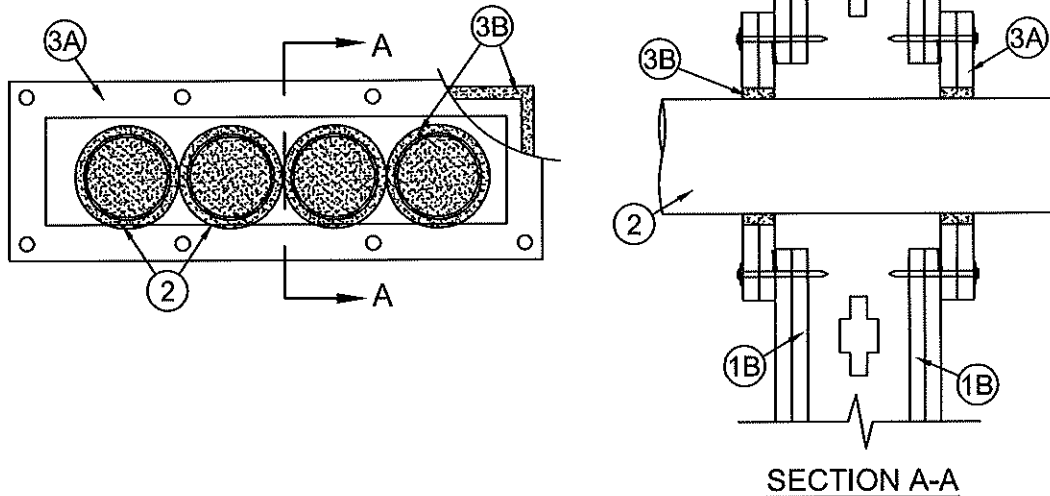
April 30, 2013

F Rating – 1 and 2 Hr (See Item 1)
T Ratings – 0 and 1/2 Hr (See Item 1)
F Rating – 1 and 2 Hr (See Item 1)
FT Ratings – 0 and 1/2 Hr (See Item 1)
FH Rating – 1 and 2 Hr (See Item 1)
FTH Ratings – 0 and 1/2 Hr (See Item 1)

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Through Penetrations

Metallic Pipes

1000 Series

Gypsum

WL

1. **Wall Assembly** – The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and 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 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. Steel studs to be min 3-5/8 in. (92 mm) wide and spaced max 24 in. (610 mm) OC.
- B. **Gypsum Board*** – The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400, V400 or W400 Series Design in the UL Fire Resistance Directory. Max area of rectangular opening is 192 sq in. (0.12 m²) with max height dimension of 6 in. (152 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed. The hourly T Rating of the firestop system is 0 Hr or 1/2 Hr when installed in 1 Hr or 2 Hr fire rated wall assembly, respectively.

2. **Through Penetrants** – A maximum of six metallic pipes, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between penetrant and periphery of opening shall be min 0 in. (point contact) to max 1-7/8 in. Penetrant to be rigidly supported on both sides of wall assembly. The following types and sizes of penetrants may be used:

- A. **Steel Pipe** – Nom 4 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. **Iron Pipe** – Nom 4 in. diam (or smaller) cast or ductile iron pipe.
- C. **Conduit** – Nom 4 in. diam (or smaller) rigid steel conduit or steel electrical metallic tubing (EMT).
- D. **Copper Tubing** – Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.
- E. **Copper Pipe** – Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.

3. **Firestop System** – The firestop system shall consist of the following:

- A. **Gypsum Board*** – Two-piece patch consisting of two layers of min 5/8 in. (16 mm) thick gypsum board cut to follow the contours of the penetrants with a nom 1/4 in. (6 mm) annulus around each penetrant. Patch to be sized to overlap wall opening min 2 in. (51 mm) on all sides and cut into two halves such that a horizontal seam traverses the opening to permit installation around the penetrants. Each layer of the patch to be individually installed and secured to underlying gypsum board with caulk (Item 3B) and with No. 10 by 1-1/4 in. (32 mm) long Type G laminating screws. Top and bottom half of each patch layer shall be tightly butted together. Laminating screws for each layer to be located 1 in. (25 mm) from patch edges and spaced max 6 in. (152 mm) OC around perimeter of patch.
- B. **Fill, Void or Cavity Materials* – Caulk or Sealant** – Min 1/4 in. (6 mm) diam continuous bead of fill material applied beneath first layer of gypsum patch and between first and second layers of gypsum patch. Fill material bead located approx 1 in. (25 mm) from edges of patch. Additional fill material installed to fill all seams between patch sections and to fill the annular spaces around the individual penetrants flush with both surfaces of the gypsum board patch. An additional 5/8 in. (16 mm) crown bead of fill material shall be applied over the butted seam of the gypsum board patch and around the entire perimeter of each penetrant.

3M COMPANY

3M FIRE PROTECTION PRODUCTS – IC 15 WB+ Caulk, CP 25WB+ Caulk or FB-3000 WT Sealant

*Bearing the UL Classification Mark

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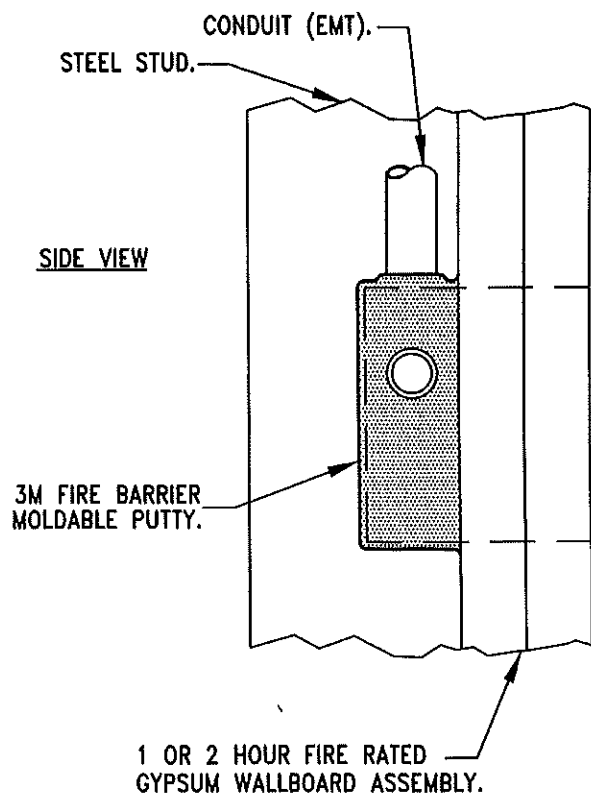
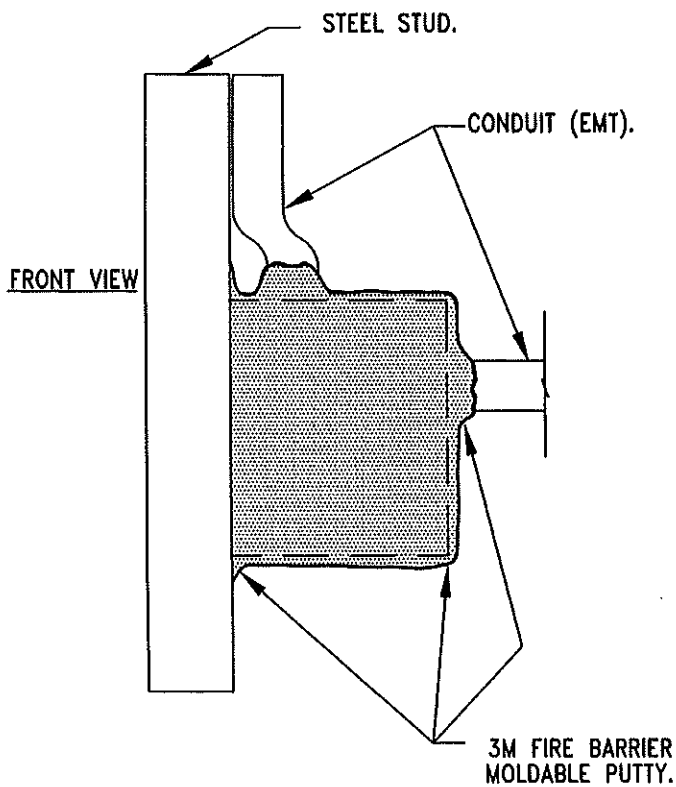
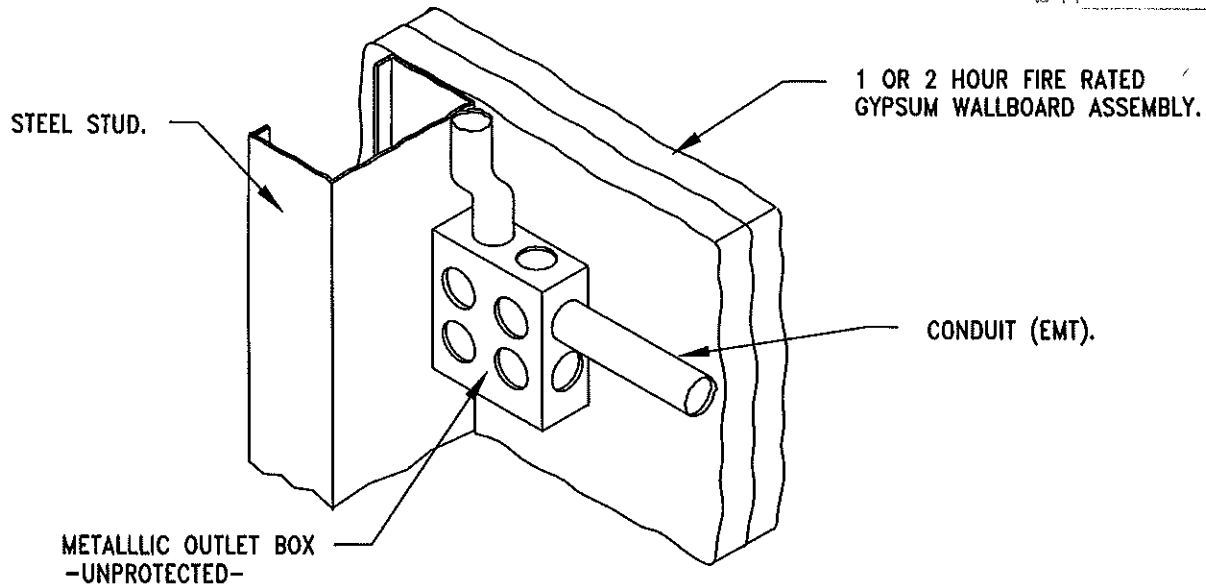


Suggested Installation for 3M™ Fire Barrier Moldable Putty+ on Electrical Outlet Boxes

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WALL OPENING PROTECTIVE MATERIALS (CLIV)

This category covers proprietary compositions which are used to maintain the hourly ratings of fire resistive walls and partitions containing flush mounted devices such as outlet boxes, electrical cabinets and mechanical cabinets. The individual Classifications indicate the specific applications and the method of installation for which the materials have been evaluated.

The basic standard used to investigate products in this category is ANSI/UL 263, "Fire Tests of Building Construction and Materials".

LOOK FOR CLASSIFICATION MARKING ON PRODUCT

The Classification Marking of Underwriters Laboratories Inc. (shown below) on the product or container is the only method provided by Underwriters Laboratories Inc. to identify Wall Opening Protective Materials produced under its Classification and Follow Up Service.

UNDERWRITERS LABORATORIES INC.®
CLASSIFIED

WALL OPENING PROTECTIVE MATERIAL
FIRE RESISTANCE CLASSIFICATION

SEE PRODUCT CATEGORY IN UL FIRE RESISTANCE DIRECTORY

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BY: _____

3M COMPANY 3M FIRE PROTECTION PRODUCTS

R9700

3M CENTER, ST PAUL MN 55144 USA

Type MPP+ moldable putty pads for use with max 4-11/16 by 4-11/16 by 2-1/8 in. deep flush device UL Listed Metallic Outlet Boxes installed with steel cover plates for use in 1 or 2 hr fire rated gypsum board wall assemblies framed with min 3-1/2 in. wide wood or steel studs and constructed as specified in the individual U300, U400 or V400 Series Wall and Partition Designs in the Fire Resistance Directory.

Type MPP+ moldable putty pads for use with max 4-11/16 by 4-11/16 by 2 1/8 in. deep flush device UL Listed Metallic Outlet Boxes installed with steel or plastic cover plates for use in 1 hr or 2 hr fire rated gypsum board wall assemblies framed with min 5-1/2 in. wide wood or steel studs and constructed as specified in the individual U300, U400 or V400 Series Wall and Partition Designs in the Fire Resistance Directory. Metallic outlet boxes to be provided with steel attachment brackets which offset box min 1/4 in. from stud. Putty pad to be affixed to the back and all four sides of the box. Boxes may be installed back-to-back within the stud cavity. When back-to-back boxes are interconnected, a ball of putty is to be installed to plug the open end of each electrical metallic tube or conduit within the outlet boxes.

Type MPP+ moldable putty pads for use with max 4 by 4 by 2-1/8 in. deep flush device UL Listed Metallic Outlet Boxes installed with plastic cover plates for use in 1 or 2 hr fire rated gypsum board wall assemblies framed with min 3-1/2 in. wide wood or steel studs and constructed as specified in the individual U300, U400 or V400 Series Wall and Partition Designs in the Fire Resistance Directory.

Type MPP+ moldable putty pads for use with max 14 by 4 by 2-1/2 in. deep flush device UL Listed Metallic Outlet Boxes installed with steel cover plates for use in 1 or 2 hr fire rated gypsum board wall assemblies framed with min 3-1/2 in. wide steel studs and constructed as specified in the individual U400 or V400 Series Wall and Partition Designs in the fire Resistance Directory.

Type MPP+ moldable putty pads for use with max 14 by 4-1/2 by 2-1/2 in. deep UL Listed Nonmetallic Outlet Boxes manufactured by Carlon Electrical Products, made of PVC and bearing a 2 hr rating under the "Outlet Boxes and Fittings Classified for Fire Resistance" category in the Fire Resistance Directory. Boxes installed with steel cover plates, for use in 1 or 2 hr rated gypsum board wall assemblies framed with min 3-1/2 in. wide wood studs and constructed as specified in the individual U300 Series Wall and Partition Designs in the Fire Resistance Directory.

Type MPP+ moldable putty pads for use with max 4 by 3-1/4 by 3-3/4 in. deep UL Listed Nonmetallic Outlet Boxes manufactured by Thomas & Betts Corp., made of polycarbonate, Type 234 or made of phenolic, Type 1052 and bearing a 2 hr rating under the "Outlet Boxes and Fittings Classified for Fire Resistance" category in the Fire Resistance Directory. Boxes installed with steel cover plates. For use in 1 hr fire rated gypsum board wall assemblies framed with min 3-1/2 in. wide wood studs and constructed as specified in the individual U300 series Wall and Partition Designs in the Fire Resistance Directory.

Type MPP+ moldable putty pads for use with max 4 by 3-3/4 by 3 in. deep UL Listed Nonmetallic Outlet Boxes manufactured by Carlon Electrical Products, made of PVC and bearing a 2 hr rating under the "Outlet Boxes and Fittings Classified for Fire Resistance category in the Fire Resistance Directory. Boxes installed with plastic cover plates, for use in 1 hr rated gypsum board wall assemblies framed with min 3-1/2 in. wide wood studs and constructed as specified in the individual U300 Series Wall and Partition Designs in the Fire Resistance Directory.

Type MPP+ moldable putty pads for use with max 4 by 3-1/4 by 3-3/4 in. deep UL Listed Nonmetallic Outlet Boxes manufactured by Thomas & Betts Corp., made of phenolic, Type 2002-738-C and bearing a 2 hr rating under the "Outlet Boxes and Fittings Classified for Fire Resistance" category in the Fire Resistance Directory. Boxes installed with steel cover plates. For use in 2 hr fire rated gypsum board wall assemblies framed with min 3-1/2 in. wide steel studs and constructed as specified in the individual U400 or V400 Series Wall and Partition Designs in the Fire Resistance Directory.

Type MPP+ moldable putty pads for use with max 4 by 4 by 1-1/2 in. deep flush device UL Listed Metallic Outlet Boxes installed with plastic cover plates for use in 1 hr fire rated gypsum board wall assemblies framed with min 3-5/8 in. wide steel studs and constructed as specified in the individual U400 or V400 Series Wall and Partition Designs in the Fire Resistance Directory. Boxes may be installed back-to-back within the stud cavity.

Type MPP+ moldable putty pads for use with max 5 by 5 by 2 7/8 in. deep flush device UL Listed Metallic Outlet Boxes or UL Listed Communications-Circuit Accessories manufactured by Randl Industries Inc for use in 1 hr or 2 hr fire rated gypsum board wall assemblies framed with min 3-5/8 in. wide wood or steel studs and constructed as specified in the individual U300, U400 or V400 Series Wall and Partition Designs in the Fire Resistance Directory. Metallic outlet boxes to be provided with UL Listed Signal Appliance with steel cover plate manufactured by Cooper Wheelock Inc.

Moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud unless otherwise noted) including nailing tabs and to completely seal against the stud within the stud cavity. Multiple moldable putty pads may be installed on an outlet box to attain the required minimum thickness of putty material. Additional putty material used to seal around each conduit and/or cable fitting on the exterior of each box. A min 1/10 in. thickness of putty material is required on the exterior surfaces of flush device boxes in 1 and 2 hr fire rated Wall and Partition Designs. When the moldable putty pad outlet box protective material is used on boxes on both sides of wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. provided that the outlet boxes are not installed back to back, except as noted.

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System No. C-AJ-1427

March 05, 2007

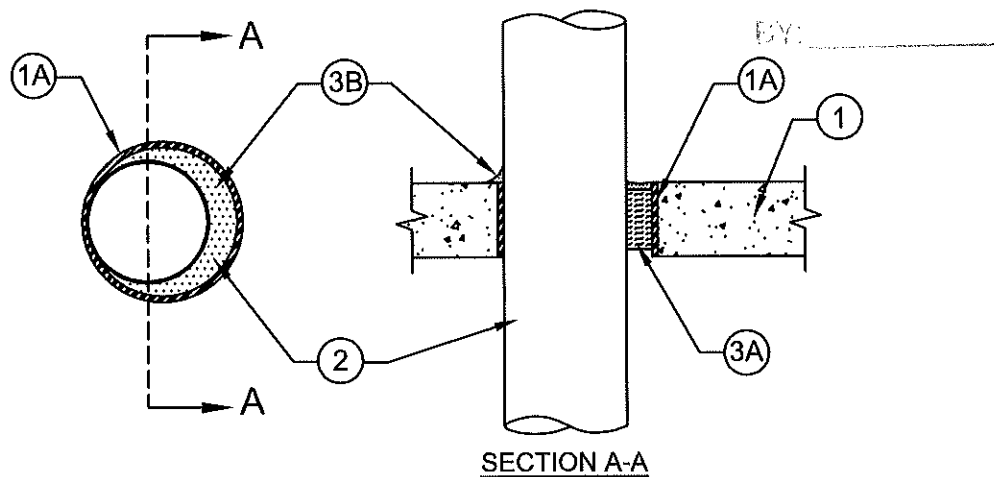
F Rating – 3 Hr

T Rating – 0 Hr

W Rating – Class 1 (See Item 3)

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1. **Floor or Wall Assembly** – Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600 - 2400 kg/m³) concrete floors or min 3 in. (76 mm) thick reinforced lightweight or normal weight concrete walls. Floor assembly may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow-core Precast Concrete Units*. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening 12-3/4 in. (324 mm). Max diam of opening in floors constructed of hollow-core concrete is 7 in. (78 mm).

See Concrete Blocks (CAZT) and Precast Concrete Units (CFTV) categories in Fire Resistance Directory for names of manufacturers.

- 1A. **Steel Sleeve** – (Optional) - Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Steel sleeve may be installed flush or may project max 2 in. (51 mm) beyond the floor or wall surfaces. As an alternate, nom 12 in. (305 mm) diam (or smaller) sleeve fabricated from nom 0.019 in. (0.48 mm) thick galv steel cast or grouted into floor or wall assembly flush with floor or wall surfaces.

2. **Through Penetrant** – One metallic pipe, conduit, tubing or flexible metal piping installed concentrically or eccentrically within opening. Annular space between penetrant and periphery of opening or sleeve shall be min of 0 in. (0 mm) (point contact) to max 2 in. (51 mm). Penetrant to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of penetrants may be used:

- A. **Steel Pipe** – Nom 10 in. (254 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. **Iron Pipe** – Nom 10 in. (254 mm) diam (or smaller) cast or ductile iron 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 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
- E. **Copper Pipe** – Nom 4 in. (102 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 TITEFLEX

- 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 INC

3. **Firestop System** – The details of the firestop system shall be as follows:

- A. **Packing Material** – Min 2 in. (51 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or top edge of sleeve or from both surfaces of wall or both ends of sleeve as required to accommodate the required thickness of fill material. In floors constructed of hollow-core concrete, packing material to be recessed from top and bottom surfaces of floor or sleeve as required to accommodate the required thickness of fill material.
- B. **Fill, Void or Cavity Materials* – Caulk or Sealant** – Min 1/2 in. (13 mm) thickness of caulk applied within the annulus, flush with top surface of floor or top edge of sleeve or with both surfaces of wall or both ends of sleeves. In floors constructed of hollow-core concrete, min 1/2 in. (13 mm) thickness of caulk applied within the annulus, flush with top and bottom surfaces of floor or sleeve. Min 1/4 in. (6 mm) diam bead of caulk applied to the penetrant/concrete or penetrant/sleeve interface at the point contact location on the top surface of floor or both surfaces of wall or hollow-core.

3M COMPANY – IC 15WB+, CP 25WB+ caulk or FB-3000 WT sealant

(Note: W Rating applies only when FB-3000 WT is used.)

*Bearing the UL Classification Mark

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Through Penetrations

Metallic Pipes

1000 Series

Concrete

CAJ

System No. F-A-1057

August 18, 2009

F Rating – 2 Hr

T Rating – 2 Hr

L Rating at Ambient – 2 CFM/sq ft

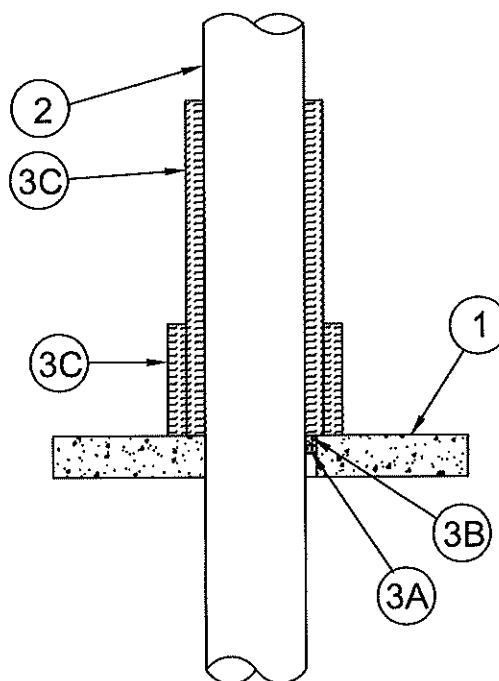
L Rating at 400°F – Less than 1 CFM/sq ft

W Rating – Class 1 (See Item 3)

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OCT 09 2024

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**SECTION A-A**

1. **Floor Assembly** – Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. As an alternate, any min 2 hr fire rated D700, D800 or D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory having a min 2-1/2 in. (64 mm) thickness of lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete topping over the steel deck may be used. Max diam of opening is 12-3/4 in. (324 mm).
- 1A. **Steel Sleeve** – (Optional, Not Shown) – Nom 12 in. (305 mm) diam (or smaller) sleeve fabricated from nom 0.028 in. (0.71 mm) thick galv steel cast or grouted into floor assembly flush with floor surfaces.
2. **Through-Penetrant** – One metallic pipe or tubing installed concentrically or eccentrically within opening. Annular space between penetrant and periphery of opening shall be min of 0 in. (0 mm) (point contact) to max 2 in. (51 mm). Penetrant to be rigidly supported on both sides of floor assembly. The following types and sizes of penetrants may be used:
 - A. **Steel Pipe** – Nom 10 in. (254 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
 - B. **Iron Pipe** – Nom 10 in. (254 mm) diam (or smaller) cast or ductile iron pipe.
 - C. **Copper Tubing** – Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
 - D. **Copper Pipe** – Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
 - E. **Conduit** – Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.
3. **Firestop System** – The details of the firestop system shall be as follows:
 - A. **Packing Material** – Min 1 in. (25 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor to accommodate the required thickness of fill material.
 - B. **Fill, Void or Cavity Materials*** – **Caulk, Sealant or Putty** – Min 1 in. (25 mm) thickness of caulk or putty applied within the annulus, flush with top surface of floor.
3M COMPANY – CP 25WB+ caulk, FB-3000 WT sealant or MP+ putty
 (Note: W Rating applies only when FB-3000 WT is used.)
 - C. **Duct Wrap Material*** – Nom 2 in. (51 mm) thick duct wrap tightly wrapped around penetrant to extend 36 in. (914 mm) above floor. An additional layer of nom 2 in. (51 mm) thick duct wrap tightly wrapped around the first layer of duct wrap to extend 12 in. (305 mm) (914 mm) above floor. All longitudinal seams of both layers of duct wrap are sealed with foil tape.
3M COMPANY – Fire Barrier Duct Wrap 20A, 3M Fire Barrier Duct Wrap 615, 3M Fire Barrier Duct Wrap 615+

*Bearing the UL Classification Mark

This material was extracted and drawn by 3M Fire Protection Products from the 2009 edition of the UL Fire Resistance Directory. **3M Fire Protection Products**
www.3m.com/firestop**F-A-1057 • 1 of 1**Product Support Line
1-800-328-1687

Through Penetrations

Metallic Pipes

1000 Series

Concrete

FA

System No. C-AJ-1473

August 18, 2009

F Rating – 2 Hr

T Rating – 2 Hr

L Rating at Ambient – 2 CFM/sq ft

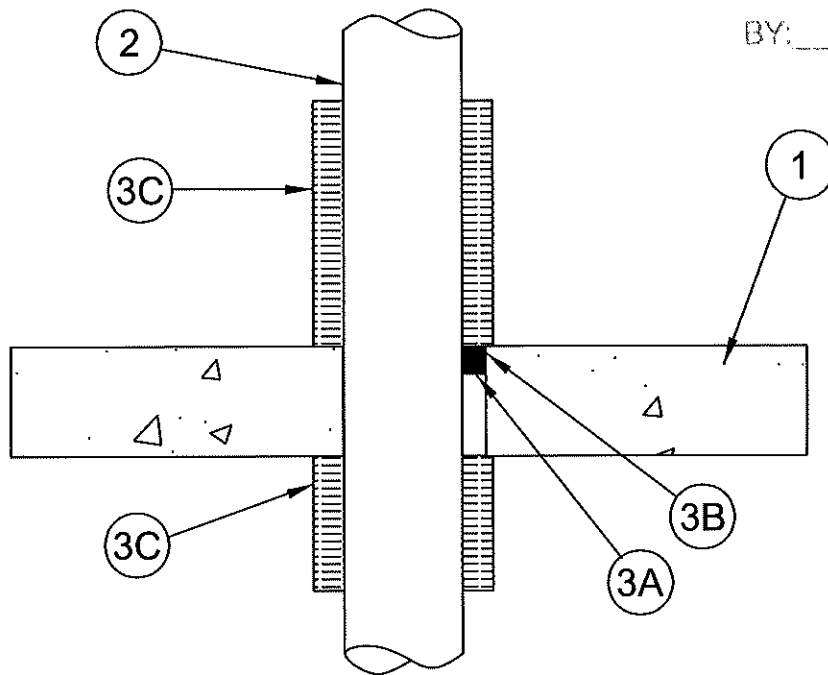
L Rating at 400°F – Less than 1 CFM/sq ft

W Rating – Class 1 (See Item 3)

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OCT 09 2024

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**SECTION A-A**

1. **Floor or Wall Assembly** – Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening 12-3/4 in. (324 mm).
See Concrete Blocks (CAZT) category in Fire Resistance Directory for names of manufacturers.
- 1A. **Steel Sleeve** – (Optional, Not Shown) – Nom 12 in. (305 mm) diam (or smaller) sleeve fabricated from nom 0.019 in. (0.48 mm) thick galv steel cast or grouted into floor or wall assembly flush with floor or wall surfaces.
2. **Through-Penetrant** – One metallic pipe or tubing installed concentrically or eccentrically within opening. Annular space between penetrant and periphery of opening shall be min of 0 in. (0 mm) (point contact) to max 2 in. (51 mm). Penetrant to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of penetrants may be used:
 - A. **Steel Pipe** – Nom 10 in. (254 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
 - B. **Iron Pipe** – Nom 10 in. (254 mm) diam (or smaller) cast or ductile iron pipe.
 - C. **Copper Tubing** – Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
 - D. **Copper Pipe** – Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
 - E. **Conduit** – Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.
3. **Firestop System** – The details of the firestop system shall be as follows:
 - A. **Packing Material** – Min 1 in. (25 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall to accommodate the required thickness of fill material. When optional steel sleeve is used, packing material to extend through floor or wall thickness except for recesses needed to accommodate fill material (Item 3B).
 - B. **Fill, Void or Cavity Materials*** – **Caulk, Sealant or Putty** – Min 1 in. (25 mm) thickness of caulk or putty applied within the annulus, flush with top surface of floor or with both surfaces of wall.
3M COMPANY – CP 25WB+ caulk, FB-3000 WT sealant or MP+ putty
(Note: W Rating applies only when FB-3000 WT is used.)
 - C. **Duct Wrap Material*** – Nom 2 in. (51 mm) thick duct wrap tightly wrapped around penetrant to extend 12 in. (305 mm) below floor and 36 in. (914 mm) above floor or 36 in. (914 mm) beyond both surfaces of wall. Longitudinal seams sealed with foil tape.
3M COMPANY – Fire Barrier Duct Wrap 20A, 3M Fire Barrier Duct Wrap 615, 3M Fire Barrier Duct Wrap 615+

*Bearing the UL Classification Mark

This material was extracted and drawn by 3M Fire Protection Products from the 2009 edition of the UL Fire Resistance Directory. **3M Fire Protection Products**
www.3m.com/firestop**C-AJ-1473 • 1 of 1**Product Support Line
1-800-328-1687

Through Penetrations

Metallic Pipes

1000 Series

Concrete

CAJ

System No. C-AJ-1429

March 05, 2007

F Rating – 2 Hr

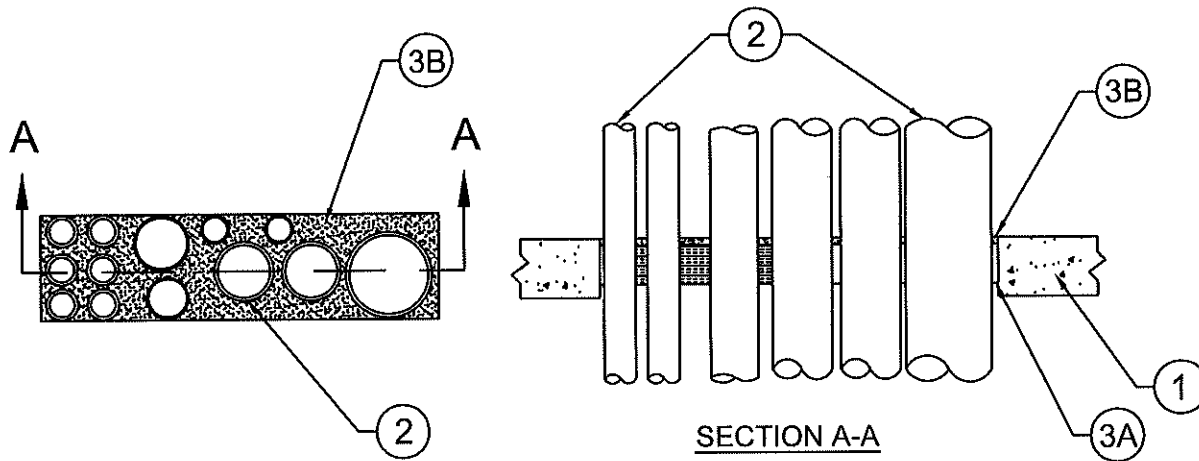
T Rating – 0 Hr

W Rating – Class 1 (See Item 3)

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1. **Floor or Wall Assembly** – Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Floor assembly may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow-core Precast Concrete Units*. Wall may also be constructed of any UL Classified Concrete Blocks*. Max area of opening 240 sq in. (1548 sq cm) with a max dimension of 30 in. (762 mm). Max area of opening in floors constructed of hollow-core concrete is 49 sq in. (316 sq cm) with a max dimension of 7 in. (178 mm).

See **Concrete Blocks (CAZT)** and **Precast Concrete Units (CFTV)** categories in Fire Resistance Directory for names of manufacturers.

- 1A. **Steel Sleeve** – (Optional, Not Shown) – Nom 16 in. (406 mm) diam (or smaller) circular sleeve fabricated from nom 0.028 in. (0.71 mm) thick galv steel cast or grouted into floor or wall assembly flush with floor or wall surfaces.
2. **Through Penetrant** – One or more metallic pipes, conduits, tubes or flexible metal pipes installed concentrically or eccentrically within opening. Annular space between penetrants and periphery of opening shall be min of 0 in. (0 mm) (point contact) to max 2 in. (51 mm) Space between penetrants shall be min of 1/4 in. (6 mm) to max 2 in. (51 mm). Penetrants to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of penetrants may be used:

- A. **Steel Pipe** – Nom 6 in. (152 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. **Iron Pipe** – Nom 6 in. (152 mm) diam (or smaller) cast or ductile iron 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 3 in. (76 mm) diam (or smaller) Type L (or heavier) copper tubing.
- E. **Copper Pipe** – Nom 3 in. (76 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 TITEFLEX

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 INC.

3. **Firestop System** – The details of the firestop system shall be as follows:

- A. **Packing Material** – Min 3 in. (76 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening 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 fill material. In floors constructed of hollow-core concrete, packing material to be recessed from top and bottom surfaces of floor as required to accommodate the required thickness of fill material.

- B. **Fill, Void or Cavity Materials* – Caulk or Sealant** – Min 1/2 in. (13 mm) thickness of caulk applied within the annulus, flush with top surface of floor or with both surfaces of wall. In floors constructed of hollow-core concrete, min 1/2 in. (13 mm) thickness of caulk applied within the annulus, flush with top and bottom surfaces of floor. Min 1/4 in. (6 mm) bead of caulk applied to the penetrant/concrete interface at the point contact location on the top surface of floor or both surfaces of wall or hollow-core concrete.

3M COMPANY – IC 15WB+, CP 25WB+ caulk or FB-3000 WT sealant.

(Note: W Rating applies only when FB-3000 WT is used.)

* Bearing the UL Classification Marking

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Through Penetrations

Metallic Pipes

1000 Series

Concrete

CAJ

July 29, 2013

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OCT 09 2024

ANSI/UL1479 (ASTM E814)

F Ratings – 2 Hr

T Rating – 1/4 Hr

L Rating at Ambient – Less than 1 CFM/sq ft

L Rating at 400 F – Less than 1 CFM/sq ft

CAN/ULC S115

F Ratings – 2 Hr

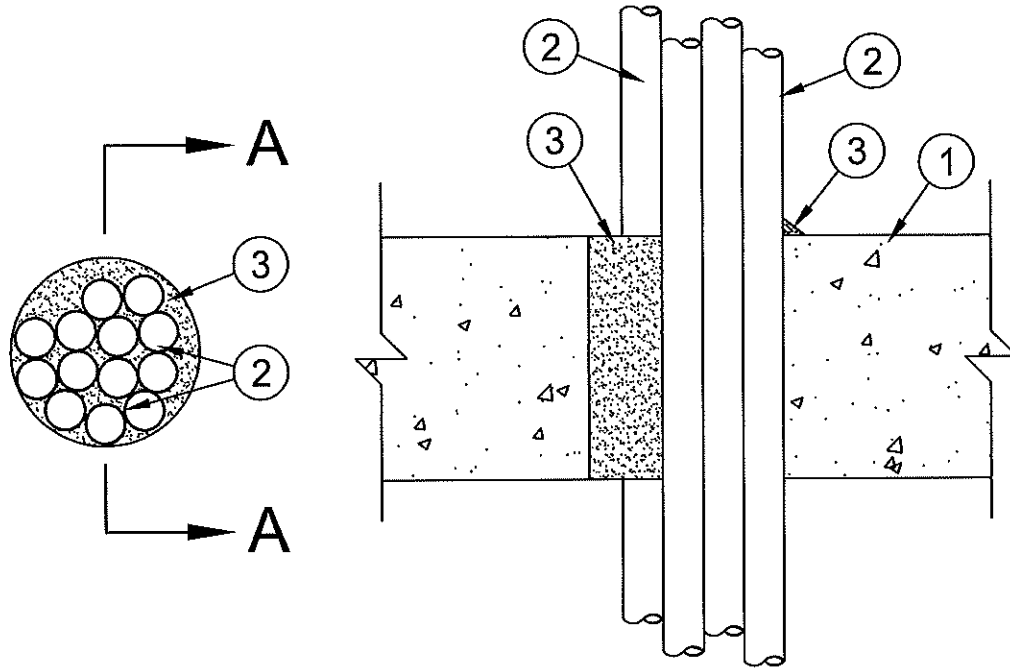
FT Rating – 1/4 Hr

FH Ratings – 2 Hr

FTH Rating – 1/4 Hr

L Rating at Ambient – Less than 1 CFM/sq ft

L Rating at 400 F – Less than 1 CFM/sq ft



SECTION A-A

1. **Floor or Wall Assembly** – Min 2-1/2 in. (64 mm) thick lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Max diam of opening is 6 in. (152 mm).
 2. **Cables** – Aggregate cross-sectional area of cables to be max 65 percent of the cross-sectional area of the opening. The annular space between cables and between cables and periphery of opening shall be min of 0 in. (point contact) to max 2 in. (51 mm). Any combination of the following types and sizes of cables may be used:
 - A. Max 200 pair No. 22 AWG (or smaller) copper conductor with polyvinyl chloride (PVC) insulation and jacketing material.
 - B. Max 1/C No. 750 kcmil (or smaller) copper conductor cable with cross-linked polyethylene (XLPE) jacket.
 - C. Max 7/C No. 12 AWG (or smaller) copper conductor power and control cables with XLPE or PVC insulation with XLPE or PVC jacket.
 - D. Max 3/C No. 4/0 AWG (or smaller) copper or aluminum conductor SER cables with PVC or XLPE insulation and jacket.
 - E. Max 3/C No. 2/0 AWG (or smaller) copper conductor PVC jacketed aluminum clad or steel clad TECK 90 cable.
 - F. Max 110/125 fiber optic (F.O.) cable with PVC insulation and jacket.
 - G. Max 3/C with ground No. 8 AWG (or smaller) copper conductor NM cable with PVC insulation and jacket.
 - H. RG/U coaxial cable with fluorinated ethylene (FE) or PVC insulation and jacket.
 - I. Max 4 pair No. 24 AWG (or smaller) copper conductor data cable with Hylar jacket and insulation.
 - J. Max three conductor No. 12 AWG (or smaller) MC (BX) copper cable with polyvinyl chloride insulation and jacket materials.
 - K. **Through Penetrating Product*** – Any cables, **Armored Cable** or **Metal Clad Cable** currently Classified under the **Through Penetrating Product** category.
- See **Through Penetrating Product (XHLY)** category in the Fire Resistance Directory for names of manufacturers.
3. **Fill, Void or Cavity Material*** – **Foam** – Min 2-1/2 in. (64 mm) thickness of fill material applied within the annulus, flush with top surface of floor or both surfaces of wall. Foam to be injected into the interstices between all cables. An additional 1/2 in. (13 mm) bead of foam shall be applied at the point contact locations.

3M COMPANY – Fire Barrier Rated Foam, FIP 1-Step

*Bearing the UL Classification Mark

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Through Penetrations

Cables

3000 Series

Concrete

CAJ

System No. C-AJ-3200

October 01, 2008

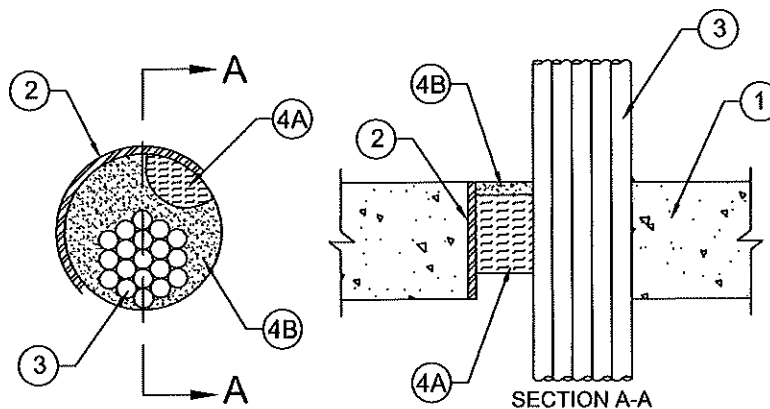
F Rating – 2 Hr

T Rating – 1/4 Hr

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1. **Floor or Wall Assembly** – Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600 - 2400 kg/m³) concrete. Floor assembly may also be constructed of any min 6 in. thick UL Classified hollow-core Precast Concrete Units*. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening 6 in. (152 mm).

See Concrete Blocks (CAZT) and Precast Concrete Units (CFTV) categories in Fire Resistance Directory for names of manufacturers.

2. **Steel Sleeve** – (Optional) - Nom 6 in. (152 mm) diam (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Steel sleeve may be installed flush or may project max 2 in. (51 mm) beyond the floor or wall surfaces. As an alternate, nom 6 in. (152 mm) diam (or smaller) sleeve fabricated from nom 0.019 in. (0.48 mm) thick galv steel cast or grouted into floor or wall assembly flush with floor or wall surfaces.

3. **Cables** – Aggregate cross-sectional area of cables in opening to be max 49 percent of the cross-sectional area inside the sleeve or opening. Annular space between cables and periphery of opening or sleeve shall be min of 0 in. (0 mm) (point contact) to max 2 in. (51 mm). Cables to be rigidly supported on both sides of floor or wall assembly. Any combination of the following types and sizes of cable may be used;

- A. Max 200 pair No. 22 AWG (or smaller) copper conductor with polyvinyl chloride (PVC) insulation and jacketing material.
- B. Max 1/C No. 750 kcmil (or smaller) copper conductor cable with cross-linked polyethylene (XLPE) jacket.
- C. Max 7/C No. 12 AWG (or smaller) copper conductor power and control cables with XLPE or PVC insulation with XLPE or PVC jacket.
- D. Max 3/C No. 4/0 AWG (or smaller) copper or aluminum conductor SER cables with PVC or XLPE insulation and jacket.
- E. Max 3/C No. 2/0 AWG (or smaller) copper conductor PVC jacketed aluminum clad or steel clad TECK 90 cable.
- F. Max 110/125 fiber optic (F.O.) cable with PVC insulation and jacket.
- G. Max 3/C with ground No. 8 AWG (or smaller) copper conductor NM cable with PVC insulation and jacket.
- H. RG/U coaxial cable with fluorinated ethylene (FE) or PVC insulation and jacket.
- I. Max 4 pair No. 24 AWG (or smaller) copper conductor data cable with Hylar jacket and insulation.
- J. Max three conductor No. 12 AWG (or smaller) MC (BX) copper cable with polyvinyl chloride insulation and jacket materials.
- K. **Through Penetrating Product*** - Any cables, Armored Cable+ or Metal Clad Cable+ currently Classified under the Through Penetrating Product category.

See Through Penetrating Product (XHLY) category in the Fire Resistance Directory for names of manufacturers.

4. **Firestop System** – The details of the firestop system shall be as follows:

- A. **Packing Material** – Min 3 in. (76 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or top edge of sleeve or from both surfaces of wall or both ends of sleeve as required to accommodate the required thickness of fill material. In floors constructed of hollow-core concrete, packing material to be recessed from top and bottom surfaces of floor or sleeve as required to accommodate the required thickness of fill material.

- A1. **Forming Material*** – As an alternate to the packing material in Item 4A, nom 4 in. (102 mm) wide strips of min 1/2 in. (13 mm) thick compressible mat to be stacked to a thickness greater than the width of the annular space and compression-fitted, edge-first, to fill the annular space to a min 4 in. (102 mm) depth. Top of forming material to be recessed from top surface of floor or top edge of sleeve or from both surfaces of wall as necessary to accommodate the required thickness of caulk fill material. In floors constructed of hollow-core concrete, packing material to be recessed from top and bottom surfaces of floor or sleeve as required to accommodate the required thickness of fill material.

3M COMPANY – Fire Barrier Packing Material

- B. **Fill, Void or Cavity Materials*** – Caulk or Sealant – Min 1/2 in. (13 mm) thickness of caulk applied within the annulus, flush with top surface of floor or top edge of sleeve or with both surfaces of wall or both ends of sleeves. In floors constructed of hollow-core concrete, min 1/2 in. (13 mm) thickness of caulk applied within the annulus, flush with top and bottom surfaces of floor or sleeves. Min 1/4 in. (6 mm) diam bead of caulk applied to the penetrant/concrete or penetrant/sleeve interface at the point contact location on the top surface of floor or both surfaces of wall or hollow-core concrete.

3M COMPANY – IC 15WB+, CP 25WB+ caulk or FB-3000 WT sealant.

*Bearing the UL Classification Mark

+ Bearing the UL Listing Mark

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System No. C-AJ-3250

May 23, 2011

F Ratings – 2 and 3 Hr (See Item 1)

T Ratings – 0 and 1 Hr (See Items 2, 3A and 3B)

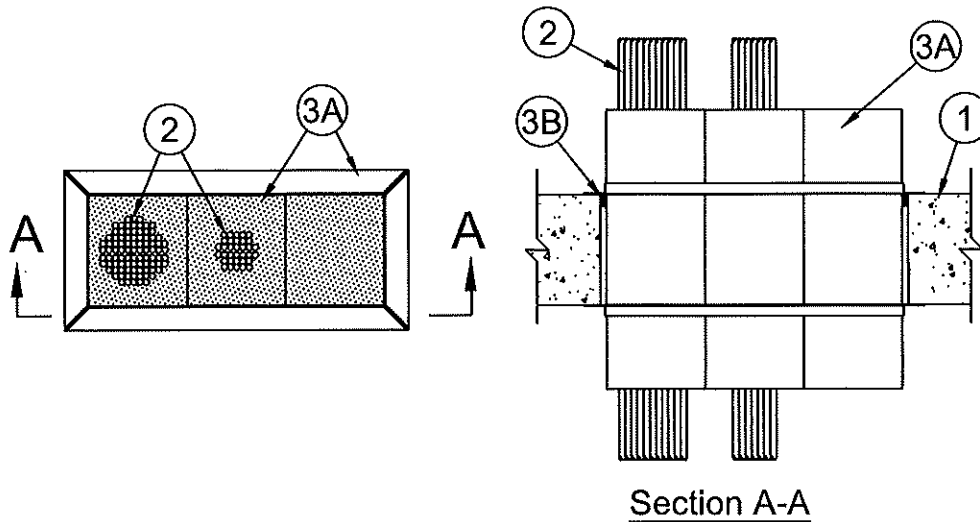
L Rating At Ambient – 4 to 7 CFM/sq ft (See Item 3B)

L Rating At 400 F – Less Than 1 CFM/sq ft (See Item 3B)

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BY: _____



Through Penetrations

Cables

3000 Series

Concrete

CAJ

- 1. Floor or Wall Assembly** – Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max area of opening is 50 in.² (323 cm²) with a max dimension of is 12-1/8 in. (308 mm) for square devices. Max diam of opening is 2-1/2 in. (64 mm) for 2 in. (51 mm) round devices. Max diam of opening is 4-1/2 in. (114 mm) for 4 in. (114 mm) round devices. When thickness of floor or wall assembly is less than 4-1/2 in. (114 mm), F Rating is 2 hr.

See **Concrete Blocks (CAZT)** category in Fire Resistance Directory for names of manufacturers.

- 2. Cables** – Within the loading area of each firestop device module the cables may represent a 0 to 100 percent visual fill. Cable bundle to be rigidly supported on both sides of floor or wall assembly. Any combination of the following types and sizes of cables may be used:

- Max 2/C No. 18 AWG copper conductor thermostat cable with polyvinyl chloride (PVC) insulation and jacket materials.
- Max 4 pair No. 24 AWG copper conductor Cat5e or Cat 6 telephone cable with PVC insulation and jacket materials.
- Max RG/U (or smaller) coaxial cable with foam high density polyethylene insulation and PVC jacket materials.
- Max 3/C (with ground) No. 14 AWG (or smaller) nonmetallic sheathed (Romex) cable with PVC insulation and jacket materials.
- Max 1/C No. 8 AWG copper conductor cable with PVC insulation and nylon jacket materials.
- Max 12 core No. 26 AWG shielded multi coax cable with foam high density polyethylene insulation and PVC jacket.
- Max 48MM62.5 micron fiber optic cables with having a min FT-6 rating.
- Max 62.5/125 micron fiber optic cables with having a min Riser rating.
- Max 1/C 3/0 AWG copper conductor cable with PVC insulation and jacket materials.
- Max three copper conductors (with ground) No. 12 AWG Metal Clad Cable+.
- Max four copper conductors No. 2 AWG Metal Clad Cable+.

AFC CABLE SYSTEMS INC

- Max 1/C 2/0 AWG non halogen copper conductor cable.
- Max 300 pair No. 24 AWG copper conductor telephone cable with PVC insulation and jacket materials.
- Max 30 pair No. 22 copper conductor shielded switchboard cable with PVC insulation and jacket materials.
- Max RG/6 (or smaller) coaxial cable with fluorinated ethylene (FE) or PVC insulation and jacket materials.
- Max RG/U (or smaller) coaxial cable with fluorinated ethylene (FE) or PVC insulation and jacket materials.
- Max 7/C No. 12 AWG copper conductors with PVC insulation and jacket materials.
- Max 4 pair No. 23 AWG copper conductor Cat 6 telephone cable with PVC insulation and jacket materials.
- Max three copper conductors (with ground) No. 12 AWG steel Armored Cable+.
- Max 04-02 2 5M fiber optic cables having a max diameter of 0.450 in. (11.4 mm).
- Max 1/C No. 750 kcmil copper conductors with PVC insulation and fabric jacket materials.
- Max 3/C with ground No. 4/0 AWG copper or aluminum conductor SER cable with cross linked polyethylene (XLPE) or PVC insulation and jacket.

When min floor or wall thickness is 4-1/2 in. (114 mm) and when cable fill is comprised of Item 2B, T Rating is 1 Hr. Otherwise, T Rating is 0 Hr.

System No. C-AJ-3250 *continued*

3. Firestop System – The firestop system shall consist of the following:

- A. **Firestop Device*** – A max of three square firestop devices may be ganged together. As an alternate, one round device may be centered within a round opening. Each device consists of a nom 4 by 4 by 10 in. (102 by 102 by 254 mm) or 4 in. (102 mm) diam by 10 in. (254 mm) powder coated steel transit incorporating internal intumescent material, foam plugs and mounting flanges. Firestop device to be centered within opening and installed with ends projecting an equal distance beyond each surface of the floor or wall assembly in accordance with the accompanying installation instructions. The annular space between the firestop device(s) and the periphery of the opening shall be nom 1/8 in. (3 mm). Firestop devices secured in place by means of fill material (Item 4B) and steel split mounting flanges sized to accommodate the firestop device. Steel split mounting flanges installed on both sides of floor or wall after installation of fill material and secured to together with supplied steel set screws. Nom 1 in. (25 mm) thick pre-cut foam plugs sized to accommodate the cable bundle and installed flush with each end of device on both sides of floor or wall assembly. When installed in a wall assembly the foam plug in one or both ends of the device is optional except when L Rating is required (See Item 3B). When foam plugs are omitted in wall assembly, T Rating is 0 hr.

3M COMPANY – 3M Fire Barrier Pass-Through Device

- B. **Fill, Void or Cavity Materials* – Caulk or Putty** – Min 1 in. (25 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall prior to the installation of the mounting flanges. When the annular space is 1/8 in. (3.2 mm) or less, the fill material in the annulus is optional. Also, as an option, the foam plugs may be recessed into device and the recess filled with putty or caulk flush with the ends of the device. When annulus around firestop device module(s) is filled with caulk or putty and when both ends of each firestop device module are filled with a nominal 1/8 in. (3.2 mm) depth of caulk or putty the following L Ratings apply:

Max Percent Cable Fill In Device	L Rating At Ambient, CFM/sq ft (CFM/Firestop Device Module)	L Rating At 400F, CFM/sq ft (CFM/Firestop Device Module)
0	4 (Less Than 1)	Less Than 1 (Less Than 1)
50	7 (1)	Less Than 1 (Less Than 1)

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3M COMPANY – Moldable Putty+, CP 25WB+, IC 15WB+, 3000 WT

*Bearing the UL Classification Mark

+ Bearing the UL Listing Mark

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System No. F-A-1041

January 09, 2007

F Rating – 2 Hr

T Rating – 0 and 1-1/4 Hr (See Item 3)

L Rating at Ambient – Less Than 1 CFM/sq ft (See Item 6)

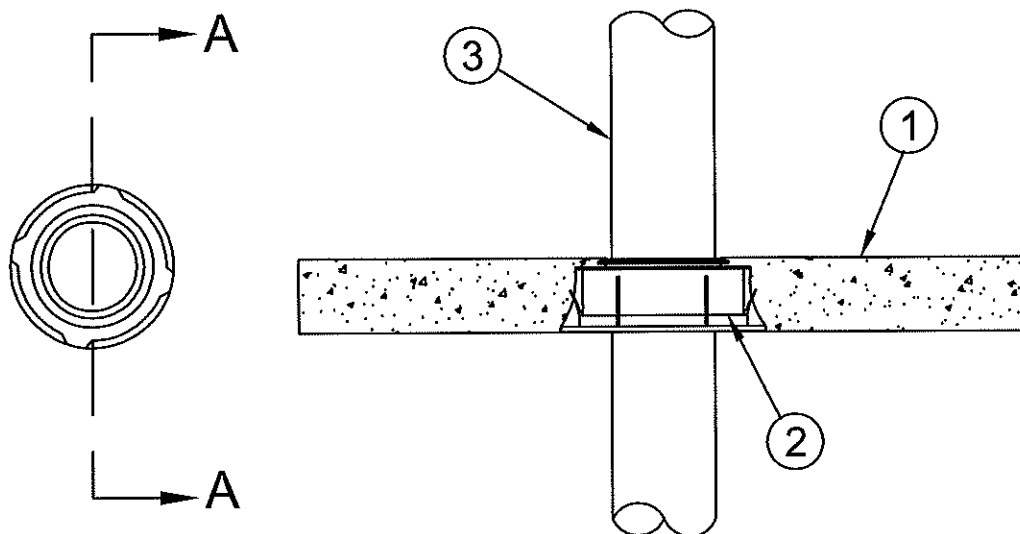
L Rating at 400° F – Less Than 1 CFM/sq ft (See Item 6)

W Rating – Class 1 (See Item 6)

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SECTION A-A

1. **Floor Assembly** – Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete.
2. **Firestop Device*** – Cast in place firestop device permanently embedded during concrete placement or grouted in concrete assembly in accordance with accompanying installation instructions. The device may project up to a max of 5-1/2 in. (140 mm) above top surface of floor for nom 2 in. (51 mm) diam (and smaller) penetrants.

3M COMPANY – 3M Fire Barrier Cast-In Device 2MCID, 3MCID, 4MCID.

3. **Through Penetrants** – One metallic pipe, tubing or conduit installed within the firestop system. Pipe or conduit to be rigidly supported on both sides of floor assembly. The nom pipe or conduit size shall match the nom size of the firestop device with the exception that both nom 1-1/2 and 2 in. (38 and 51 mm) pipes or conduits are suitable for use with the nom 2 in. (51 mm) device. The following types of metallic pipes or conduits may be used:

- A. **Steel Pipe** – Schedule 5 (or heavier) steel pipe.
- B. **Iron Pipe** – Cast or ductile iron pipe.
- C. **Conduit** – Steel conduit or steel electrical metallic tubing.
- D. **Copper Tubing** – Type L (or heavier) copper tubing.
- E. **Copper Pipe** – Regular (or heavier) copper pipe.

The hourly T Rating is 1-1/4 Hr for nom 1-1/2 in. (38 mm) diam steel and iron pipes and conduit when the firestop device extends a min of 2 in. (51 mm) above top surface of floor. The T Rating is 0 hr for all other penetrants.

4. **Packing Material** – (Not Shown) – Min 1/2 in. (13 mm) thick of min 4 pcf (64 kg/m³) mineral wool batt insulation shall be tightly packed within the firestop device around the penetrant, flush with the top surface of floor for all nom 3 in. and 4 in. (76 and 102 mm) penetrants. Packing material is optional with all nom 1-1/2 in. and 2 in. (38 and 51 mm) diam penetrants and may be flush with top surface of floor or top of device.
5. **Fill, Void or Cavity Materials – Putty** – (Not Shown) – As an alternate to the packing material (Item 4), a min 1/2 in. (13 mm) thickness of putty may be installed within the firestop device around the penetrant, flush with the top surface of floor for all nom 3 in. and 4 in. (76 and 102 mm) diam penetrants.

3M COMPANY – MP+ Stix putty

6. **Fill, Void or Cavity Materials – Sealant** – (Optional, Not Shown) – For W Rating, a min 1/4 in. (6 mm) bead of sealant is required at the device/concrete interface on the top surface of the floor. When nom 1-1/2 in. (38 mm) diam pipe is installed in nom 2 in. (51 mm) diam device, a min 1/2 in. (13 mm) depth of sealant is required in the annular space between the pipe and the inside of the device to attain the W and L Ratings.

3M COMPANY – FB-1000 NS Sealant, FB-1003 SL Sealant or FB-3000 WT Sealant

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Through Penetrations

Metallic Pipes

1000 Series

Concrete

FA

System No. C-AJ-3021

March 28, 2012

ANSI/UL1479 (ASTM E814)

F Rating – 2 Hr

T Rating – 0 Hr

CAN/ULC S115

F Rating – 2 Hr

FT Rating – 0 Hr

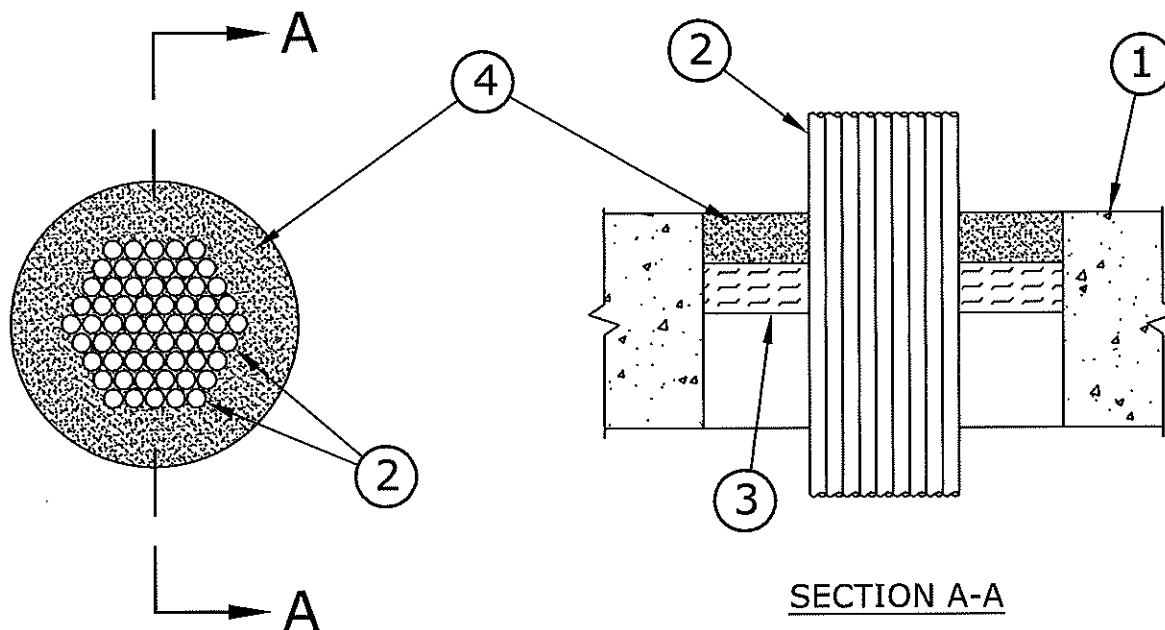
FH Rating – 2 Hr

FTH Rating – 0 Hr

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1. **Floor or Wall Assembly** – Min 4-1/2 in. (114 mm) thick lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 6-1/4 in. (159 mm).
See **Concrete Blocks*** (CAZT) category in the Fire Resistance Directory for names of manufacturers.
- 1A. **Steel Sleeve** – (Optional, Not Shown) – Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe sleeve cast into floor or wall assembly. Sleeve to be flush with floor or wall surfaces.
2. **Cables** – Min 12 percent to max 40 percent fill area per max 4 in. (102 mm) diam steel sleeved through opening. Min 20 percent to max 40 percent fill area per max 6-1/4 in. (159 mm) diam non-sleeved through opening. Cables to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of cables may be used:
 - A. Max 7/C No. 12 AWG multiple copper conductor power and control cables with polyvinyl chloride (PVC) insulation and jacket materials.
 - B. Multiple fiber optical communication cables jacketed with PVC and having a max outside diam of 3/4 in.
 - C. Max 200 pair No. 24 AWG copper conductor telephone cables with PVC insulation and jacket materials.
 - D. Max 350 kcmil power cables with PVC insulation and jacket material.
3. **Packing Material** – Nom 1 in. (25 mm) thickness of ceramic (aluminum silica) fiber blanket or mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed min 1 in. (25 mm) from top surface of floor or sleeve or from both surfaces of wall.
- 3A. **Forming Material*** – As an alternate to the packing material in Item 3, nom 4 in. (102 mm) wide strips of min 1/2 in (13 mm) thick compressible mat to be stacked to a thickness greater than the width of the annular space and compression-fitted, edge-first, to fill the annular space to a min 4 in. (102 mm) depth. As an option, the strips of min 1/2 in. (13mm) thick compressible mat may be folded in half, lengthwise, and stacked to a thickness greater than the width of the annular space and compression-fitted, edge-first, to fill the annular space to a min 2 in. (51 mm) depth. Top of forming material to be recessed from top surface of floor or from both surfaces of wall as necessary to accommodate the required thickness of caulk fill material.
- 3M COMPANY**
3M FIRE PROTECTION PRODUCTS – Fire Barrier Packing Material
4. **Fill, Void, or Cavity Materials*** – **Putty** – Moldable putty material kneaded by hand and applied to fill annular space (and interstices between cables to max extent possible) to a min depth of 1 in. (25 mm), flush with top surface of floor or sleeve In wall assemblies, required putty depth to be installed symmetrically on both sides of wall.
- 3M COMPANY**
3M FIRE PROTECTION PRODUCTS – Type MPS-2+

*Bearing the UL Classification Mark

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System No. C-AJ-8001

May 19, 2005

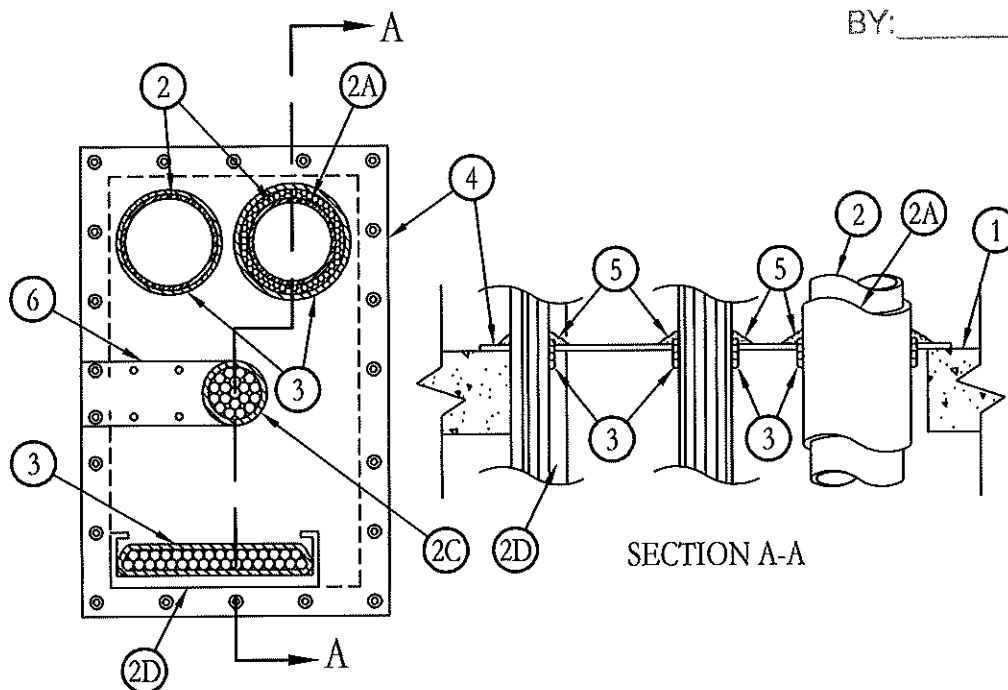
F Ratings – 1, 2 and 3 Hr
(See Items 1, 2A, 2B and 2C)

T Rating – 0 Hr

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BY: _____



1. **Floor or Wall Assembly** – Lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Min thickness of concrete floor or wall is 2-1/2 in. (64 mm) for 1 hr F Rating and 4-1/2 in. (114 mm) for 2 or 3 hr F Rating. Wall may also be constructed of any UL Classified Concrete Blocks*. Max area of opening 36 sq ft (3.4 m²) with one dimension of opening being 36 in. (914 mm) or less.
See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. **Pipe or Conduit** – Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe, nom 6 in. (152 mm) diam (or smaller) steel conduit, nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe, steel EMT or nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing. Min clearance between pipes 1 in. (25 mm). Min clearance between pipe and wall of through opening 1/4 in. (6 mm). When single nom 4 in. (102 mm) diam (or smaller) pipe, conduit or EMT is installed in nom 7 in. (178 mm) diam (or smaller) circular through opening, min clearance between pipe, conduit or EMT and wall of through opening is 0 in. (0 mm) (point contact). Pipes and conduits rigidly supported on both sides of floor or wall assembly.
- 2A. **Pipe Covering (Optional)** – Nom 1 in. to 2 in. (25 mm to 51 mm) thick hollow cylindrical heavy density (min 3.5 pcf or 56 kg/m³) glass fiber units jacketed on the outside with an all service jacket may be used on nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe or on nom 6 in. (152 mm) diam (or smaller) copper tubing. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt strip tape supplied with the product. When pipe covering material is used, max F Rating is 2 hr.
See Pipe and Equipment Covering – Materials* (BRGU) category in Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
- 2B. **Pipe Insulation (Optional, Not Shown)** – As an alternate to Item 2A, nom 1 in. (25 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing with skin may be used on nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe or on nom 4 in. (102 mm) diam (or smaller) copper tubing. When pipe insulation material is used, max F Rating is 2 hr.
See Plastics (QMFZ2) category in the Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL94 Flammability classification of 94-5VA may be used.
- 2C. **Cables** – Nom 4 in. (102 mm) diam (or smaller) tight bundle of cable. When cable bundle is installed in through opening containing pipes or conduits, a min separation of 12 in. (305 mm) shall be maintained between cable bundle and pipe/conduit. Cable bundle rigidly supported on both sides of floor or wall assembly. The following types and sizes of cables may be used:
 - A. Max 150 pair No. 24 AWG telephone cable; polyvinyl chloride (PVC) insulation and jacket materials. When telephone cable is used, F Rating is 2 hr.
 - B. Max No. 2/0 AWG multi conductor power/control cable; cross-linked polyethylene (XLPE) insulation, PVC jacket. When power/control cable is used, F Rating is 3 hr.
 - C. Max 350 kcmil single-conductor power cable; XLPE insulation. When power cable is used, F Rating is 3 hr.
 - D. Multiple fiber optical communication cable jacketed with polyvinyl chloride and having a max outside diam of 5/8 in. (16 mm).
 - E. Max 22 AWG coaxial data cable with polyethylene insulation and polyvinyl chloride jacket.

Through Penetrations

Combos

8000 Series

Concrete

CAJ

System No. C-AJ-8001 *continued*

2D. Cable Tray – Max 36 in. (914 mm) wide by max 6 in. (152 mm) deep steel or aluminum open ladder cable tray. Cable tray to consist of channel-shaped side-rails with boxed channel rungs spaced 9 in. (229 mm) OC. Cable tray side-rails to be formed of min 0.0956 in. (2.42 mm) thick (16 ga) galv steel or min 0.125 in. (3.2 mm) thick aluminum. Cable tray rungs to be formed of min 0.029 in. (0.72 mm) thick (22 ga) galv steel or min 0.080 in. (2 mm) thick aluminum. When more than one cable tray is installed in opening, min distance between cable trays is 24 in. (610 mm). Min annular space between cable tray and edge of opening is 0 in. (0 mm) (point contact). When annular space between cable tray and edge of opening exceeds 3 in. (76 mm), a support channel (Item 7) shall be installed between the cable tray and the edge of the opening to support the edge of the intumescent sheet (Item 4) parallel with the width dimension of the cable tray. Aggregate cross-sectional area of cables in cable tray not to exceed 39 percent of the cross-sectional area of the cable tray based on a max 3 in. (76 mm) loading depth within the cable tray. Any combination of the types and sizes specified in Item 2C may be used. Cable tray(s) rigidly supported on both sides of floor or wall assembly.

3. Fill, Void or Cavity Materials* – Wrap Strip – Nom 1/4 in. (6 mm) thick intumescent elastomeric material faced on one side with aluminum foil, supplied in strips. Min 2 in. (51 mm) wide strip wrapped around pipe/conduit, cable bundle, pipe insulation or cable fill within cable tray (foil side exposed) and secured in place with steel wire or aluminum foil tape. One layer of wrap strip is required when max 1 in. (25 mm) thick pipe covering is used. Two layers of wrap strip are required when nom 2 in. (51 mm) thick pipe covering is used. Wrap strip to extend approx 7/8 in. (22 mm) beyond each face of the intumescent sheet (Item 4). Prior to installation of the wrap strip on cable bundle or cable fill within cable tray, caulk (Item 5) to be forced into cable bundle to fill all interstices between cables throughout 2 in. (51 mm) height of wrap strip layer. When nom 6 in. (152 mm) diam (or smaller) uninsulated pipe, conduit or EMT is installed in through opening, no wrap strip is required on pipe, conduit or EMT for 2 hr F Rating.

3M COMPANY – FS-195+

4. Fill, Void or Cavity Materials* – Intumescent Sheet – Rigid aluminum foil-faced sheet with galv steel sheet backer. Sheet cut to tightly follow the contours of the pipe/cable wrap strip (or individual pipe) and with a min lap of 2 in. (51 mm) on all sides of the through opening. Sheet to be installed with the galv steel sheet backer exposed (aluminum foil facing against floor or wall surface). Sheet secured to top surface of floor and both sides of wall using min 3/16 in. (5 mm) diam by 1-1/4 in. (32 mm) long steel masonry fasteners with min 1-1/4 in. (32 mm) diam steel washers. Max spacing of fasteners not to exceed 6 in. (152 mm) OC. As an alternate when (1) the max pipe or conduit size is nom 4 in. (102 mm) diam, (2) each pipe or conduit is provided with a layer of wrap strip and (3) no bundled cables or insulated pipes are installed in the through opening, the intumescent sheet may be installed on bottom surface of floor or on only one side of wall.

3M COMPANY – CS-195+

5. Fill, Void or Cavity Materials* – Graphite Seal, Caulk, Sealant or Putty – One layer of 1/2 in. x 1/16 in. (13mm by 1.6 mm) adhesive backed graphite intumescent seal positioned under intumescent sheet around entire perimeter of through opening or min 1/4 in. (6 mm) diam continuous bead of caulk or putty applied to edge of intumescent sheet at its interface with surface of floor or wall around entire perimeter of through opening. Generous application of caulk to be applied around the base of the wrap strip (or individual pipe) at its egress from the intumescent sheet(s) in addition to completely covering the wrap strip up to the interface(s) with the pipe, pipe insulation and/or cable bundle. All interstices between cables to be filled with caulk throughout the 2 in. (51 mm) height of the wrap strip.

3M COMPANY – E-FIS or GS seals, CP 25WB+, IC 15WB+ caulk, FB-3000 WT sealant or MP+ Stix putty.

6. Steel Cover Strip – Min 2 in. (51 mm) wide strip of min 0.015 in. (0.4 mm) thick (30 gauge) galv steel centered over entire length of slit made in intumescent sheet (Item 4) to permit installation about the pipe/cable bundle. Prior to installation of the steel strip, slit in intumescent sheet covered with nom 1/4 in. (6 mm) diam bead of caulk (Item 5). Steel cover strip secured to galv steel backer of intumescent sheet with steel sheet-metal screws or steel rivets spaced max 2 in. (51 mm) OC on each side of slit.

7. Support Channels (Not Shown) – When area of through opening exceeds 1440 sq in. (9290 cm²), an intermediate support channel shall be installed flush with top surface of floor or both surfaces of wall. Support channels to be min 1-5/8 in. by 1-5/8 in. (41 mm by 41 mm) and formed of min 0.093 in. (2.4 mm) thick (No. 12 gauge) painted or galv steel. Ends of steel channel bolted or welded to steel angles anchored to inside walls of through opening. When width of cable tray (Item 2D) exceed 24 in. (610 mm) and/or when more than one cable tray is installed in the opening, additional support channels are to be installed such that intumescent sheet is supported within 3 in. (76 mm) of each side of the cable tray(s). When steel support channels are centered beneath butted seams of intumescent sheets, no steel cover strip (Item 6) is required over butted seam. Intumescent sheet secured to steel support channels with steel sheet metal screws in conjunction with min 1-1/4 in. (32 mm) diam steel fender washers.

When support channel is used beneath butted seam of intumescent sheets, fasteners spaced max 3 in. (76 mm) OC on each side of butted seam. When support channel is located away from intumescent sheet seam, fasteners spaced max 6 in. (152 mm) OC. Prior to installation of the intumescent sheet(s), a nom 1/4 in. (6 mm) diam continuous bead of caulk (Item 5) shall be applied as gasket over the steel support channel.

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System No. W-J-8052

June 26, 2014

ANSI/UL1479 (ASTM E814)

F Rating — 2 Hr

T Rating — 0

CAN/ULC S115

F Rating — 2 Hr

FT Rating — 0

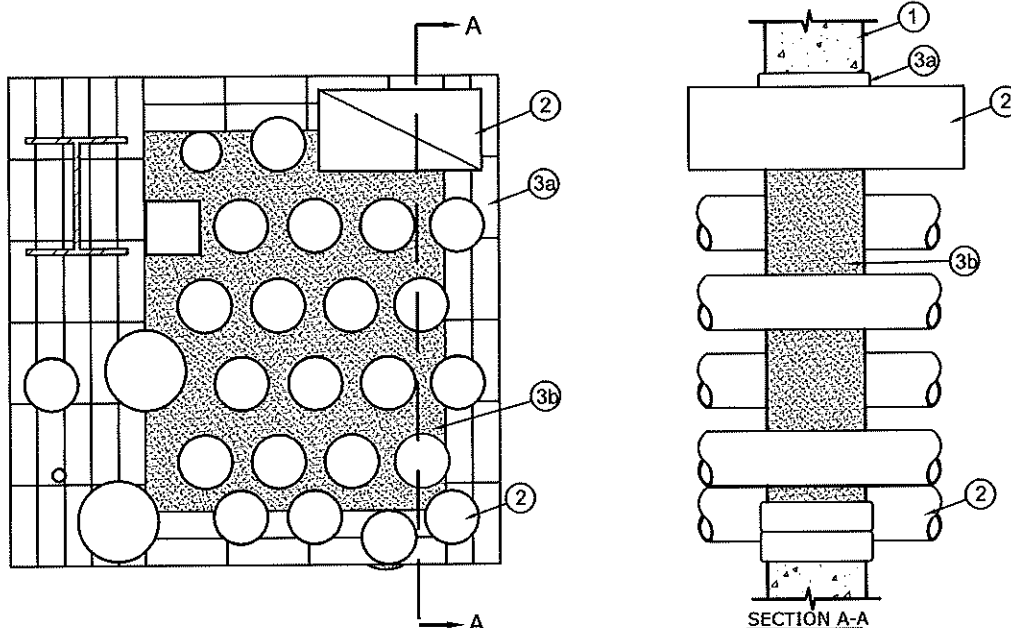
FH Rating — 2 Hr

FTH Rating — 0

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1. **Wall Assembly** — Min 6 in. (152 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max size of opening to be 36 in. (914 mm) high by 36 in. (914 mm) wide. See **Concrete Blocks (CAZT)** category in the Fire Resistance Directory for names of manufacturers.
2. **Through-Penetrant** — One or more pipes, conduit, tubes, ducts, or steel members to be installed within the opening. The total number of through-penetrants is dependent on the size of the opening and the types and sizes of the penetrants. Any combination of the penetrants described below may be used provided that the following parameters relative to the annular spaces and the spacing between the through penetrants are maintained. The separation between the penetrants shall be min 1/2 in. (12 mm) to max 3 in. (76 mm). The annular space between penetrants and the periphery of opening shall be min 1/2 in. (12 mm) to max 6 in. (152 mm). Pipes, conduit tubes, ducts, or steel members to be rigidly supported on both sides of wall assembly. The following types and sizes of pipes, conduit tubes, ducts, or steel members may be used.
 - A. **Conduit** — Max 20, nom 4 in. (102 mm) diam (or smaller) electrical metallic tubing (EMT) or ridged steel conduit.
 - B. **Pipe** — Max 1, nom 6 in. (152 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
 - C. **Duct** — Max 1, nom 6 in. by 12 in. (or smaller) No 26 gauge (or heavier) steel duct.
 - D. **Duct** — Max 1, nom 4 in. diam (or smaller) No. No 28 gauge (or heavier) steel duct.
 - E. **Pipe** — Max 1, nom 3 in. (76 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe.
 - F. **Beam** — Max 1, W8 x 15 (or smaller) steel beam.
 - G. **Tube Steel** — Max 1, nom 4 in. square (or smaller) 0.25 in. (or heavier) steel tube.
 - H. **Pipe** — Max 1, nom 6 in. diam (or smaller) type L (or heavier) copper pipe.
 - I. **Conduit** — Max 1, nom 1 in. (102 mm) diam (or smaller) electrical metallic tubing (EMT) or ridged steel conduit.
 - J. **Pipe** — Max 1, nom 4 in. diam (or smaller) Schedule 40 (or heavier) steel pipe.
3. **Firestop System** — The details of the firestop system shall be as follows:
 - A. **Fill, Void or Cavity Materials*** — **Pillows** — Max 9 in. (229 mm) long by 6 in. (152 mm) wide by 2 and 3 in. (51 and 76 mm) thick plastic covered pillows tightly-packed to fill annular space between penetrants and periphery of opening. Pillows installed with 9 in. (229 mm) dimension projecting through wall and centered within the opening.
3M COMPANY 3M FIRE PROTECTION PRODUCTS — Fire Barrier Pillow or Fire Barrier Self-Locking Pillows
 - B. **Fill, Void or Cavity Material*** — **Foam** — Applied around and between all round interior penetrants, and between round penetrants, rectangular penetrants, and pillows where the annular space is 3 in. or less. Foam to be applied the entire depth of, and flush with both surfaces of wall. After installation of pillows (Item 3A) all voids within the opening shall be filled with a min 1 in. (25 mm) thickness foam.
3M COMPANY 3M FIRE PROTECTION PRODUCTS — Fire Barrier Rated Foam, FIP 1-Step

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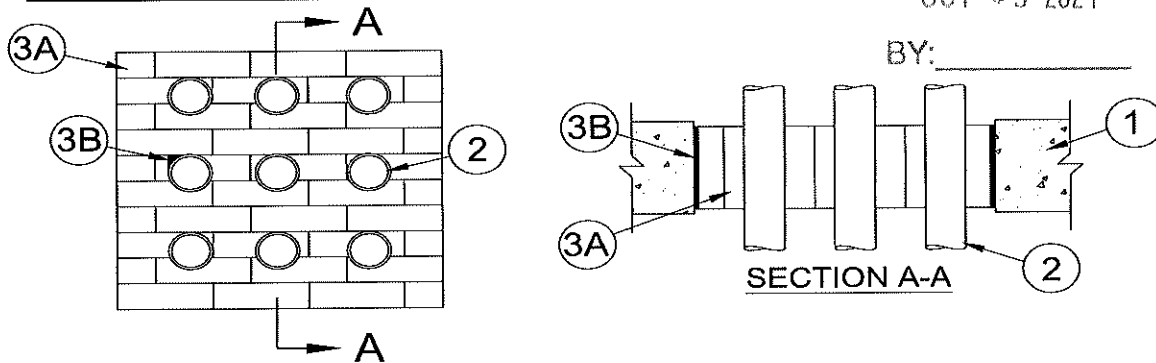
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System No. C-AJ-1672

November 15, 2016

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 2 Hr	F Rating — 2 Hr
T Rating — 0 Hr	FT Rating — 0 Hr
	FF Rating — 2 Hr
	FTT Rating — 0 Hr



- 1. Floor or Wall Assembly** — Min 4-1/2 in. (114 mm) thick reinforced light weight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max size of opening is 900 in.2 (5806 cm²) with a max dimension of 30 in. (762 mm).

See **Concrete Blocks (CAZT)** in the Fire Resistance Directory for names of manufacturers.

- 2. Through Penetrants** — A maximum of nine pipes, conduit or tubing to be installed within the opening. The space between the pipes, conduit or tubing shall be min 3-1/2 in. (13 mm) to max 9-1/2 in. (241 mm). The space between pipes, conduit or tubing and periphery of opening shall be min 2 in. (51 mm) to max 14 in. (356 mm). Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. **Conduit** — Nom 4 in. (102 mm) diam (or smaller) electrical metallic tubing or steel conduit.

B. **Copper Tubing or Pipe** — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing or Regular (or heavier) copper pipe. A maximum of one copper penetrant may be installed within the opening.

C. **Steel Pipe** — Nom 8 in. (203 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe. A maximum of one penetrant exceeding 4 in. (102 mm) diam may be installed within the opening.

D. **Iron Pipe** — Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe.

- 3. Firestop System** — The firestop system shall consist of the following:

A. **Fill, Void or Cavity Material*** — Blocks to be firmly packed to completely fill the opening area between and around the penetrants and to the periphery of opening. Blocks installed with 5 in. (127 mm) dimension projecting through opening, flush with bottom surface of floor or centered in wall. For floors and walls thicker than 5 in. (127 mm), the fire block can be installed flush with either side of floor or wall. In concrete block walls, fire block to fill entire thickness of wall opening unless concrete block is solid filled. Blocks can be cut to fit around penetrants and within smaller annular spaces.

3M COMPANY 3M FIRE PROTECTION PRODUCTS — 3M™ Fire Barrier Block B258, 3M™ Fire Barrier Plank PK39

B. **Fill, Void or Cavity Material*** — **Sealant or Caulk** — Sealant to be forced between blocks and periphery of opening to the max extent possible. Sealant to be forced in-between blocks and all penetrants to the full depth of the blocks, as well as in any visible voids/openings between blocks.

3M COMPANY 3M FIRE PROTECTION PRODUCTS — CP 25WB+ Caulk or FB-3000 WT Sealant

* Indicates such products shall bear the UL or eUL Certification Mark for jurisdictions employing the UL or eUL Certification (such as Canada), respectively.



Through Penetrations

Metallic Pipes

1000 Series

Concrete

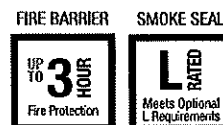
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3M™ Fire Barrier Sealant IC 15WB+

Product Data Sheet



SOUND BARRIER



FILL, VOID, OR CAVITY
FOR USE IN JOINT SYSTEMS,
THROUGH-PENETRATION FIRESTOP SYSTEMS
AND PERIMETER CONTAINMENT SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY
90G9



LISTED
FILL, VOID OR CAVITY
MATERIALS
90G9

LISTED



Intertek
FIRESTOP SYSTEMS
SEE INTERTEK DIRECTORY

1. Product Description

3M™ Fire Barrier Sealant IC 15WB+ is an economical, one-part, gun-grade, latex-based, intumescent firestop sealant that dries to form a monolithic firestop seal that also acts as a barrier to airborne sound transmission. 3M™ Fire Barrier Sealant IC 15WB+ firestops through penetrations passing through fire-rated floor, floor/ceiling or wall assemblies, as well as other fire-rated interior building partitions and assemblies (e.g. static construction joints or blank openings). In addition, the unique intumescent property of this material allows 3M™ Fire Barrier Sealant IC 15WB+ to expand and help maintain a firestop penetration seal for up to 3 hours as penetrants are exposed to fire. 3M™ Fire Barrier Sealant IC 15WB+ bonds to most construction substrates, including: gypsum wallboard, concrete, metals, wood, plastic (including CPVC) and cable jacketing. No mixing is required.



Economical firestop sealant
available in tube, pail or sausage.

Product Color: ■ Yellow.

Product Features

- Firestop tested up to 3 hours in accordance with ASTM E 814 (UL 1479), ASTM E 1966 (UL 2079) & CAN/ULC-S115
- CPVC compatible
- Expanded fire protection systems
- Helps minimize sound transfer*
- Sag-resistant
- Halogen-free
- Excellent adhesion
- Re-enterable/repairable
- Excellent caulk rate
- Paintable
- Water clean up

Meets the intent of LEED® VOC regulations—helps reduce the quantity of indoor air contaminants that may be odorous, irritating and harmful to the comfort and well-being of the installers and occupants. <250 g/L VOC contents (less H₂O and exempt solvents).

**Minimizes noise transfer—STC-Rating of 54 when tested in STC 54-rated wall assembly.*

2. Applications

3M™ Fire Barrier Sealant IC 15WB+ is a general-purpose intumescent firestop ideal for sealing single or multiple through penetrations in fire-rated construction. 3M™ Fire Barrier Sealant IC 15WB+ 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: metallic pipe, plastic pipe, conduit, power and communication cable, cable trays, busways, combos, insulated pipe and HVAC duct penetrations. 3M™ Fire Barrier Sealant IC 15WB+ is also used to firestop blank openings and static construction joints.

3. Specifications

3M™ Fire Barrier Sealant IC 15WB+ shall be a one component, ready-to-use, gun-grade, latex-based, intumescent firestop sealant capable of expanding a minimum of 3 times at 1000°F. The material shall be thixotropic and be applicable to overhead, vertical and horizontal firestops. The sealant shall be listed by independent test agencies such as UL, ULC, Intertek or FM. 3M™ Fire Barrier Sealant IC 15WB+ 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 CAN/ULC-S115 Standard Method of Fire Tests of Firestop Systems. 3M™ Fire Barrier Sealant IC 15WB+ meets the requirements of the IBC, IRC, NBCC, IFC, IPC, IMC, NFPA 5000, NEC (NFPA 70) and NFPA 101.

Typically Specified MasterFormat (2004)

Section 07 84 00 – Firestopping

Related Sections

Section 07 27 00 – Air Barriers

Section 07 84 16 – Annular Space Protection

Section 07 84 43 – Fire-Resistant Joint Sealants

Section 07 86 00 – Smoke Seals

Section 07 87 00 – Smoke Containment Barriers

Section 07 92 13 – Elastomeric Joint Sealants

Section 07 92 19 – Acoustical Joint Sealants

Section 21 00 00 – Fire Suppression

Section 22 00 00 – Plumbing

Section 23 00 00 – Heating, Ventilating, and Air Conditioning (HVAC)

Section 26 00 00 – Electrical

3M

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

4. Performance & Typical Physical Properties

Color:	Yellow	Hardness (ASTM D 2240 Shore A):	70
Application Temperature Range: (ASTM C 1299)	40° to 122°F (4° to 50°C)	Tensile Strength:	85 psi (0.59 MPa)
Service Temperature Range:	-20° to 180°F (-28° to 82°C)	Volume Shrinkage (ASTM C 1241):	28%
STC Acoustic Barrier: (ASTM E 90 and ASTM E 413)	54 when tested in STC 54 rated wall assembly	VOC Less H ₂ O and Exempt Solvents:	<250 g/L
Surface Burning (ASTM E 84):	Flame Spread 5, Smoke Development 50	Dry:	Under typical conditions of 75°F (23°C) and 50% R.H., sealant becomes tack-free in about ten minutes and dry-to-touch in 30 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 (298.7 ml, 18.2 in.³), 20 fl. oz. sausage (591.5 ml, 36.1 in.³), 27 fl. oz tube (798.5 ml, 48.7 in.³), 4.5 gal. pail (17.03 L, 1039.5 in.³)

5. Packaging, Storage, Shelf Life

Packaging	Product packaged in cartridge or pail is enclosed in HDPE plastic containers, sausage is packaged in aluminum foil wrap.
Storage	3M™ Fire Barrier Sealant IC 15WB+ 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 freeze / thaw exposures of the 3M™ Fire Barrier Sealant IC 15WB+ prior to installation.
Shelf Life	3M™ Fire Barrier Sealant IC 15WB+ shelf life is 12 months in original unopened containers from date of packaging when stored above 68°F (2°C).
Lot numbering (e.g. 8183AS): First digit = Last digit of year manufactured, Second to fourth digit = Julian Date, Letters = Random to distinguish between lot numbers	

6. Installation Techniques

Consult a 3M Authorized Fire Protection Products Distributor / Dealer or Sales Representative for Applicable UL, cUL, ULC, 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 the 3M™ Fire Barrier Sealant IC 15WB+. 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, cUL, ULC, Intertek, FM or other third-party listed system. Cut the end of the 3M™ Fire Barrier Sealant IC 15WB+ tube spout to achieve the desired bead width when applying. Install the applicable depth of 3M™ Fire Barrier Sealant IC 15WB+ 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 rating that is required. Tool within 5 minutes. Clean all tools immediately after use with water.
Limitations	Do not apply 3M™ Fire Barrier Sealant IC 15WB+ when surrounding temperature is than less 40°F (4°C) and in conditions where seals may be exposed to rain or water spray within 18 hours of application. Do not apply 3M™ Fire Barrier Sealant IC 15WB+ 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 IC 15WB+ to wet or frost-coated surfaces or to areas that are continuously damp or immersed in water.

7. Maintenance

No maintenance is expected to be required when installed in accordance with the applicable UL, cUL, ULC, Intertek, FM or other third-party listed system. Once installed, if any section of the 3M™ Fire Barrier Sealant IC 15WB+ is damaged, the following procedure will apply: remove and reinstall 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 IC 15WB+ is available from 3M Authorized Fire Protection Products Distributors and Dealers. 3M™ Fire Barrier Sealant IC 15WB+ is available in 10.1 fl. oz. cartridges (12/case), 20.0 fl. oz. sausages (10/case), 27.0 fl. oz. cartridges (6/case), and 4.5 gallon pails (1/case). For additional technical and purchasing information regarding this and other 3M Fire Protection Products, please call: 1-800-328-1687 or visit www.3m.com/firestop.

9. Safe Handling Information

Consult country-of-use Material Safety Data Sheet (MSDS) prior to handling and disposal.

Important Notice to User:

Technical Information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

Warranty and Limited Remedy: 3M warrants that each 3M Fire Protection Product will be free from defects in material and manufacture for 90 days from the date of purchase from 3M's authorized distributor. 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 this warranty, the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted.



Building and Commercial Services Division

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St. Paul, MN 55144-1000 USA
1-800-328-1687
www.3m.com/firestop

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3M™ Fire Barrier Sealant CP 25WB+

Product Data Sheet

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BY: _____

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 fire-stop 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 gasses before, during and after exposure to a fire when installed in accordance with a listed through penetration or fire-resistive joint assembly system.

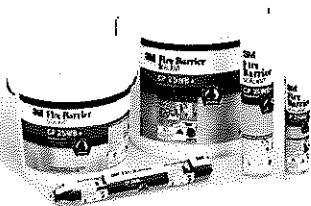
3M™ Fire Barrier Sealant CP 25WB+ firestops blank openings and penetrations passing through fire-rated floor, floor/ceiling or wall assemblies and other fire-rated interior building construction. The unique intumescent property of this material allows 3M™ Fire Barrier Sealant CP 25WB+ to expand and help 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) & CAN/ULC S115
- Fire Resistance tested for static construction joint systems in accordance with ASTM E 1966 (UL 2079)
- Re-enterable / repairable
- Meets UL 1479 aging requirements
- Helps minimize sound transfer*
- Applied with conventional caulking equipment (excellent caulk rate)
- Extensive listed systems
- Sag-resistant
- Halogen-free
- Excellent adhesion
- Paintable
- Water clean up

Meets the intent of LEED® VOC regulations—helps reduce the quantity of indoor air contaminants that may be odorous, irritating and harmful to the comfort and well-being of the installers and occupants. <250 g/L VOC contents (less H₂O and exempt solvents).

**Minimizes noise transfer—STC-Rating of 54 when tested in STC 54-rated wall assembly.*



High-performance firestop sealant that also helps minimize sound transfer

Product Color: ■ Red

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: metallic 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 static 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 thixotropic and shall be applicable to overhead, vertical and horizontal firestops. The sealant shall be listed by independent test agencies such as UL, Intertek or FM. 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 CAN/ULC S115 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, NEC (NFPA 70) and NFPA 101.

Typically Specified Division

Division 7

Section 07 84 00 – Firestopping

Related Sections

Section 07 84 16 – Annular Space Protection

Section 07 84 43 – Fire-Resistant Joint Sealants

Section 07 86 00 – Smoke Seals

Section 07 87 00 – Smoke Containment Barriers

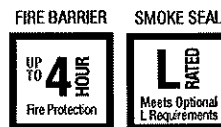
Section 07 27 00 – Air Barriers

Section 21 00 00 – Fire Suppression

Section 22 00 00 – Plumbing

Section 23 00 00 – Heating, Ventilation and Air-Conditioning (HVAC)

Section 26 00 00 – Electrical



SOUND BARRIER



FILL, VOID OR CAVITY MATERIAL
FOR USE IN THROUGH-PENETRATION
FIRESTOP SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY
9069



LISTED
FILL, VOID OR CAVITY
MATERIALS
9069



SUBJECT TO THE CONDITIONS OF APPROVAL
AS A WALL & FLOOR PENETRATION
FIRESTOP WHEN INSTALLED AS DESCRIBED
IN THE CURRENT EDITION OF THE FMRC
APPROVAL GUIDE

LISTED



Intertek
FIRESTOP SYSTEMS
SEE INTERTEK DIRECTORY

LISTED



Intertek
FIRESTOP SYSTEMS
SEE INTERTEK DIRECTORY

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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

4. Physical Properties

Color: Red
Application Temperature Range: 40° to 122°F (4° to 50°C)
(ASTM C 1299)
Service Temperature Range: -20° to 180°F (-28° to 82°C)
STC (ASTM E 90 and ASTM E 413): 54 when tested in STC 54-rated wall assembly
Surface Burning (ASTM E 84): Flame Spread 0
Smoke Development 0

Hardness (ASTM D 2240 Shore A):

Tensile Strength:

Volume Shrinkage (ASTM C 1241):

VOC Less H₂O and Exempt Solvents:

Dry: Under typical conditions of 75°F (23°C) and 50% R.H., sealant becomes tack-free in about ten minutes and dry-to-touch in 30 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.

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85 psi (0.59 MPa)
BY: 28%
<1 g/L

Unit Volume: 10.1 fl. oz tube (298.7 mL, 18.2 in.³), 20 fl. oz. sausage (591.5 mL, 36.1 in.³), 27 fl. oz tube (798.5 mL, 48.7 in.³), 2 gal. pail (7.57 L, 462 in.³), 5 gal. pail (18.9 L, 1155 in.³)

5. Packaging, Storage, Shelf Life

Packaging Product packaged in cartridge or pail is enclosed in HDPE plastic containers, sausage 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 freeze / 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 from date of packaging when stored above 68°F (2°C).
Lot numbering (e.g. 8183AS): First digit = Last digit of year manufactured, Second to fourth digit = Julian Date, Letters = Random to distinguish 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 the 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 spout to achieve the desired bead 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 rating 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 seals 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 reinstall 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 (12/case), 20.0 fl. oz. sausages (10/case), 27.0 fl. oz. cartridges (6/case), 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: 1-800-328-1687 or visit www.3m.com/firestop.

9. Safe Handling Information

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

Important Notice to User:

Technical Information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

Warranty and Limited Remedy: 3M warrants that each 3M Fire Protection Product will be free from defects in material and manufacture for 90 days from the date of purchase from 3M's authorized distributor. 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 this warranty, the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted.

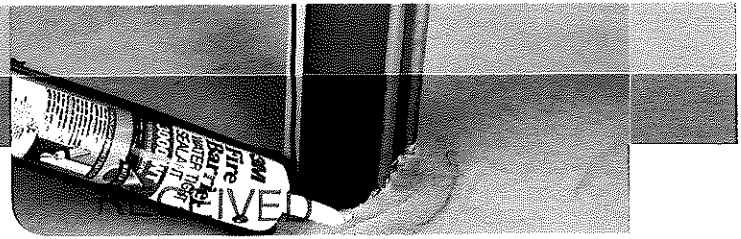
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Building and Commercial Services Division

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BY: _____

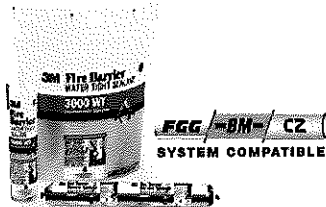
3M™ Fire Barrier Water Tight Sealant 3000 WT

Product Data Sheet



1. Product Description 3M™ Fire Barrier Water Tight Sealant 3000 WT is a high-performance, ready-to-use, single component, neutral cure, non-slumping intumescent silicone sealant. Product cures upon exposure to atmospheric humidity to form a flexible firestop seal that also acts as a barrier to water leakage and airborne sound transmission. 3M™ Fire Barrier Water Tight Sealant 3000 WT helps control the spread of fire, smoke and noxious gasses before, during and after exposure to a fire when installed in accordance with a listed through penetration or fire-resistive joint assembly. 3M™ Fire Barrier Water Tight Sealant 3000 WT meets UL Water Leakage Test, W Rating – Class 1 requirements for systems tested and listed in accordance with ANSI/UL 1479 and is tested in accordance with ASTM G 21 standard practice for determining resistance of synthetic polymeric materials to fungi.

3M™ Fire Barrier Water Tight Sealant 3000 WT firestops penetrations passing through fire-rated floor, floor/ceiling or wall assemblies, static construction joints, blank openings and other fire-rated interior building construction. The intumescent property of 3M™ Fire Barrier Water Tight Sealant 3000 WT allows it to expand and help maintain a firestop penetration seal for up to 4 hours as penetrants are exposed to fire.



High-performance silicone sealant provides a barrier against fire, water and sound

Product Color: ■ Light Gray with Black Flecks

Product Features

- Firestop tested up to 4 hours in accordance with ASTM E 814 (UL 1479) & CAN/ULC S115
- Fire Resistance tested for static construction joint systems in accordance with ASTM E 1966 (UL 2079)
- Meets UL Water Leakage Test, W Rating – Class 1 requirements
- Meets optional L-Rating Requirements (smoke seal)
- Minimizes noise transfer—STC-rating of 53 when tested in STC 54-rated wall assembly
- Sag-resistant, re-enterable and repairable
- Halogen-free
- Excellent adhesion, weatherability and caulk rate
- Meets UL 1479 aging requirements

Meets the intent of LEED® VOC environmental quality requirements—helps reduce the quantity of indoor air contaminants that may be odorous, irritating and harmful to the comfort and well-being of the installers and occupants. <250 g/L VOC contents (less H₂O and exempt solvents).

2. Applications

3M™ Fire Barrier Water Tight Sealant 3000 WT is a high-performance intumescent firestop ideal for sealing single or multiple through penetrations in fire-rated construction. 3M™ Fire Barrier Water Tight Sealant 3000 WT 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: metallic pipe, non-metallic pipe (e.g. plastic), conduit, power and communication cable, cable trays, busways, combos, insulated pipe and HVAC duct penetrations. This product is also used to firestop blank openings and bottom-of-wall static construction joints.

3. Specifications

3M™ Fire Barrier Water Tight Sealant 3000 WT shall be a high-performance, ready-to-use, single component, neutral cure, non-slumping, intumescent silicone sealant capable of expanding a minimum of 6 times its cured volume when exposed to temperatures above 662°F (350°C). The sealant shall be listed by independent test agencies such as UL, Intertek or FM. 3M™ Fire Barrier Water Tight Sealant 3000 WT 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 CAN/ULC S115 Standard Method of Fire Tests of Firestop Systems. 3M™ Fire Barrier Water Tight Sealant 3000 WT meets the requirements of the IBC, IRC, IFC, IPC, IMC, NFPA 5000, NEC (NFPA 70) and NFPA 101.

Typically Specified MasterFormat (2004)

Section 07 84 00 – Firestopping

Related Sections

Section 07 27 00 – Air Barriers
 Section 07 84 16 – Annular Space Protection
 Section 07 84 43 – Fire-Resistant Joint Sealants
 Section 07 86 00 – Smoke Seals
 Section 07 87 00 – Smoke Containment Barriers
 Section 07 92 19 – Acoustical Joint Sealants
 Section 21 00 00 – Fire Suppression
 Section 22 00 00 – Plumbing
 Section 23 00 00 – Heating, Ventilating, and Air Conditioning (HVAC)
 Section 26 00 00 – Electrical

3M

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

4. Performance & Typical Physical Properties

Color: Light Gray with Black Flecks
Application Temperature Range: -20°F to 122°F (-29°C to 50°C)
(ASTM C 1299)
Service Temperature Range: -14°F to 230°F (-10°C to 110°C)
STC (ASTM E 90 and ASTM E 413): 53 when tested in STC 54 rated wall assembly
Fungi Testing: Meets ASTM G 21 requirements
Surface Burning (ASTM E 84 Mod): Flame Spread 0
Smoke Development 0

Working Time: 20-40 minutes
Expansion Volume: >6 times at 662°F (350°C)
Specific Gravity: 1.25
VOC Less H₂O and Exempt Solvents: <31 g/L

Cure: Full cure depends upon ambient conditions and volume of sealant. Cure rate is approximately 1/8 inch (3 mm) per day under typical conditions of 75°F (23°C) and 50% R.H.

Unit Volume: 10.1 fl. oz tube (298.7 cc, 18.2 in.³), 20 fl. oz. sausage (591.5 cc, 36.1 in.³), 4.5 gal. pail (.017 m³, 1039.5 in.³)

Meets the intent of LEED® VOC environmental quality requirements.

5. Packaging, Storage, Shelf Life

Packaging Volume: 10.1 fl. oz. cartridge (tube), 20 fl. oz. sausage & 4.5 gallon pail.
Storage 3M™ Fire Barrier Water Tight Sealant 3000 WT should be stored indoors in dry conditions between 40°F and 90°F (4°C and 32°C). Avoid repeated freeze / thaw exposures of the 3M™ Fire Barrier Water Tight Sealant 3000 WT while still in the packaging.
Shelf Life 3M™ Fire Barrier Water Tight Sealant 3000 WT shelf life is 12 months in original unopened containers from date of packaging when stored above 68°F (2°C).

Lot numbering: First to sixth digit = Date of Production (MMDDYY), Seventh indicator = dash symbol (-), Eighth digit = shift number

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 clean and free of dirt and debris to allow for the proper adhesion of 3M™ Fire Barrier Water Tight Sealant 3000 WT. Do not use alcohol to clean surfaces in penetration or joint opening, instead use a commercial solvent such as mineral spirits, xylene, toluene or methyl ethyl ketone (MEK). 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 or other third-party listed system. Cut the end of the 3M™ Fire Barrier Water Tight Sealant 3000 WT tube spout to achieve the desired bead width. After cutting tip, puncture inner foil seal. Install the applicable depth of 3M™ Fire Barrier Water Tight Sealant 3000 WT into the opening flush with the surface of the substrate, or as detailed within the applicable listed system, at the required depth for the assembly and rating that is required. Tool within 5 minutes, if required. Clean all tools immediately after use with a commercial solvent such as mineral spirits, xylene, toluene or methyl ethyl ketone (MEK).

Limitations Do not apply 3M™ Fire Barrier Sealant 3M™ Fire Barrier Water Tight Sealant 3000 WT when surfaces are wet (note: once applied, sealant may be exposed to intermittent water – exhibits excellent weatherability when fully cured) or frost-coated, where seals may be exposed to rain or in unvented spaces where sealant is not exposed to atmospheric moisture. In confined cure conditions there may be discoloration of brass, copper or other sensitive metals. Do not apply 3M™ Fire Barrier Water Tight Sealant 3000 WT to polycarbonates or to building materials that bleed oil, plasticizers or solvent (e.g. impregnated wood, oil-based sealants, or green or partially vulcanized rubber).

7. Maintenance

No maintenance is expected to be required when installed in accordance with the applicable UL, Intertek or other third-party listed system. Once installed, if any section of the 3M™ Fire Barrier Water Tight Sealant 3000 WT is damaged, the following procedure will apply: the damaged section should be removed and reinstalled in accordance with the applicable listed system, with a minimum 1/2 in. (26 mm) overlap onto the adjacent material.

8. Availability

3M™ Fire Barrier Water Tight Sealant 3000 WT is available from 3M Authorized Fire Protection Products Distributors and Dealers. 3M™ Fire Barrier Water Tight Sealant 3000 WT is available in 10.1 fl. oz. cartridges (12/case), 20.0 oz. sausages (12/case) and 4.5 gallon pails (1/case). For additional technical and purchasing information regarding this and other 3M Fire Protection Products, please call: 1-800-328-1687 or visit www.3m.com/firestop.

9. Safe Handling Information

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



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St. Paul, MN 55144-1000 USA
1-800-328-1687
www.3m.com/firestop

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Fire Barrier Pass-Through Device

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FIRESTOP DEVICE
FOR USE IN THROUGH-PENETRATION FIRESTOP SYSTEMS
SEE UL DIRECTORY OF PRODUCTS CERTIFIED FOR CANADA
AND UL FIRE RESISTANCE DIRECTORY
24KP

Product Data

Product Description

The 3M® Fire Barrier Pass-Through Device is a one-piece hinged metal enclosure designed to prevent the passage of fire and smoke. The metal device has a fixed firestopping intumescent material which works in conjunction with foam smoke seals and an optional mounting bracket. It has been contractor-designed to allow for use in either retrofit or new construction applications where an "install and be done" technology is needed. It is designed to provide years of dependable through-penetration firestopping with no reapplication of additional product to maintain its rating. The 3M Fire Barrier Pass-Through Device achieved up to 3 hour fire ratings (dependent upon system application) when tested by Underwriter Laboratories Inc. in accordance with ASTM E814 (UL1479).

3M Fire Barrier Pass-Through Device Product Features

- One-piece, hinged metal enclosure makes installations fast and easy
- Blank to multiple penetrants tested
- Red color – easy to identify as a fire rated device during inspection
- Stackable for multiple penetrations
- Warning labels part of device
- Convenient pictorial installation instructions
- UL classified – meets all code requirements
- 3M Logos on both sides of the penetration for easy identification

1. Applications

- Cables – 750 kcmil, 24 volt, optical, Cat 6, fiber optic, 300 pair telephone, thermostat
- Pipes – copper, steel, iron, flexible gas
- Blanks – for future use
- Insulated – AB/PVC, line sets
- Plastic pipes – ccPVC, PVC, ENT, CPVC, FRPP, PVDF, ccABS, ABS, rigid non-metallic, PEX
- Combinations – metallic, non-metallic and insulated pipes plus cables

2. Physical Properties

Color	Red	Red	Red	Red
Nominal Size	2.5" x 2.5" x 10" square	4" x 4" x 10" square	4" x 10" round	2" x 10" round
Units per carton	6	6	6	6

Size	Part No.	Fire (F) Rating
2.5" x 2.5" Square x 10" Long (63.5 x 63.5 mm x 254 mm)	98-0400-5513-3	Up to 3 hour
4" x 4" Square x 10" Long (101.6 x 101.6 mm x 254 mm)	98-0400-5514-1	Up to 3 hour
2" Round x 10" Long (50.8 mm x 254 mm)	98-0400-5539-8	Up to 3 hour
4" Round x 10" Long (101.6 mm x 254 mm)	98-0400-5515-8	Up to 3 hour
2.5" Square single mounting bracket	98-0400-5516-6	NA
2.5" Square triplex mounting bracket	98-0400-5517-4	NA
2.5" Square sixplex mounting bracket	98-0400-5544-8	NA
4" Square single mounting bracket	98-0400-5518-2	NA
4" Square triplex mounting bracket	98-0400-5519-0	NA
4" Square sixplex mounting bracket	98-0400-5543-0	NA
2" Round single mounting bracket	98-0400-5540-6	NA
4" Round single mounting bracket	98-0400-5520-8	NA
2" Round stud bracket	98-0400-5541-4	NA
4" Round stud bracket	98-0400-5542-2	NA
2.5" Square stud bracket	98-0400-5545-5	NA
4" Square stud bracket	98-0400-5546-3	NA

2 1/2" Square • 4" Square • 2" Round • 4" Round



Fire Barrier Pass-Through Device

3. Specifications

Product

Installations shall be in strict accordance with manufacturer's written instructions, as shown on approved shop drawings. The device shall also be classified by Underwriter's Laboratory Inc. as a through-penetration firestop device when tested in accordance with ASTM E 814 (UL 1479) for up to 3 hour rating.

All penetrations must be firestopped with a UL Classified system or device as listed in current UL Fire Resistance Directory or have approved shop drawing prior to installation. Suitability for the intended service application should be determined prior to installation.

4. Performance

A. Testing Procedures

- Tested per ASTM E 814 (UL 1479)
- UL classified 1, 2 and 3 hour fire (F) and temperature (T) rating. See UL Directory under through-penetration firestop devices.
- UL classified L rating, Hot and Cold Smoke Seal. See UL Directory under through-penetration firestop devices.
- ULC

5. Installation Techniques

- Prepare the opening by cutting correct size hole
- Slide the device either over existing penetrants or into the opening
- Remove the foam visual/smoke seals and place in a safe location
- Secure with optional 3M™ Fire Barrier Pass-Through Mounting Brackets, 3M™ Fire Barrier Pass-Through Stud Brackets and/or 3M™ Fire Barrier Sealant to the assembly
- Install penetrants
- Re-install the foam visual/smoke seals flush with device ends

6. Re-installing Penetrations

- Remove the foam visual/smoke seals and place in a safe location
- Install new penetration
- Re-install the foam visual/smoke seals flush with device ends

7. Maintenance

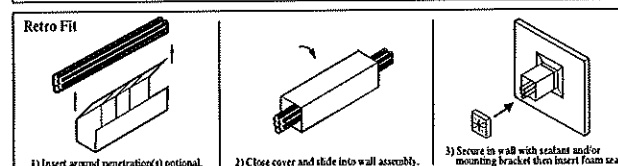
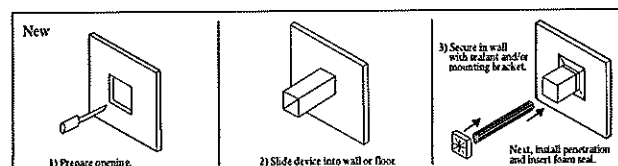
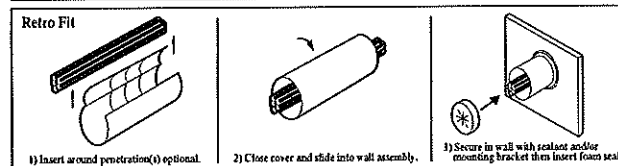
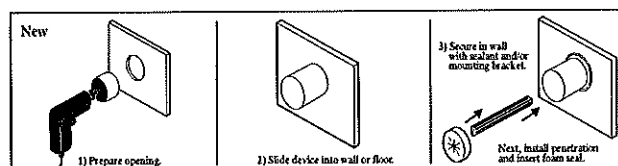
The 3M Fire Barrier Pass-Through Device requires no maintenance over a normal life cycle.

8. Availability

3M Fire Barrier Pass-Through Devices are available from Authorized 3M Fire Protection Products Distributors.

Call 1-800-328-1687 opt. 1

Fire Barrier Pass-Through Device



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98-0213-4337-5

3M™ Fire Barrier Pillow

Installation Guide

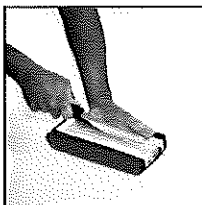


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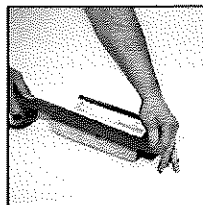
General

1. Consult the individual UL system for required location of 3M™ Fire Barrier Moldable Putty+ within the opening.
2. Install 3M™ Fire Barrier Pillows with the 9 in. (228.6 mm) dimension projecting through the floor or wall and centered within the opening; make sure that the large surface (label side) is placed against the framed opening. The 3M logo should face the installer.
3. A small puncture of the 3M™ Fire Barrier Pillows encapsulation is allowable—this will allow air to more readily escape from the pillow when it is compressed.
4. Pillows are to be compressed a minimum of 33% within the opening. A single size of pillow or combination of small, medium and large pillows may be used to complete the correct firestop through-penetration installation. Pillows can be re-sized in the field by cutting lengthwise and re-taping.
5. Repeat the procedure until the penetration is completely full and the correct compression has been achieved.
6. Check for any openings between pillows, framing and penetrating items. Fill any visible openings with the required depth of 3M™ Fire Barrier Moldable Putty+. Consult individual UL systems for 3M™ Fire Barrier Moldable Putty+ depth requirements.
7. To remove the 3M™ Fire Barrier Pillows from the opening, first remove the putty. Gently pull pillow(s) out and place on a clean surface. After penetrants are routed through, or removed from, the opening, replace the pillow(s) making sure that the pillows are recompressed and that the ends of the pillows are aligned.
8. Repeat 3M™ Fire Barrier Moldable Putty+ installation in voids.

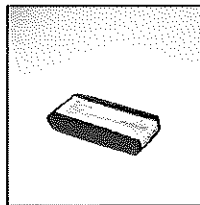
Field Cutting Procedure



Cut length-wise using knife (preferably serrated)



Reseal using removed outer cover and/or 2-in. (50.8mm) wide carton sealing/package tape.



Resealed 3M™ Fire Barrier Pillow ready for installation.

3M

Calculating 3M™ Fire Barrier Pillow Quantity Requirements

Measure the opening, in inches, and multiply the length by the width to get the total area. Then deduct the area of the penetrating item (e.g. rack & cables) to determine the total open area (annular space). This is the amount of area to be firestopped. Multiply the open area by a factor of 1.5 to determine the required area of uncompressed pillows. This helps ensure that once installed, the 3M™ Fire Barrier Pillows are compressed a minimum of 33% within the opening.

Estimate Table (Cross-sectional area of 3M™ Fire Barrier Pillows)

Fire Barrier Pillow	Small	Medium	Large
Dimensions, in. (cm)	2 x 4 (5.1 x 10.2)	2 x 6 (5.1 x 15.2)	3 x 6 (7.6 x 15.2)
Nominal Uncompressed Area, in. ² (cm ²)	8 (51.6)	12 (77.4)	18 (116)
Area when compressed 33%, in. ² (cm ²)	5.3 (34.2)	8 (51.6)	12 (77.4)

Calculating 3M™ Fire Barrier Pillow Quantity Requirements

Example 1: Gypsum wall opening measuring 12 in. x 24 in. (30.5 cm x 61 cm) with a cable rack & cables occupying 40% of the opening.

12 in. x 24 in. Opening = 288 in.² (1858 cm²)

Rack & Cable fill (40% of total opening area) = 115.2 in.² (743 cm²)

Total open to be firestopped = 288 - 115.2 = 172.8 in.² (1115 cm²)

Multiply free area by a factor of 1.5 to find the required area of uncompressed pillows: 172.8 in.² x 1.5 = 260 in.² (1673 cm²)

Therefore, 260 in.² (1673 cm²) of uncompressed pillows are required to achieve 33% compression in this opening.

If all small pillows: 260 in.² / 8 in.² per pillow = 33 pillows (rounded up from 32.5)

If all medium pillows: 260 in.² / 12 in.² per pillow = 22 pillows (rounded up from 21.6)

If all large pillows: 260 in.² / 18 in.² per pillow = 15 pillows (rounded up from 14.4)

Example 2: Minimum quantity of 3M™ Fire Barrier Pillows required to firestop a blank opening using one size of pillow to achieve minimum 33% compression.

Pillows per Opening Size (in.)					Pillows per Opening Size (cm)				
Pillow size (in.)	14 x 14	12 x 24	18 x 33	24 x 36	Pillow size (cm)	35.6 x 35.6	30.5 x 61.0	45.7 x 83.8	61.0 x 91.4
Small (2 x 4)	37	54	112	162	Small (5.1 x 10.2)	37	54	112	162
Medium (2 x 6)	25	36	75	108	Medium (5.1 x 15.2)	25	36	75	108
Large (3 x 6)	17	24	50	72	Large (7.6 x 15.2)	17	24	50	72

Any combination of small, medium, or large pillows can be used to firestop an opening provided the minimum compression requirements are met.

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3M™ Fire Barrier Moldable Putty Pads MPP+ Product Data Sheet

1. Product Description

3M™ Fire Barrier Moldable Putty Pads MPP+ are a one-part, ready-to-use, intumescent wall-opening protective. When properly applied to the back of electrical outlet boxes, 3M™ Fire Barrier Moldable Putty Pads MPP+ help control the spread of fire, smoke and noxious gases through fire-restive walls and partitions. Installed in accordance with the UL wall-opening protective listing (UL Category CLIV), the product helps achieve up to 2-hour ratings in a variety of wall constructions. 3M™ Fire Barrier Moldable Putty Pads MPP+ can effectively provide protection for back-to-back electrical boxes.

3M™ Fire Barrier Moldable Putty Pads MPP+ are also used as a firestop material in through-penetration firestop systems. 3M™ Fire Barrier Moldable Putty Pads MPP+ help to maintain a firestop penetration seal for up to 4 hours. 3M™ Fire Barrier Moldable Putty Pads MPP+ exhibit excellent adhesion to a full range of construction substrates and penetrants. The pads are easily molded by hand (no mixing required). In addition to its fire-resistant properties, the 1/10th in. (2.54 mm) thick pads have airborne sound reduction characteristics which helps minimize sound transmission through assemblies requiring an STC rating.

Color: ■ Dark Red

Product Features

- Firestop tested up to 4 hours in accordance with ASTM E 814 (UL 1479) & CAN/ULC S115
- Wall opening protective tested up to 2 hours in accordance with UL 263
- Provides draft and cold smoke seal
- Pliable and conformable—molds easily into required shape
- Helps reduce noise transfer*
- Excellent adhesion
- Re-enterable/repairable
- Halogen-free and solvent-free
- Excellent aging properties
- Low VOC
- Will not dry out or crumble
- Red color widely recognized as a fire protective product

Meets the intent of LEED® VOC regulations—helps reduce the quantity of indoor air contaminants that may be odorous, irritating and harmful to the comfort and well-being of the installers and occupants.

**Minimizes noise transfer—STC-Rating of 52 when tested in STC 53-rated wall assembly.*

2. Applications

4 in. x 8 in. (101.6 mm x 203 mm) 3M™ Fire Barrier Moldable Putty Pads MPP+ are typically used as a wall opening protective to meet building requirements, for protection of membrane penetrations made by listed steel or non-metallic electrical boxes. It is also used to seal gaps between cables in multiple penetrations (including fiber optic inner duct) and to firestop cable bundles, insulated pipe, electrical conduit and metal pipe. Larger sized pads, 7 in. x 7 in. and 9.5 in. x 9.5 in. (177.8 mm x 177.8 mm and 241.2 mm x 241.2 mm) are widely used to firestop metallic and non-metallic electrical outlet boxes up to 14 in. x 4.5 in. by 2-1/2 in. (355.6 mm x 114.3 mm x 63.5 mm) deep. For larger applications, pads can be molded together by hand.

3. Specifications

3M™ Fire Barrier Moldable Putty Pads MPP+ shall be a one component, ready-to-use, intumescent elastomer capable of expanding a minimum of 3 times at 1000°F. The material shall be thixotropic and shall be applicable to overhead, vertical and horizontal firestops. Under normal conditions, 3M™ Fire Barrier Moldable Putty Pads MPP+ shall be noncorrosive to metal and compatible with synthetic cable jackets. The putty shall be listed by independent test agencies such as UL, Intertek or FM. 3M™ Fire Barrier Moldable Putty Pads MPP+ shall be tested to and pass the criteria of ASTM E 814 (UL 1479) Standard Test Method for Fire Tests of Penetration Firestop Systems and CAN/ULC S115 Standard Method of Fire Tests of Firestop Systems. 3M™ Fire Barrier Moldable Putty Pads MPP+ meets the requirements of the IBC, NFPA 5000, NEC (NFPA 70), NFPA 101 and NCB (Canada) Building Codes.

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

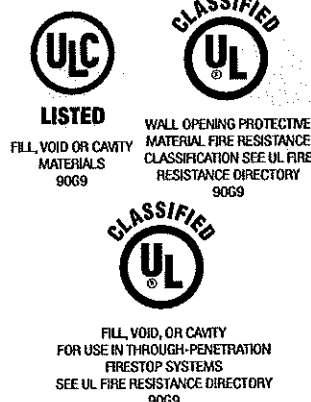


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SUBJECT TO THE CONDITIONS OF APPROVAL
AS A WALL & FLOOR PENETRATION
FIRESTOP WHEN INSTALLED AS DESCRIBED
IN THE CURRENT EDITION OF THE FMRC
APPROVAL GUIDE



Typically Specified MasterFormat (2004)

Section 07 84 00 – Firestopping

Related Sections

Section 07 84 16 – Annular Space Protection

Section 07 86 00 – Smoke Seals

Section 07 87 00 – Smoke Containment Barriers

Section 07 27 00 – Thermal and Moisture Protection Firestopping

Section 21 00 00 – Fire Suppression

Section 26 00 00 – Electrical

3M

4. Performance & Typical Physical Properties

Color:	Dark Red	STC (ASTM E 90, ASTM E 413):	52 when tested on back-to-back electrical boxes
Nominal Density:	10-12 lbs./gal. (1.2-1.45 kg/l)	Tested in STC 53 rated wall assembly	
Nominal Thickness:	1/10 in. (2.54 mm)	VOC Less H ₂ O and Exempt Solvents:	<250 g/L
Surface Burning (ASTM E 84):	Flame Spread 0, Smoke Development 0		
Heat Expansion:	Begins @ 350°F (177°C), Significant @ 400°F (204°C) Free Expansion is Nominal 3 times		
Dimensions:	4 in. x 8 in. x 1/10 in. (101.6 mm x 203.2 mm x 2.5 mm)	7 in. x 7 in. 1/10 in. (177.8 mm x 177.8 mm x 2.5 mm)	9.5 in. x 9.5 in. 1/10 in. (241.3 mm x 241.3 mm x 2.5 mm)
Unit Volume:	2.52 in. ³ (41.4 cm ³)	4.63 in. ³ (76.0 cm ³)	6.1 in. ³ (139.8 cm ³)
Unit weight:	2.7 oz (76 g)	4.1 oz (76 g)	7.6 oz (215 g)

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5. Packaging, Storage, Shelf Life

Packaging	Corrugated cardboard box with liner between individual pads.
Storage	3M™ Fire Barrier Moldable Putty Pads MPP+ should be stored indoors in dry conditions.
Shelf Life	3M™ Fire Barrier Moldable Putty Pads MPP+ shelf life is indefinite in original unopened containers. Product will not dry or crumble in opened containers. Normal stock and stock rotation practices are recommended.

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 electrical box, or opening and any penetrating items should be cleaned (i.e. free of dust, grease, oil, loose materials, rust or other substances) to allow for the proper adhesion of the 3M™ Fire Barrier Moldable Putty+ Pad. Ensure that the surface of the substrates are not wet and are frost-free.
Installation Details	Electrical boxes must be firestopped under the following conditions: boxes larger than 16 sq. in. (103 sq. cm), if horizontal spacing between boxes is less than 24 in. (609.6 mm), when multiple boxes are located in one stud cavity or if the aggregate area of all boxes exceeds 100 sq. in. per 100 sq. ft. (645 sq. cm. per 9.29 sq. m) - refer to listed system details and applicable local building code requirements. For electrical box installations, a minimum of 1/10 in. (2.5 mm) thick putty application is required, 3M™ Fire Barrier Moldable Putty Pads MPP+ are to be installed to completely cover the exterior of the outlet box (except for the side against the stud). To firestop penetrations, install the applicable depth of backing material (if required), remove the desired amount of putty from the pad, form (if necessary) and install as detailed within the listed system. Make sure that putty is in complete contact with the substrate and penetrating item(s). Note: Partial pads can be pieced together and the seams between partial pads should overlap a minimum of 1/8 in. with the seams worked with the fingertips to create adhesion at the seam.
Limitations	Over application (i.e. using excessive amount of material) of product to vertical surfaces may cause sagging, follow system details. Product is not impaired by freezing but should be warmed to 32°F (0°C) before applying.

7. Maintenance

No maintenance is expected 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 Moldable Putty Pad MPP+ is damaged, the following procedure will apply: remove damaged putty, clean the affected area and install the proper thickness of putty, ensuring it bonds to the substrate and adjacent putty (product from damaged area can be reused if it is free from contaminants). Putty can be molded together at new/existing putty overlap.

8. Availability

3M™ Fire Barrier Moldable Putty Pads MPP+ are available from 3M Authorized Fire Protection Products Distributors and Dealers. 3M™ Fire Barrier Moldable Putty Pads MPP+ are available in the following sizes: (10 pads/pack, 10 packs/case) 4 in. x 8 in. x 1/10 in. (101.6 mm x 203.2 mm x 2.5 mm), (20 pads/case) 7 in. x 7 in. 1/10 in. (177.8 mm x 177.8 mm x 2.5 mm), (20 pads/case) 9.5 in. x 9.5 in. 1/10 in. (241.3 mm x 241.3 mm x 2.5 mm); red-colored firestop material. For additional technical and purchasing information regarding this and other 3M Fire Protection Products, please call: 1-800-328-1687 or visit www.3m.com/firestop.

9. Safe Handling Information

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



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3M™ Fire Barrier Moldable Putty Stix MP+

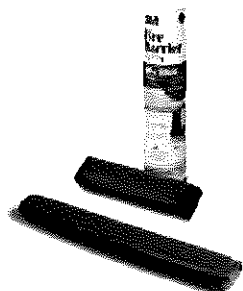
Product Data Sheet

1. Product Description

3M™ Fire Barrier Moldable Putty Stix MP+ is a one-part, ready-to-use intumescent firestop containing a synthetic elastomer. The intumescent property of this material allows 3M™ Fire Barrier Moldable Putty Stix MP+ to expand and help maintain a firestop penetration seal for up to 4 hours in the event of a fire. It is often used to fill voids in large openings and/or complex firestop systems due to its moldability, re-enterability and smoke-seal properties (provides a draft and cold smoke seal for systems with L-Ratings).

3M™ Fire Barrier Moldable Putty Stix MP+ firestops penetrations passing through fire-rated floor, floor/ceiling or wall assemblies and blank openings. In addition to excellent thermal- and fire-resistance properties, 3M™ Fire Barrier Moldable Putty Stix MP+ helps minimize sound transmission through assemblies requiring an STC rating. 3M™ Fire Barrier Moldable Putty Stix MP+ is easily moldable by hand and exhibits excellent adhesion to a full range of construction substrates and penetrants.

3M™ Fire Barrier Moldable Putty Stix MP+ available in: ■ Dark Red.



Moldable through penetration firestop with excellent smoke-seal capability.

Product Features

- Firestop tested up to 4 hours in accordance with ASTM E 814 (UL 1479) & CAN/ULC S115
- Provides draft and cold smoke seal (L-rating)
- Pliable and conformable—molds easily into required shape
- Helps reduce noise transfer*
- Will not dry out or crumble
- Excellent adhesion
- Re-enterable/repairable
- Low VOC**
- Halogen-free and solvent-free formula
- Excellent aging properties
- Red color recognized as a firestop

*Minimizes noise transfer—STC-Rating of 54 when tested in STC 54-rated wall assembly.

**Complies with the intent of LEED® NC-EQ Credit 4.1 for Low-Emitting Materials: Adhesives and Sealants, contains <250 g/L VOC contents (less H₂O and exempt solvents per SCAQMD Rule 1168).

2. Applications

Typically used to seal gaps between cables in multiple penetrations and to firestop cable bundles, insulated pipe, electrical conduit, metal pipe and other through penetrations. Cable types covered include telephone, power/control and fiber optic inner duct. Also available in pad form as 3M™ Fire Barrier Moldable Putty Pads MPP+, which are ideal for protecting electrical box outlets. For more information visit our product catalog at www.3m.com/firestop.

3. Specifications

3M™ Fire Barrier Moldable Putty Stix MP+ shall be a one component, ready-to-use, intumescent elastomer capable of expanding a minimum of 3 times at 1000°F. The material shall be thixotropic and shall be applicable to overhead, vertical and horizontal firestops. Under normal conditions, 3M™ Fire Barrier Moldable Putty Stix MP+ shall be noncorrosive to metal and compatible with synthetic cable jackets. The putty shall be listed by independent test agencies such as UL, ULC, Intertek or FM. 3M™ Fire Barrier Moldable Putty Stix MP+ shall be tested to and pass the criteria of ASTM E 814 (UL 1479) Standard Test Method for Fire Tests of Penetration Firestop Systems and CAN/ULC S115 Standard Method of Fire Tests of Firestop Systems. 3M™ Fire Barrier Moldable Putty Stix MP+ meets the requirements of the IBC, NFPA 5000, NEC (NFPA 70), NFPA 101 and NCB (Canada) Building Codes.

Typically Specified MasterFormat (2004)

Section 07 84 00 – Firestopping

Related Sections

Section 07 84 16 – Annular Space Protection

Section 07 86 00 – Smoke Seals

Section 07 87 00 – Smoke Containment Barriers

Section 07 27 00 – Thermal and Moisture Protection Firestopping

Section 21 00 00 – Fire Suppression

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FIRESTOP SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY
90G9



LISTED
FILL, VOID OR CAVITY
MATERIALS
90G9



LISTED
FIRESTOP SYSTEMS
SEE INTERTEK DIRECTORY



SUBJECT TO THE CONDITIONS OF APPROVAL
AS A WALL & FLOOR PENETRATION
FIRESTOP WHEN INSTALLED AS DESCRIBED
IN THE CURRENT EDITION OF THE FMRC
APPROVAL GUIDE



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

4. Performance & Typical Physical Properties

Color: Dark Red **STC (ASTM E 90, ASTM E 413):** 52 when tested in STC 53 rated wall assembly
Nominal Density: 10-12 lbs./gal. (1.2-1.45 kg/l)
Nominal Thickness: 1/10 in. (2.54 mm) **VOC Less H₂O and Exempt Solvents:** <250 g/L
Surface Burning (ASTM E 84): Flame Spread 0, Smoke Development 0
Heat Expansion: Begins @ 350°F (177°C), Significant @ 400°F (204°C)
Free Expansion is Nominal 3 times

Large Stix Dimensions: 1.6 in. dia x 11 in. (40.6 mm dia. x 279 mm) **Unit Volume:** 22.03 cu. in. (361.2 cu. cm.)
Retail Stix 1.45 in. x 6 in. (36.8 mm x 152.4 mm) 4.63 cu. in. (76.0 cu. cm.)

Unit weight: 4.1 oz (116.2 g)
2.7 oz (76.5 g)

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5. Packaging, Storage, Shelf Life

Packaging 1.6 in. x 11 in. (40.6 mm x 279 mm) stix in cardboard box, individually wrapped in liner (10 stix/case), and 1.45 in. x 6 in. (36.8 mm x 152.4 mm) individually packed in recloseable cardboard tube (retail package, 1 stix/tube).

Storage 3M™ Fire Barrier Moldable Putty Stix MP+ should be stored indoors in dry conditions.

Shelf Life 3M™ Fire Barrier Moldable Putty Stix MP+ shelf life is indefinite in original unopened containers. Product will not dry or crumble in opened containers. Normal stock and stock rotation practices are recommended.

6. Installation Techniques

Consult a 3M Authorized Fire Protection Products Distributor / Dealer or Sales

Representative for Applicable UL, cUL, ULC, Intertek or other third-party drawings and system details.

Preparatory Work The surface of the opening and any penetrating items should be cleaned (i.e. free of dust, grease, oil, loose materials, rust or other substances) to allow for the proper adhesion of the 3M™ Fire Barrier Moldable Putty Stix MP+. Ensure that the surface of the substrates are not wet and are frost free.

Installation Details Moldable Putty MP+ can be used as a primary firestopping sealant, or as a secondary product in conjunction with other 3M Fire Protection Products such as 3M™ Fire Barrier Pillows, 3M™ Fire Barrier Composite Sheet CS-195+, 3M™ Fire Barrier Pass-Through Devices, or the 3M™ Fire Barrier Putty Sleeve Kit.

An example of how the putty is to be installed when it is the sole product in a metallic pipe penetrations comes from UL System C-AJ-1027 "Moldable putty material kneaded by hand and applied to fill annular space to a min. depth of 1 in. (25.4 mm), flush with top surface of floor. In wall assemblies, required putty thickness to be installed symmetrically on both sides of wall."

When used with 3M™ Fire Barrier Pillows, UL systems typically require the putty to be installed "within annulus at all corners of opening and extending a min 1 in. (24.5 mm) in both directions from each corner, flush with top surface of floor or both surfaces of wall." Any voids between pillows should be filled with a min. 1 in. (24.5 mm) depth of putty.

In the case of cable tray applications, there are additional requirements for the application of putty such as installing the putty between the bottom of the cable tray and bottom of opening. Likewise, putty (or another system-approved sealant) is required between the top of the cable tray and bottom of composite sheet or pillows.

Consult each applicable UL system for specific putty installation requirements.

Limitations Note: over application (i.e. using excessive amount of material) of product to vertical surfaces may cause sagging, follow system details. Product is not impaired by freezing but should be warmed to at least 32°F (0°C) before applying.

7. Maintenance

No maintenance is expected to be required when installed in accordance with the applicable UL, cUL, ULC, Intertek, FM or other third-party listed system. Once installed, if any section of the 3M™ Fire Barrier Moldable Putty MP+ no longer be installed per original system parameters, remove the putty, clean the area, and install the proper thickness per system details ensuring it bonds to the substrate and adjacent putty. If mineral wool was used as backing material, replace with new mineral wool prior to installation of the putty (putty can be reused if it is free from contaminants and can be molded together at new/existing putty overlap).

8. Availability

Description	Color	Size	Unit	Billing UPC Number	Units/Case	Price Unit
Moldable firestop putty stix (retail)		1.45" dia. x 6"	Stix	50051115-16561-5	12	EA
Moldable firestop putty stix (large)		1.6" dia. x 11"	Stix	50051115-16526-4	10	EA

For additional technical and purchasing information regarding this and other 3M Fire Protection Products, please call: 1-800-328-1687 or visit www.3m.com/firestop.
3M™ Fire Barrier Moldable Putty Stix MP+ are available from 3M Authorized Fire Protection Products Distributors and Dealers.

9. Safe Handling Information

Consult country-of-use Material Safety Data Sheet (MSDS) prior to handling and disposal.



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www.3m.com/firestop

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Fire Protection Products

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3M™ Fire Barrier Block B258

3M™ Fire Barrier Plank PK39

3M™ Fire Barrier Plug PLG2 and PLG4

Technical Data

February / 2016

Product Description	3M™ Fire Barrier Block B258, 3M™ Fire Barrier Plank PK39, and 3M™ Fire Barrier Plug PLG2 and PLG4 are smoke, sound, and firestopping pre-formed foam units for medium to large openings in wall and floor through-penetrations. Simple to use. During a fire, product maintains a tight firestop against smoke and flame.
Product Features	• Re-enterable/repairable • Fully reusable • Easy to install — saves time and labor • Paintable with primer • No cure time
Applications	Typical applications include: blank openings, metal pipes, cables, cable trays, insulated pipes, combination penetrations, and open conduits through concrete floor/wall and gypsum wall board assemblies.
Specifications	Fire Barrier Block B258, Fire Barrier Plank PK39, and Fire Barrier Plug PLG2 and PLG4 shall be tested to the criteria of ASTM E 814/UL 1479 Standard Test Method for Fire Tests of Penetration Firestop Systems, ASTM E 84/UL 273 Standard Test Method for Surface Burning Characteristics of Building Materials, ASTM E 90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements, and ASTM E 413 Classification for Rating Sound Insulation. Fire Barrier Block B258 shall meet the requirements of the IBC, IRC, IFC, IPC, IMC, NFPA 5000, NEC (NFPA 70), NFPA 101, and NBCC.

3M Fire Protection Products

3M™ Fire Barrier Block B258

3M™ Fire Barrier Plank PK39

3M™ Fire Barrier Plug PLG2 and PLG4

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Performance and Typical Physical Properties

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

		Test Method
Surface Burning:	Flame Spread 5, Smoke Development 250	ASTM E 84
Air Leakage:	Less than 1 CFM/sq. ft. @ 400°F less than 1 CFM/sq. ft. @ ambient.	UL 1479 Section 6

Product	Size	Color	Mass	Units/Ctn.	Wt./Ctn
3M Fire Barrier Block B258	2-3/8 in. x 5-1/8 in. x 7-7/8 in. (60 mm x 130 mm x 200 mm)	Maroon	575g	12	15.2 lbs. 6,9kg
3M Fire Barrier Plank PK39	2-3/8 in. x 5-1/8 in. x 39-3/8 in. (60 mm x 130 mm x 1000 mm)	Maroon	2875g	3	19.0 lbs. 8,6kg
3M Fire Barrier Plug PLG2	2 in. diam. x 3-1/8 in. high	Maroon	120g	4	1.1 lbs. 0,48kg
3M Fire Barrier Plug PLG4	4 in. diam. x 3-1/8 in. high	Maroon	360g	4	3.2 lbs. 1,4kg

Installation Techniques

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

Blocks and Planks

1. Install Fire Barrier Blocks or Fire Barrier Planks with the 5 in. (130mm) dimension projecting through the floor or wall and centered within the opening; minimum 4-1/2 in. seal thickness is required.
2. Continue to install Blocks/Planks until through opening is completely full, and blocks/planks are firmly packed together. Block/Plank can be re-sized in the field as needed provided the 5 in. (130mm) dimension is maintained through the opening. No compression is necessary.
3. Install Fire Barrier Rated Foam FIP 1-Step between the Blocks/Planks and the periphery of the opening and between Blocks/Planks and penetrants. Foam to be installed full depth of the Blocks/Planks.
4. Check for any openings between Blocks/Planks, framing, and penetrating items. Fill any visible openings with the required depth of Foam. Consult individual UL systems for Foam depth and location requirements.
5. To remove the Blocks/Planks, gently pull them out and place on a clean surface. After penetrants are routed through, or removed from the opening, replace the Blocks/Planks, making sure that they are firmly packed and fully filling the opening. Install Foam in any voids as required.

3M Fire Protection Products

3M™ Fire Barrier Block B258

3M™ Fire Barrier Plank PK39

3M™ Fire Barrier Plug PLG2 and PLG4

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Installation Techniques, cont.

Plugs

1. Install Fire Barrier Plug within the opening flush with top surface of floor or both sides of wall.
2. To fit smaller openings, Plugs may be compressed to size, or a wedge may be cut from Plug to reduce size.
3. Plugs may be cut to fit around cable penetrants
4. Holes may be cut/punched through Plugs to route cables directly through.
5. Fill all voids and interstices of cables with Fire Barrier Rated Foam FIP 1-Step, full depth of the Plug.

Limitations: Additional firestop may be necessary for non-metallic penetrants. Consult individual UL systems for firestop requirements.

Maintenance

Inspection: Installations should be inspected periodically for subsequent damage. Damaged blocks, plugs, or planks shall be replaced.

Retrofit: Penetrants may be added or replaced by simply removing and replacing blocks, planks, or plugs and foam as required.

Storage

The Fire Barrier Block B258, Fire Barrier Plank PK39 and Fire Barrier Plug PLG2 and PLG4 must be stored in a dry warehouse environment.

3M Fire Protection Products

3M™ Fire Barrier Block B258

3M™ Fire Barrier Plank PK39

3M™ Fire Barrier Plug PLG2 and PLG4

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Availability

Available from 3M Authorized Fire Protection Products Distributors and Dealers.
For additional technical and purchasing information, call 1-800-328-1687 or visit
3M.com/firestop.

Safe Handling

Consult Article Data Sheet prior to handling and disposing of 3M™ Fire Barrier Block B258,
3M™ Fire Barrier Plank PK39, or 3M™ Fire Barrier Plug PLG2 & PLG4.

Technical Information

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Industrial Adhesives and Tapes Division
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Fax 877-369-2923
Web 3M.com/firestop

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3M™ Fire Barrier Rated Foam FIP 1-Step

Product Data Sheet

1. Product Description

3M™ Fire Barrier Rated Foam (FIP 1-Step), is a smoke, sound, and firestopping foam for wall and floor penetrations. Premium two-part, easy-to-handle formulation. Expands up to five times during installation and bonds to most construction substrates including, but not limited to, concrete, metal, wood, plastic and cable jacketing. Dries to a flexible solid. During a fire, product maintains a tight firestop against smoke and flame.



ATTENTION: CODE OFFICIALS

FIP 1-Step

- ☒ Is a Rated Firestop Foam
- ☒ Is UL Listed
- ☒ Meets ASTM E 814
- ☒ Meets the International Building Code for passive fire protection

- Re-enterable / repairable
- Sag-resistant formulation
- Excellent adhesion
- Paintable with primer
- Quick cure & eliminates the need for mineral wool and caulk

2. Applications

Typical applications include: blank openings, metal pipe, cables, cable tray, insulated pipe, combination penetrations through concrete floor/wall and gypsum wall board assemblies.

3. Specifications

FIP 1-Step shall be a two-component, ready-to-use, gun-grade, firestopping foam. FIP 1-Step shall be tested to the criteria of ASTM E 814 / UL 1479 Standard Test Method for Fire Tests of Penetration Firestop Systems, ASTM E 84 / UL 723 Standard Test Method for Surface Burning Characteristics of Building Materials, ASTM E 90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements, and ASTM E 413 Classification for Rating Sound Insulation. FIP 1-Step shall meet the requirements of the IBC, IRC, IFC, IPC, IMC, NFPA 5000, NEC (NFPA 70), NFPA 101 and NBCC.

Typically Specified Divisions

Division 7
Section 07 84 00 - Firestopping
Section 07 27 00 - Air Barriers

Related Sections

Section 07 86 00 - Smoke Seals
Section 07 87 00 - Smoke Containment Barriers
Section 21 00 00 - Fire Suppression
Section 22 00 00 - Plumbing
Section 26 00 00 - Electrical

4. Storage & Shelf Life

Storage

FIP 1-Step should be stored indoors in dry conditions between 40°F and 85°F (5°C and 30°C). Avoid freeze / thaw exposures of the FIP 1-Step while still in the packaging. If product freezes, then product must be fully thawed and brought to ideal application temperature prior to use (See Section 5).

Shelf Life

FIP 1-Step shelf life is 12 months in original unopened containers from date of packaging when stored above 68°F (20°C) and below 90°F (32.2°C).

Lot numbering: First to fourth digit = Date of Production (YYMM)

Fifth digit = 4 (Production Code)

Sixth and Seventh digit = (Batch #)

(***Note: Expiration Date marked on cartridge)

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FILL, VOID OR CAVITY MATERIAL
FOR USE IN THROUGH-PENETRATION
FIRESTOP SYSTEMS SEE UL FIRE
RESISTANCE DIRECTORY 6016



FILL, VOID OR CAVITY
MATERIAL

SOUND BARRIER



SMOKE SEAL



FIRE BARRIER



TEMPERATURE



PLEASE SEE APPROPRIATE UL SYSTEM
FOR ASSOCIATED RATING.



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5. Performance & Typical Physical Properties

Colors Available: Maroon

Application Temperature Range: 50° to 120°F (10° to 49°C)

Surface Burning (ASTM E 84): Flame Spread 10
Smoke Development 50

STC Acoustic Barrier: 57 when tested in STC 57 rated wall assembly
(ASTM E 90 and ASTM E 413):

Unit Volume: 12.85 fl. oz. cartridge (380 mL)

VOC Less H₂O and Exempt Solvents: <250 g/L

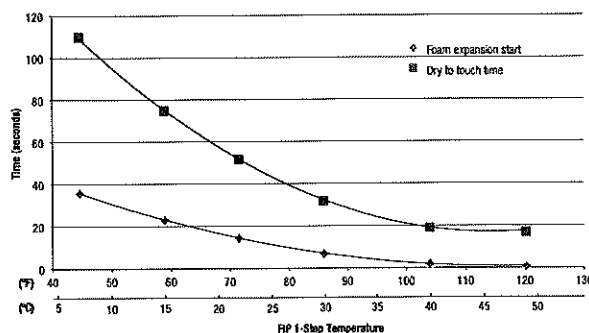
Cure: Foam becomes tack-free in about one minute. Full cure depends upon ambient conditions and volume of foam. Typical cure at 75°F (24°C) is approximately 2 minutes.

Air Leakage (UL 1479 Section 6): <1 CFM/Sq Ft

Yield: Up to 116 cubic inches

Leed: Meets the intent of LEED VOC regulations. <250 g/L VOC contents (less H₂O and exempt solvents).

Foam Expansion Start Time / Dry to Touch Time
at various FIP 1-Step temperatures



*Note: Expansion Start Time and Dry to Touch Times are NOT dependent on ambient air temperature. Expansion Start Time and Dry to Touch Times are dependent on FIP 1-Step temperature.

6. Installation Techniques

Consult a 3M Authorized Fire Protection Products Distributor or Sales Representative for applicable drawings and details.

Preparatory Work The surface of the opening and any penetrating items should be cleaned to allow for the proper adhesion of the 3M™ Fire Barrier Rated Foam (FIP 1-Step). Ensure that the surface of the substrates are not wet and are free from dust, debris and frost. Foam can be installed with either the manual or battery powered dispenser.

Installation Details Install the applicable depth of the FIP 1-Step as detailed within the applicable 3M UL listed system. Please reference FIP 1-Step Installation Guide for further installation details. The FIP 1-Step may be trimmed after installation to be flush with the surface of the substrate. Clean all tools immediately after use with water if needed.

Limitations Do not apply FIP 1-Step when the cartridge temperature is less than 50°F (10°C), damage may occur to cartridge or dispensing equipment. Do not apply FIP 1-Step 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 FIP 1-Step to wet or frost-coated surfaces or areas that are continuously damp or immersed in water. This product is not acceptable for use with chlorinated polyvinylchloride (CPVC) pipes.

7. Maintenance

No maintenance is expected when installed in accordance with manufacturer's installation guidelines. Once installed, if any section of the FIP 1-Step is damaged, the following procedure will apply: remove and reinstall the damaged section in accordance with the applicable FIP 1-Step UL Listed system.

8. Availability

FIP 1-Step is available in 12.85 fl. oz. cartridges. For additional technical and purchasing information regarding this and other 3M™ Fire Protection Products, please call: 1-800-328-1687 or visit www.3M.com/firestop.

9. Safe Handling Information

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



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CS-195+ Composite Sheet

Product Data



FILL, VOID OR CAVITY MATERIALS
CLASSIFIED BY
UNDERWRITERS LABORATORIES, INC.*
FOR USE IN THROUGH-PENETRATION FIRESTOP
SYSTEMS (XHEZ).
SEE CURRENT UL FIRE RESISTANCE DIRECTORY.

1. Product Description

3M™ Fire Barrier CS-195+ Composite Sheet is a one-part composite system comprised of four components. The heart of the system is an organic/inorganic, fire-resistive elastomeric sheet. It is bonded on one side to a layer of 28 gauge galvanized steel. The other side is reinforced with hexagonal shaped steel-wire mesh and covered with aluminum foil. CS-195+ Composite Sheet is designed to seal larger penetrations through fire-rated walls and floors. It is also used for shielding cable trays and conduit, HVAC ductwork and vital process equipment from radiant heat, flame spread and smoke. CS-195+ Composite Sheet functions as an effective intermittent fire-break within horizontal and vertical cable tray runs, and is excellent for both new and retrofit construction.

The nominal 0.3 inch (7,62 mm) thick composite sheet provides up to a 4-hour fire rating. It is lightweight and can be easily installed with common trade tools.

When exposed to temperatures in excess of 250°F (121°C), the fire-resistive sheet begins to volumetrically expand and swells 8-10 times its original size, forming a high strength, hard char that retards heat transmission. This expansion process is called "intumescence."

Under normal operating conditions, CS-195+ Composite Sheet is a good thermal conductor which allows unwanted heat build-up to escape from process and control equipment and also minimizes power cable derating.

Product features are:

- Intumesces (expands with heat) to form a hard char that tightly seals penetrations against flame spread, smoke and toxic fumes.
- Multiple applications...through penetration firestop, heat shield and firebreak protection.
- Easy to install using common trade tools.
- Lightweight...easy to handle, cut and form to desired shape.
- Easy to fasten...bolt punch or drill through. Use self-tapping screws or anchor bolts.
- Thermally conductive...allows unwanted heat build-up to escape.
- Non-flame supporting.
- UL Classified.
- Cost effective, high performance versus installed cost.
- No mixing or damming...is clean to install.
- Versatile: can be cut to fit irregular shapes.
- Re-enterable.
- Low odor.
- Normal disposal procedures.

2. Applications

CS-195+ Composite Sheet is used to seal penetrations through fire-rated walls and floors and for cable trays, cable, piping and large blanks. It provides a fire-resistive and smoke seal for any shape opening in concrete block or slabs for up to 4 hours - UL Classified.

Use CS-195+ Composite Sheet to shield cable trays, conduit, HVAC ductwork, panels, valves and vital heat-sensitive process equipment. The product is effective in protecting cable drop-outs, junction boxes and cabinets, as well as in providing an intermittent firestop in horizontal and vertical cable tray runs.

3. Physical Properties

Sheet Sizes:	28 in. x 52 in. (711,2 mm x 1320,8 mm)
	24 in. x 36 in. (609,6 mm x 914,4 mm)
	36 in. x 36 in. (914,4 mm x 914,4 mm)
	36 in. x 41 in. (914,4 mm x 1,041 mm)
	16 in. x 28 in. (406,4 mm x 711,2 mm)

Composite Detail:

Component	Thickness
Galvanized sheet steel	0.0157 in. $\pm$ 0.003 in. (0,399 mm $\pm$ 0,076 mm) (30 gauge)
Fire-resistive sheet	0.285 in. $\pm$ 0.05 in. (7,24 mm $\pm$ 1,27 mm)
Hexagonal restraining wire	20 gauge
Aluminum foil	0.002 in. $\pm$ 0.0002 in. (0,0508 mm $\pm$ 0,00508 mm)
Complete material	0.303 in. $\pm$ 0.054 in. (7,70 mm $\pm$ 1,37 mm)

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4. Specifications

A. Product

The intumescent sheet must be capable of passing ASTM E 814 (ANSI/UL 1479) Standard Method of Fire Tests for Through-Penetration Fire Stops up to the desired fire resistance rating.

B. Engineering/Architectural

All penetrations in fire rated walls, floors, floor ceiling assemblies and designated smoke or fire barriers shall be sealed with 3M Brand Fire Barrier Products per manufacturers' installation instructions.

5. Performance

A. Physical and Electrical Properties

CS-195+ Composite Sheet as Installed

Nominal Weight (lb/ft²) 2.75 (13.4 kg/m²)

Fire resistive ratings
[ASTM E 814 (UL 1479)] up to 4 hours

Intumescent Activation Sequence

Expansion begins 302°F (150°C)

Significant expansion 350°F (177°C)

Weight loss (TGA) 20.1% @ 662°F (350°C); 31.0% @ 932°F (500°C); 53.2% @ 1,832°F (1000°C)

Expansion 8-10 typical

Intumescent Sheet Properties (as part of composite)

Dielectric strength
(ASTM D 149) 119 volts/mil average

Non-flame supporting hardness 45 to 65 Shore A

Tensile strength/elongation
(ASTM D 412, Method A) 93.6 psi (0.645 MPa)/489%

Compression set 25% (maximum)

B. Fire Performance Test

Test

1. Summary of Fire Test Results per ASTM E 814 (ANSI/UL 1479)
2. Summary of Fire Test Results per ASTM E 814, Electrical Circuit Protection Systems for Cable Trays
3. Surface Burning Characteristics
ASTM E 84 (ANSI/UL 723)

Results

Up to 4 hour ratings for penetrations in walls and floors. See current UL Fire Resistance Directory.

1 hour UL Classified Systems. See Current UL Buildings Material Directory.

Flame Speed 5
Smoke Development 50

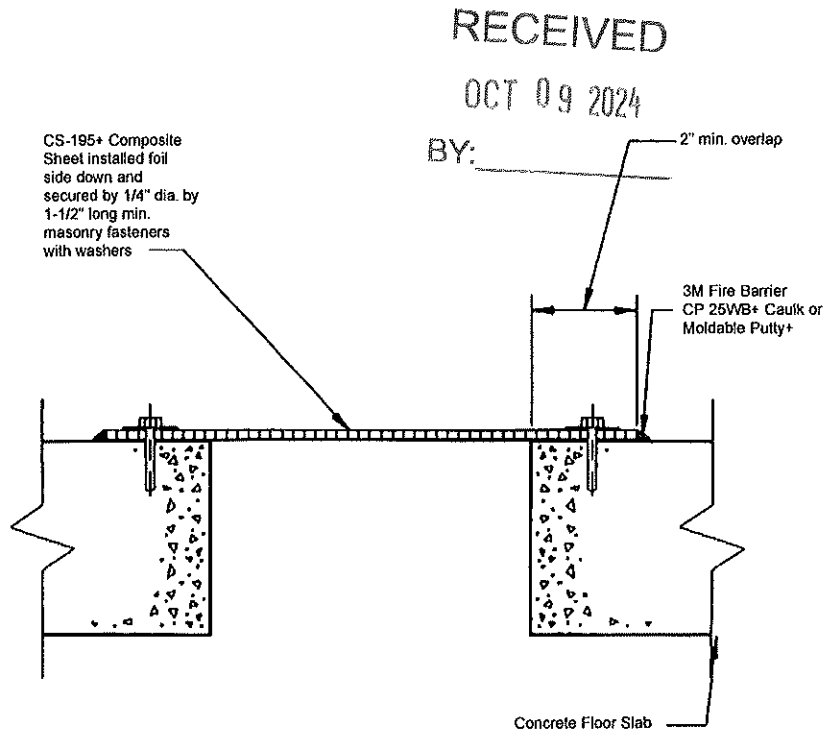
6. Installation Techniques

Exact instructions for specific applications are available upon request from 3M or your local authorized 3M Fire Protection Products Distributor. The following summarizes three representative applications:

A. Penetration firestop for blank openings (no penetration item) using 3M Fire Barrier CS-195+ Composite Sheet. Refer to current UL Fire Resistance Directory for system numbers.

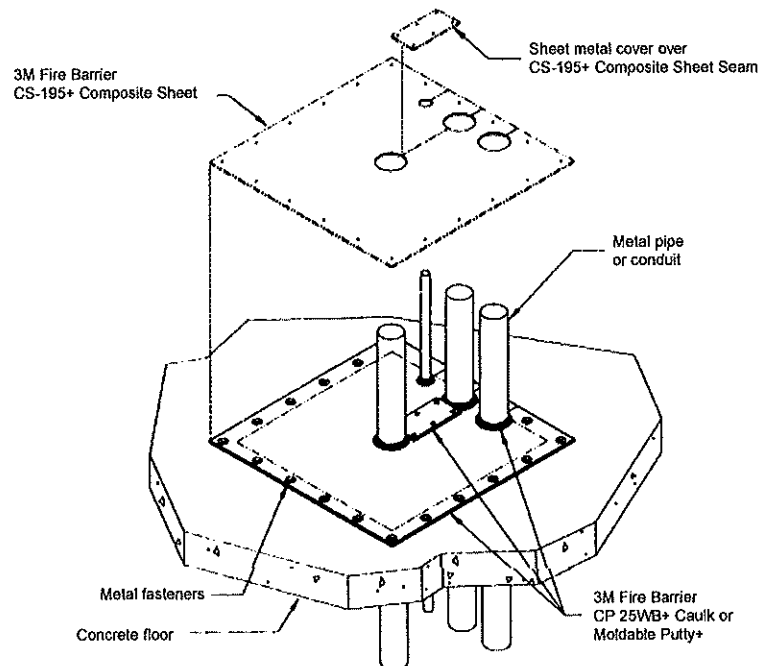
1. **Cover Sheet :** A CS-195+ Composite Sheet is cut to overlap the opening by a minimum of 2 in. (50,8 mm) installed with its galvanized steel surface facing outward (exposed). The cover sheet is secured to the opening using 1/4 in. (6,35 mm) x 1-1/2 in. (38,1 mm) steel masonry fasteners with steel washers spaced 6 in. (152,4 mm) O.C.
2. **Seal:** 3M Fire Barrier CP 25 WB+ Caulk, or Moldable Putty+ is used to seal the CS-195+ Composite Sheet.

Note: All wall openings require a cover sheet of CS-195+ Composite Sheet and caulk/putty on both sides of the wall.



B. Penetration firestop for large openings with pipe using CS-195+ Composite Sheet. Refer to current UL Fire Resistance Directory for system numbers.

1. **Cover Sheet:** The opening is covered with CS-195+ Composite Sheet cut to fit snugly around pipes and to overlap the opening by a minimum of 2 in. (50,8 mm). The sheet's galvanized steel layer should face outward (exposed).
2. The CS-195+ Composite Sheet is secured with 1/4 in. (6,35 mm) x 1-1/2 in. (38,1 mm) steel masonry fasteners with steel washers spaced 6 in. (152,4 mm) O.C.
3. **Seal:** 3M Fire Barrier CP 25 WB+ Caulk and Moldable Putty+ is used to seal the CS-195+ Composite Sheet.



C. Penetration Firestop for Insulated Metal Pipe through a cement block or concrete wall. Refer to current UL Fire Resistance Directory for system numbers.

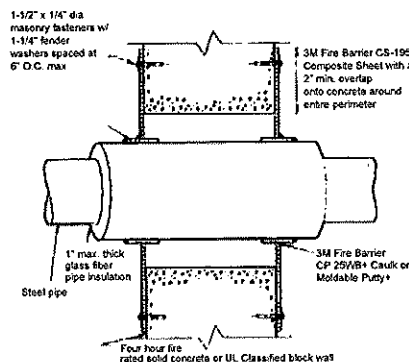
1. The CS-195+ Composite Sheet must be placed on both sides of the wall and overlap the edge of the opening a minimum of 2 in. (50,8 mm).
2. Use a minimum of 1 layer of FS-195+ Wrap/Strip for a 1 in. (25,4 mm) thickness of insulation. Use a minimum of 2 layers of FS-195+ Wrap/Strip for a 2 in. (50,8 mm) thickness of insulation. **Note:** It is not necessary to remove the pipe insulation as it passes through the wall.
3. Wrap the required number of layers of FS-195+ Wrap/Strip around the insulated pipe, foil side out. Secure the FS-195+ Wrap/Strip to the
4. Cut the CS-195+ Composite Sheet to closely follow the contours of the FS-195+ Wrap/Strip around the insulated pipe. Do not allow an annular space greater than $\frac{1}{8}$ in. (3,18 mm) to remain between the CS-195+ Composite Sheet and the FS-195+ Wrap/Strip.
5. Install the CS-195+ Composite Sheet with the foil side facing into the penetration opening. Apply a $\frac{1}{8}$ in. (3,18 mm) minimum bead of CP 25 WB+ Caulk or Moldable Putty+ around the perimeter of the opening

on the concrete before installing the CS-195+ Composite Sheet. To allow for fastening, there must be a 2 in. (50,8 mm) minimum overlap of the CS-195+ Composite Sheet onto the concrete on all sides of the opening.

6. For seaming details when the CS-195+ Composite Sheet must be cut or joined together, use 3M print #5300-REF1.
7. Use a $\frac{1}{8}$ in. (3,18 mm) minimum diameter bead of CP 25 WB+ Caulk or Moldable Putty+ to seal the interfaces between the CS-195+ Composite Sheet and the FS-195+ Wrap/Strip, and the FS-195+ Wrap/Strip and the pipe insulation.
8. Use masonry anchors with washers to secure the CS-195+ Composite Sheet to the substrate. The fasteners are spaced at a maximum of 6 in. (152,4 mm).

7. Maintenance

3M Fire Barrier CS-195+ Composite Sheet remains stable for an indefinite period of time. CS-195+ Composite Sheet should be stored in the original shipping container until used. The materials are non-impaired by freezing or storage at temperatures up to 187°F (86°C).



8. Availability

3M Fire Barrier CS-195+ Composite Sheets are available from authorized 3M Fire Protection Products Distributors.

Other 3M Fire Protection Products:

FS-195+ Wrap/Strip - 2 in. x 24 in. (50,8 mm x 609,6 mm)

CP 25 WB+ Caulk - 10.1 fl. oz. cartridge, 20.0 fl. oz. sausage, 28.0 fl. oz. cartridge 2 and 5 gallon pail.

Moldable Putty+ - Slik and Pads.

Warranty and Limited Remedy. This product will be free from defects in material and manufacture for a period of ninety (90) days from date of purchase. 3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of application. If this 3M product is proved to be defective within the warranty period stated above, your exclusive remedy and 3M's sole obligation shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product.

Limitation of Liability. Except where prohibited by law, 3M will not be liable for any loss or damages arising from the use of this 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.



Consumer Safety and Light Management

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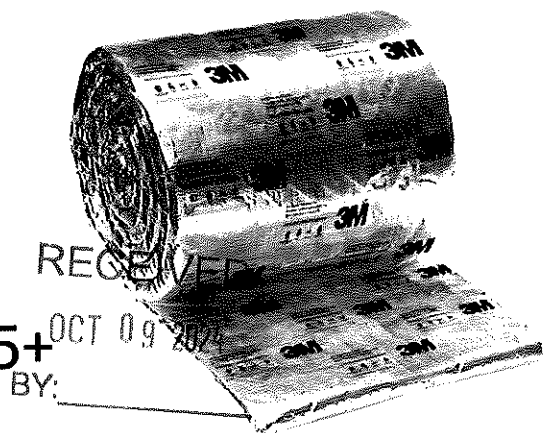
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Fire Protection Products

3M™ Fire Barrier Duct Wrap 615+



Technical Data Sheet

May / 2019

Product Description

3M™ Fire Barrier Duct Wrap 615+ is a flexible fire-resistant wrap consisting of an inorganic fiber blanket encapsulated with a scrim-reinforced foil. The product is 1-1/2 in. thick, 6pcf density¹. It is used to fire rate commercial kitchen grease ducts as well as ventilation ducts. 3M™ Fire Barrier Duct Wrap 615+ is a proven alternative to 1- or 2-hour fire-resistant rated shaft enclosures for grease ducts (ICC-ES ESR-1255). With its excellent insulating capabilities, low weight and thin profile, it is an ideal choice for a duct enclosure system. This non-asbestos² wrap installs easily due to its high flexibility and strength.

¹In accordance with the tolerances in ASTM C892 Standard Specification for High-Temperature Fiber Blanket Thermal Insulation.

²Has been demonstrated to be soluble in the lungs according to EU guideline 97/69/EG, for biopersistence.

Product Features

- Two-layer wrap for grease ducts rated as a shaft alternative per ASTM E2336
- Zero clearance to combustibles throughout the entire enclosure system for congested spaces
- Butted inner layer in 2-layer Grease Duct Applications
- One-layer wrap for fire-resistive ventilation ducts per ISO 6944 Type A
- High flexibility for installation ease
- Foil encapsulated for blanket protection, less dust, and high wrap strength
- Widest range of penetration seal systems
- Available in 24 in. x 25 ft. (609.6 mm x 7.62 m) and 48 in. x 25 ft. (1219.2 mm x 7.62 m) rolls
- Blanket adhered to foil scrim

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3M™ Fire Barrier Duct Wrap 615+

Applications

3M™ Fire Barrier Duct Wrap 615+ is an ideal fire resistive enclosure for commercial kitchen grease ducts and ventilation air ducts. It is a proven performance alternative to a 1- or 2-hour fire-resistant rated shaft enclosures for grease ducts and provides zero clearance to combustible construction throughout the entire enclosure system. 3M™ Fire Barrier Water Tight Sealant 1000 NS, 3M™ Fire Barrier Water Tight Sealant 1003 SL or 3M™ Fire Barrier Silicone Sealant 2000+ is used in combination with 3M™ Fire Barrier Duct Wrap 615+ to firestop the duct when the duct penetrates fire-rated floor or wall assemblies. 3M™ Fire Barrier Duct Wrap 615+ also provides a firestop solution where a T-rating is required for penetrations located outside wall cavities or outside fire-resistance rated shaft enclosures.

Two-layer grease duct applications: 3M™ Fire Barrier Duct Wrap 615+ meets the criteria of ASTM E2336 Standard Test Methods for Fire Resistive Grease Duct Enclosure Systems.

Single-layer air duct applications: 3M™ Fire Barrier Duct Wrap 615+ has passed ISO 6944-1985 Fire Resistance Tests – Ventilation Ducts.

T-rating for metallic through-penetrating items: 3M™ Fire Barrier Duct Wrap 615+ is used in conjunction with 3M Fire Barrier sealants to achieve up to 2-hour equal F & T-ratings in ASTM E814 (UL 1479) tested through-penetrations.

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3M™ Fire Barrier Duct Wrap 615+

Specifications

Installation shall be in strict accordance with manufacture's written instructions, as shown on the approved shop drawings. 3M™ Fire Barrier Duct Wrap 615+ shall be a high-temperature fiber blanket thermal insulation encapsulated in a fiberglass-reinforced aluminized polyester foil. Duct Wrap density shall be nominal 6 pcf (96 kg/m³) and have a nominal 1-1/2 in. (38.1 mm) thickness. The fiber blanket shall have a continuous use limit of 1832 °F (1000 °C). The blanket thermal resistance (R-value) at ambient temperature shall be minimum $6.3 \text{ }^{\circ}\text{F} \frac{\text{ft}^2 \cdot \text{hr}}{\text{Btu}}$. Smoke Developed Index and Flame Spread Index of the bare blanket, and of the foil encapsulated blanket shall be 0/0. The foil encapsulation shall be bonded to the core blanket material.

Typically Specified Division or Section

Division 7 – Thermal and Moisture Protection

Section 23 07 13 – Duct Insulation

Related Sections

Section 07 21 00 – Thermal Protection

Section 07 21 16 – Blanket Insulation

Section 07 84 00 – Firestopping

Section 23 00 00 – Heating, Ventilation and Air-Conditioning (HVAC)

Section 23 31 13 – Metal Ducts

3M™ Fire Barrier Duct Wrap 615+ has been tested in accordance with the following: ICC-ES AC101, ASTM E2336, ASTM E119, ASTM E814, ASTM E84, ASTM E136, ASTM C518, ISO 6944-85.

3M™ Fire Barrier Duct Wrap 615+, when installed per ASTM E2336 tested Grease Duct Design Listings, meets the following code requirements for field-applied grease duct enclosures:

NFPA 96

International Mechanical Code®

Uniform Mechanical Code

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3M™ Fire Barrier Duct Wrap 615+

Performance and Typical Physical Properties

Scrim Color	Aluminum with Black Text		
Blanket Color	White		
Blanket Weight	0.9 lbs./ft ² (4.38 kg/m ²)		
Surface Burning Characteristics (ASTM E84)	Foil Encapsulated Blanket: Flame Spread Index: 0 Smoke Developed Value: 0		
Thermal Conductivity	Temperature	$\frac{Btu \cdot in}{hr \cdot ft^2 \cdot ^\circ F}$	$\frac{W}{m \cdot K}$
	500°F (260°C)	0.60	0.09
	1000°F (537°C)	1.15	0.17
	1500°F (815°C)	1.93	0.28
	1800°F (982°C)	2.51	0.36
	2000°F (1093°C)	2.94	0.43
Linear Shrinkage 24 Hour @ 2012°F (1100°C)	1.2%		
Noise Reduction Coefficient – NRC (ASTM C423)	0.80		
Mold and Mildew Resistance (ASTM C1338)	Devoid of growth		

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3M Fire Protection Products**3M™ Fire Barrier Duct Wrap 615+****Installation Techniques**

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

Installation Details: Tested and listed system details must be followed for each specific application. System examples are listed below:

Grease Duct Listings – ASTM E2336 / ICC-ES AC101

Fire Resistive Rating	Enclosure System	Third-Party Testing Services Design Listing	Description
1 and 2 hour	2 Layers of 3M™ Fire Barrier Duct Wrap 615+	ICC-ES ESR-1255 Intertek 3MU/FRD 120-18 Intertek 3MU/FRD 120-19	Rectangular Rectangular Round

Ventilation Duct Listings – ISO 6944 Type A

Fire Resistive Rating	Enclosure System	Third-Party Testing Services Design Listing	Description
1 and 2 hour	1 Layer of 3M™ Fire Barrier Duct Wrap 615+	Intertek 3MU/DI 60-01 UL HNLJ.V-27 Intertek 3MU/DI 120-01	Rect. & Round (1 hour) Rectangular (2 Hour) Rect. & Round (2 Hour)

Through Penetration T-Ratings – ASTM E814 (UL 1479)

Protected Item	UL System	F & T Rating
Floor Sink	F-A-1160	2 Hour
Metal Pipe	F-A-1057	2 Hour

Maintenance

No maintenance is expected when installed in accordance with the applicable Intertek, UL or other third-party listed system and in accordance with 3M™ Fire Barrier Duct Wrap 615+ Installation Guidelines. Once installed, if any section of the 3M™ Fire Barrier Duct Wrap 615+ is damaged such that the blanket requires repair, the following procedure will apply:

1. If the blanket has not been damaged but the foil has ripped, seal the rips with aluminum foil tape.
2. If the blanket has been damaged:
 - a. The damaged section should be removed by cutting the steel banding or removing the clips holding it in place.
 - b. A new section of the same dimension should be cut from a roll of 3M™ Fire Barrier Duct Wrap 615+, either 24" (60.9cm) or 48" (121cm) wide.
 - c. The new section should be placed and fitted ensuring the same overlap that existed previously (i.e. the original installation method).
 - d. The steel banding should be placed around the material and tensioned so as to sufficiently hold the 3M™ Fire Barrier Duct Wrap 615+ in place.

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3M™ Fire Barrier Duct Wrap 615+

Storage and Shelf Life

3M™ Fire Barrier Duct Wrap 615+ rolls are stable under normal storage conditions. Normal stock and stock rotation practices are recommended. 3M™ Fire Barrier Duct Wrap 615+ shelf life is indefinite when stored in original unopened packaging in a dry warehouse environment. Pallets should not be stacked.

Lot numbering (e.g. 1807200223): First two digits = last two digits of the year manufactured (2018=18), third and fourth digit = month of manufacture, fifth and sixth digits = is the day of manufacture, seventh and eighth digits = crew code from fiber blanket, last two digits = day of encapsulation.

Availability

Available from 3M Authorized Fire Protection Products Distributors.
For additional technical and purchasing information, call 1-800-328-1687 or visit 3M.com/firestop.

Safe Handling

Consult Safety Data Sheet prior to handling and disposing of 3M™ Fire Barrier Duct Wrap 615+.

Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

Warranty, Limited Remedy and Disclaimer

Unless an additional warranty is specifically stated on the applicable 3M product packaging or product literature, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.



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3M Fire Protection Products

**MATRIX OF UL TESTED AND APPROVED SYSTEMS FOR FIRESTOPPING
PLUMBING AND MECHANICAL PENETRATIONS**
IN RATED GYPSUM WALLS AND CONCRETE FLOOR & WALL CONSTRUCTION.

Note: Final selection of UL system numbers subject to parameters listed in the UL system number.

Penetrating Item	Assembly Penetrated	F Rating	System Number	3M FPP Product Solutions
Metal Pipe (Sleeved)	Framed Gypsum Walls	1 & 2 Hr.	WL1003	IC15WB+, CP25WB+ or FB3000WT
Metal Pipe (Sleeve Optional)	Framed Gypsum Walls	1 & 2 Hr.	WL1296	IC15WB+, CP25WB+ or FB3000WT
Metal Pipe (Multiple)	Framed Gypsum Walls	1 & 2 Hr.	WL1287	IC15WB+, CP25WB+ or FB3000WT
Metal pipe (max 12" steel and 6" Copper Pipe)	Framed Gypsum Walls	1 & 2 Hr.	WL1450	IC15WB+, CP25WB+ or FB3000WT
Plastic Pipe (Caulk only)	Framed Gypsum Walls	1 & 2 Hr.	WL2088	IC15WB+, CP25WB+ or FB3000WT
Max. 4" Plastic Pipe (PVC or FRPP only)	Framed Gypsum Walls	1 & 2 Hr.	WL2551	Tuck-in Wrap strip and IC15WB+, CP25WB+ or FB3000WT
Plastic Pipe	Framed Gypsum Walls	1, 2 & 3 Hr.	WL2162	Ultra PPD collar and IC15WB+, CP25WB+ or FB3000WT
Plastic Pipe (Multiple)	Framed Gypsum Walls	1 & 2 Hr.	WL2300	IC15WB+, CP25WB+ or FB3000WT
Up to 6 in. scPVC or ccPVC Piping	Framed Gypsum Walls	1 & 2 Hr.	WL2553	Tuck-in WS Roll & IC15WB+, CP25WB+ or FB3000WT
Metal Pipe (Sleeve Optional)	Concrete Floor & Walls	2 Hr.	CAJ1551	IC15WB+, CP25WB+ or FB3000WT
Metal Pipe (Bottom Side)	Concrete Floor & Walls	3 Hr.	CAJ1496	IC15WB+, CP25WB+ or FB3000WT
Metal Pipe (Multiple)	Concrete Floor & Walls	2 Hr.	CAJ1429	IC15WB+, CP25WB+ or FB3000WT
Plastic Pipe	Concrete Floor & Walls	2 Hr.	CAJ2001	Ultra PPD Collars & IC15WB+, CP25WB+ or FB3000WT

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3M Fire Protection Products**MATRIX OF UL TESTED AND APPROVED SYSTEMS FOR FIRE STOPPING
PLUMBING AND MECHANICAL PENETRATIONS**

IN RATED GYPSUM WALLS AND CONCRETE FLOOR & WALL CONSTRUCTION.

Note: Final selection of UL system numbers subject to parameters listed in the UL system number.

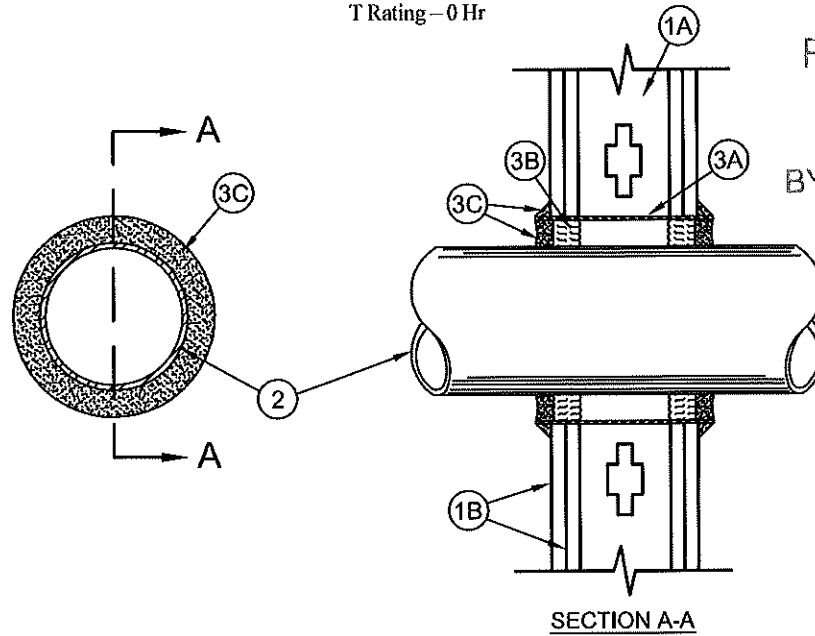
Penetrating Item	Assembly Penetrated	F Rating	System Number	3M FPP Product Solutions
Plastic Pipe	Concrete Floor & Walls	2 Hr.	CAJ2510	FB3000WT
Plastic Pipe	Concrete Floor & Walls	2 Hr.	CAJ2377	IC15WB+, CP25WB+ or FB3000WT
Plastic Pipe (Multiple)	Concrete Floor & Walls	2 Hr.	CAJ2378	IC15WB+, CP25WB+ or FB3000WT
Plastic Pipe	Concrete Floor & Walls	2 Hr.	CAJ2637	Tuck-in strip & IC15WB+, CP25WB+ or FB3000WT
Insulated Metal Pipe	Framed Gypsum Walls	1 & 2 Hr.	WL5011	FS-195 and CP25WB+ or FB3000WT
Glass Fiber Insulated Metal Pipe	Framed Gypsum Walls	1 & 2 Hr.	WL5168	IC15WB+, CP25WB+ or FB3000WT
Insulated Metal Pipe (AB/PVC Insulation)	Framed Gypsum Walls	1 & 2 Hr.	WL5169	IC15WB+, CP25WB+ or FB3000WT
Insulated Metal Pipe	Framed Gypsum Walls	2Hr.	WL8010	FS-195 & IC15WB+ or CP25WB+
Glass Fiber Insulated Metal Pipe	Concrete Floor & Walls	2 Hr.	CAJ5210	IC15WB+, CP25WB+ or FB3000WT
Insulated Metal Pipe (AB/PVC Flexible Foam)	Concrete Floor & Walls	2 Hr.	CAJ5211	IC15WB+, CP25WB+ or FB3000WT
Insulated Metal Pipe	Concrete Floor & Walls	2 Hr.	CAJ8072	CP25WB+ or FB3000WT

System No. W-L-1003

February 14, 2008

F Ratings – 1 and 2 Hr (See Item 1)

T Rating – 0 Hr



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Through Penetrations

Metallic Pipes

1000 Series

Gypsum

WL

1. **Wall Assembly** – The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Studs** – Wall framing may consist of either wood studs 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 3-1/2 in. (89 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.
- B. **Gypsum Board*** – Nom 5/8 in. (16 mm) thick, 4 ft (1.2 m) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400 or V400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 15 in. (381 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. **Through Penetrant** – One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The space between pipes, conduits or tubing and the steel sleeve (Item 3A) shall be min of 0 in. (point contact) to max 2-3/8 in. (60 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 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. **Iron Pipe** – Nom 12 in. (305 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.

3. **Firestop System** – Installed symmetrically on both sides of wall assembly. The details of the firestop system shall be as follows.

- A. **Steel Sleeve** – Cylindrical sleeve fabricated from min 0.019 in. thick (0.48 mm) galv sheet steel and having a min 2 in. (51 mm) lap along the longitudinal seam. Length of steel sleeve to be equal to thickness of wall plus 1 to 4 in. (25 to 102 mm) such that, when installed, the ends of the sleeve will project approx 1/2 to 2 in. (13 to 51 mm) beyond the surface of the wall on both sides of the wall assembly.
Sleeve installed by coiling the sheet steel to a diam smaller than the through opening, inserting the coil through the openings and releasing the coil to let it uncoil against the circular cutouts in the gypsum board layers.
- B. **Packing Material** – Min 1 in. (25 mm) thickness of mineral wool batt insulation firmly packed into steel sleeve on both sides of the wall assembly as permanent forms. Packing material to be recessed min 1/2 in. (13 mm) from end of steel sleeve (flush with or recessed into gypsum board surface) on both sides of wall assembly.
- B1. **Packing Material** – (Not shown) – As an alternate to Item B, nom 1 in. (25 mm) thick polyethylene backer rod may be used. The backer rod is to be recessed within the steel sleeve a min of 1 in. (25 mm) from each surface of wall.
- C. **Fill, Void or Cavity Materials*** – **Caulk or Sealant** – When mineral wool batt insulation is used, caulk or sealant applied to fill the steel sleeve to a min depth of 1/2 in. (13 mm) on both sides of wall assembly. When backer rod is used, a min thickness of 1 in. (25 mm) of caulk or sealant is required flush with both sides of wall. A nom 1/4 in. (6 mm) diam continuous bead of caulk or sealant shall be applied around the circumference of the steel sleeve at its egress from the gypsum board layers on both sides of the wall assembly.

3M COMPANY – CP 25WB+, IC 15WB+ or FB-3000 WT

*Bearing the UL Classification Mark

This material was extracted and drawn by 3M Fire Protection Products from the 2009 edition of the UL Fire Resistance Directory. cULus

3M Fire Protection Products
www.3m.com/firestop

W-L-1003 • 1 of 1

Product Support Line
1-800-328-1687

System No. W-L-1296

February 14, 2008

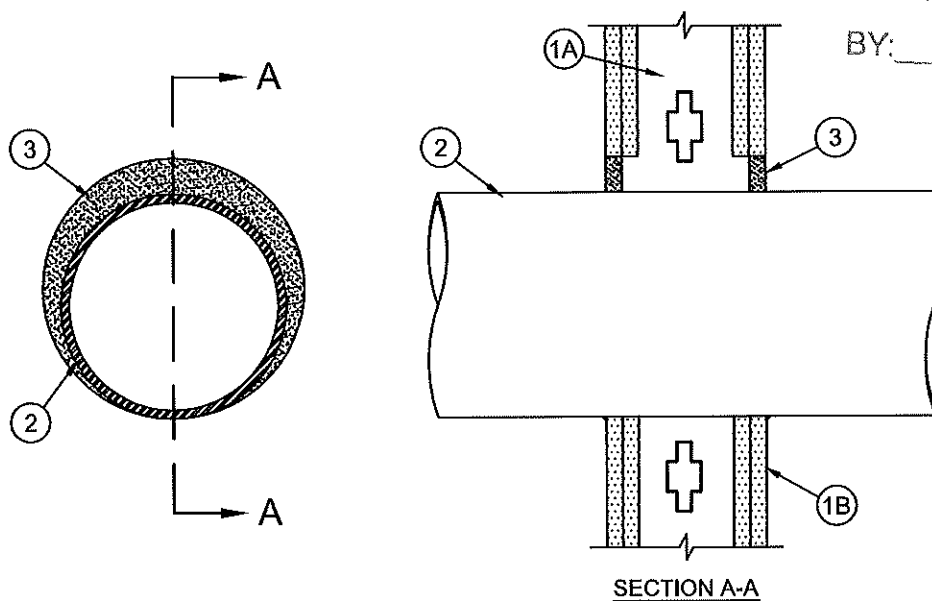
F Ratings – 1 and 2 Hr (See Item 1)

T Ratings – 0 and 1/4 Hr (See Item 1)

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OCT 09 2024

BY: _____



1. **Wall Assembly** – The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Studs** – Wall framing may consist of either wood studs 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. Steel studs to be min 3-1/2 in. (89 mm) wide spaced max 24 in. (610 mm) OC.
- B. **Gypsum Board*** – The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400 or V400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 10-5/8 in. (270 mm).
- C. **Steel Sleeve** – (Optional, Not Shown) - Cylindrical sleeve fabricated from min 0.019 in. thick (0.48 mm) galv sheet steel and having a min 2 in. (51 mm) lap along the longitudinal seam. Length of steel sleeve to be equal to thickness of wall. Sleeve installed by coiling the sheet steel to a diam smaller than the through opening, inserting the coil through the openings and releasing the coil to let it uncoil against the circular cutouts in the gypsum wallboard layers.

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed. The hourly T Rating is 0 and 1/4 Hr for 1 and 2 Hr rated assemblies, respectively.

2. **Through Penetrants** – One metallic pipe, conduit, tubing or flexible metal pipe installed concentrically or eccentrically within opening. Annular space between penetrant and periphery of opening to be min 0 in. (0 mm point contact) to max 2 in. (51 mm). Penetrant to be rigidly supported on both sides of wall. The following types and sizes of penetrants may be used:

- A. **Steel Pipe** – Nom 8 in. (203 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
- B. **Iron Pipe** – Nom 8 in. (203 mm) diam (or smaller) cast or ductile iron pipe.
- C. **Conduit** – Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT) or nom 6 in. (152 mm) rigid steel conduit.
- D. **Copper Tubing** – Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
- E. **Copper Pipe** – Nom 4 in. (102 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 TITEFLEX

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 INC

3. **Fill, Void or Cavity Material* – Caulk or Sealant** – Min 5/8 in. (16 mm) thickness of caulk 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.

3M COMPANY – IC 15WB+, CP 25WB+ caulk or FB-3000 WT sealant

*Bearing the UL Classification Mark

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System No. W-L-1287

May 19, 2005

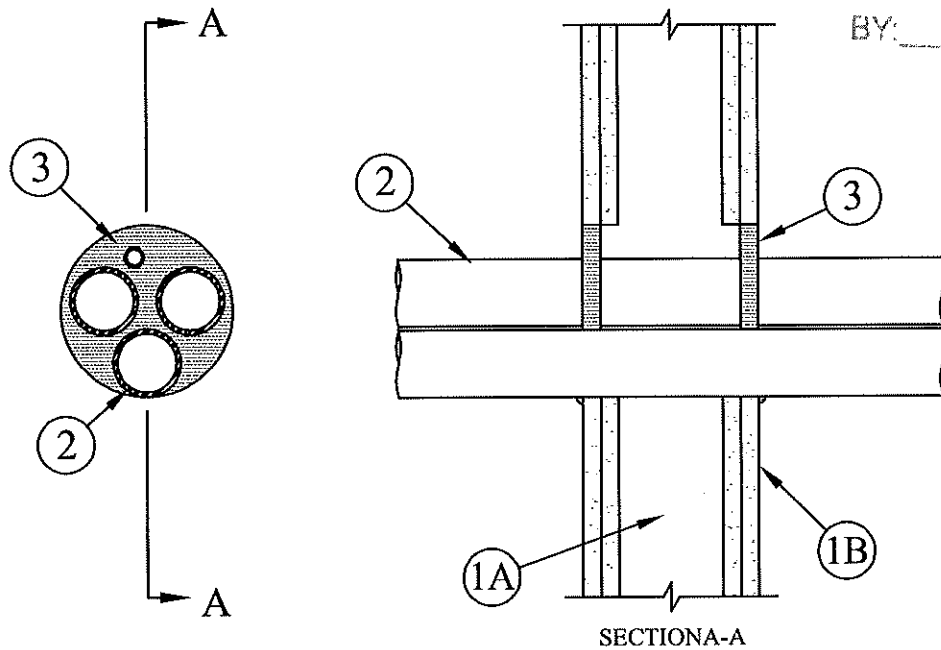
F Ratings – 1 & 2 Hr (See Item 1)

T Ratings – 0 & 1/4 Hr (See Item 1)

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BY: _____



Through Penetrations

Metallic Pipes

1000 Series

Gypsum

WL

1. **Wall Assembly** – The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Studs** – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 in. by 4 in. (51 mm by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide spaced max 24 in. (610 mm) OC.
- B. **Gypsum Board*** – The gypsum board 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 8 in. (203 mm)

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed. The hourly T Rating is 0 and 1/4 Hr for 1 and 2 Hr rated assemblies, respectively.

2. **Through Penetrants** – One or more metallic pipes, conduits, tubes or flexible metal pipes installed concentrically or eccentrically within opening. Annular space between penetrants and periphery of opening to be min 0 in. (point contact) to max 2 in. (0 mm to max 51 mm). Space between penetrants to be min 1/4 in. to max 2 in. (6 mm to max 51 mm). Penetrants to be rigidly supported on both sides of wall. The following types and sizes of penetrants may be used:

- A. **Steel Pipe** – Nom 3 in. (76 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
- B. **Iron Pipe** – Nom 3 in. (76 mm) diam (or smaller) cast or ductile iron pipe.
- C. **Conduit** – Nom 3 in. (76 mm) diam (or smaller) steel conduit or steel electrical metallic tubing.
- D. **Copper Tubing** – Nom 2 in. (51 mm) diam (or smaller) Type L (or heavier) copper tubing.
- E. **Copper Pipe** – Nom 2 in. (51 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.
TITFLEX CORP, A BUNDY CO
 - 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 INC.

3. **Fill, Void or Cavity Material*** – **Caulk or Sealant** – Min 5/8 in. (16 mm) thickness of caulk 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.

3M COMPANY – IC 15WB+, CP 25WB+ caulk or FB-3000 WT sealant.

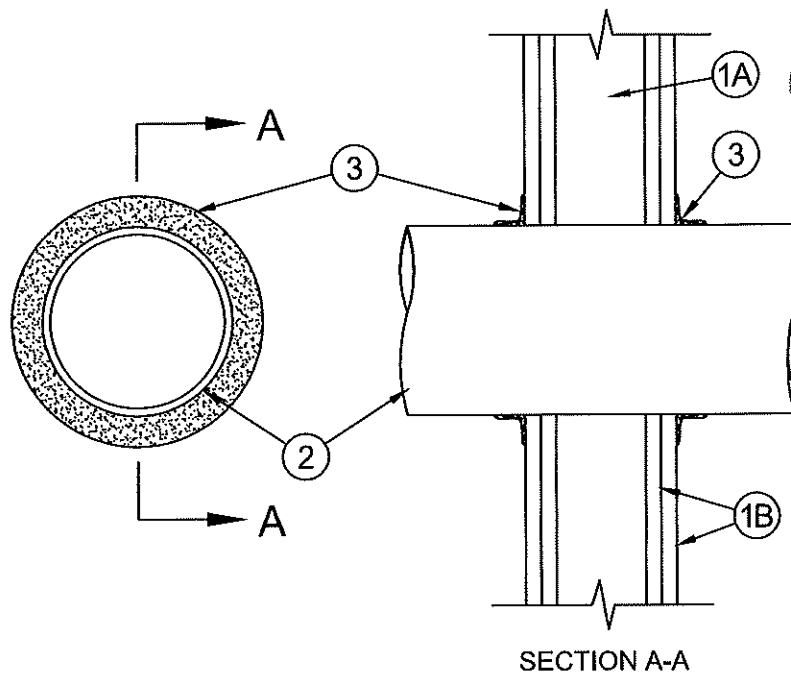
*Bearing the UL Classification Marking

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OCT 09 2024

BY: _____



Through Penetrations

Metallic Pipes

1000 Series

Gypsum

WL

1. **Wall Assembly** – The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Studs** – Wall framing may consist of either wood studs 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. Steel studs to be min 3-5/8 in. (92 mm) wide and spaced max 24 in. (610 mm) OC.
- B. **Gypsum Board*** – The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400 or V400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 12-3/4 in. (324 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. **Through-Penetrant** – One metallic pipe, conduit or tubing installed within the firestop system. The through penetrant to be installed with continuous point contact. 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 12 in. (305 mm) (diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. **Iron Pipe** – Nom 12 in. (305 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe or Class 50 (or heavier) ductile iron pressure pipe.
- C. **Conduit** – Nom 6 in. (152 mm) diam (or smaller) galv 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.

3. **Fill, Void or Cavity Material*** – Caulk – Bead of fill material lapping min 1 in. (25 mm) onto gypsum board and min 1/2 in. (13 mm) onto penetrant around outer circumference of through penetrant on both surfaces of wall assembly.

3M COMPANY

3M FIRE PROTECTION PRODUCTS – CP 25WB+ Caulk, IC 15WB+ Caulk, FB-3000 WT Sealant

*Bearing the UL Classification Mark

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System No. W-L-2088

May 23, 2005

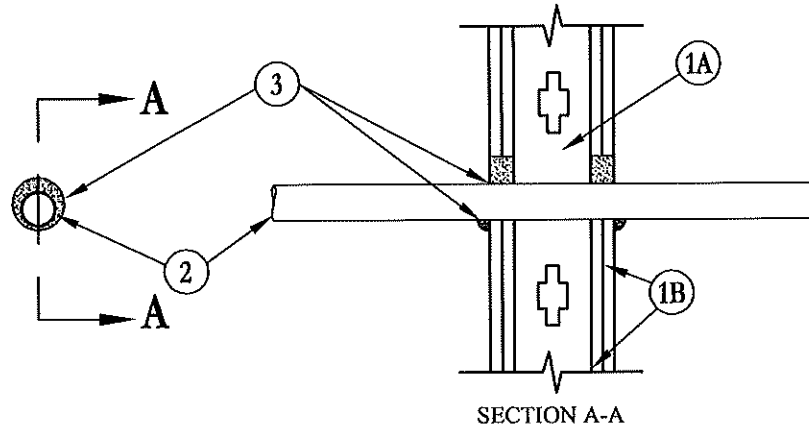
F Ratings – 1 and 2 Hr (See Item 1)

T Ratings – 0, 1 and 2 Hr (See Item 2)

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OCT 09 2024

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- Wall Assembly** – The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400 or V400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- Studs** – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 in. by 4 in. (51 mm by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
- Gypsum Board*** – Thickness, type, number of layers and fasteners as required in the individual Wall and Partition Design. Diam of opening shall be 7/8 in. (22 mm) larger than the outside diam of nonmetallic pipe or conduit (Item 2).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

- Through Penetrants** – One nonmetallic pipe or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space for max 1-1/4 in. (32 mm) diam pipe or conduit shall be min 0 in. (point contact) to max 7/8 in. (0 mm to max 22 mm). The annular space for pipe or conduit larger than nom 1-1/4 in. (32 mm) diam shall be min 1/2 in. to max 1 in. (13 mm to max 25 mm). Pipe or conduit to be rigidly supported on both sides of wall assembly. The following types and sizes of nonmetallic pipes or conduits may be used:

- Polyvinyl Chloride (PVC) Pipe** – Nom 2 in. (51 mm) diam (or smaller) Schedule 40 solid core or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
- Polyvinyl Chloride (PVC) Pipe** – Nom 3 in. (76 mm) diam (or smaller) Schedule 40 solid core PVC pipe for use in closed (process or supply) piping system.
- Chlorinated Polyvinyl Chloride (CPVC) Pipe** – Nom 3 in. (76 mm) diam (or smaller) SDR 11 CPVC pipe for use in closed (process or supply) piping systems.
- Rigid Nonmetallic Conduit++** – Nom 3 in. (76 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA No 70).
- Electrical Nonmetallic Tubing (ENT)++** – Nom 1 in. (25 mm) diam (or smaller) ENT formed of PVC, installed in accordance with Article 331 of the National Electrical Code (NFPA No. 70).

See **Rigid Nonmetallic Conduit (DZKT)** and **Electrical Nonmetallic Tubing (FKHU)** categories in the UL Electrical Construction Equipment Directory for names of manufacturers.

- Acrylonitrile Butadiene Styrene (ABS) Pipe** – Nom. 2 in. (51 mm) diam (or smaller) Schedule 40 solid core or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

The hourly T Rating is dependent on the hourly rating of the wall assembly, the pipe or conduit size and whether the pipe is intended for use as a closed or vented system, as shown in the following table.

Nom Pipe Diam In. (mm)	Wall Assembly Rating Hr	Closed (c) or Vented (v)	T Rating Hr
1/2 to 3 (13 to 76)	1	c	1
1/2 to 1-1/4 (13 to 32)	1	v	1
1/2 to 1-1/4 (13 to 32)	2	c	2
1/2 to 1-1/4 (13 to 32)	2	v	1
2 (51)	1	v	0
2 (51)	2	v	0

- Fill, Void or Cavity Materials*** – Caulk, Sealant or Putty – Min thickness of 5/8 in. and 1-1/4 in. (16 mm and 32 mm) of caulk or putty for 1 and 2 hr rated wall assemblies, respectively, applied within annulus between pipe or conduit and periphery of the opening, flush with both surfaces of wall assembly. At the point contact location between pipe or conduit and gypsum board, a min 1/2 in. (13 mm) diam bead of caulk or putty shall be applied at the pipe or conduit/wallboard interface on both surfaces of wall assembly.

3M COMPANY – CP 25WB+, IC 15WB+ caulk, FB-3000 WT sealant or MP+ Stix putty
(Note: CP 25WB+ not suitable for use with CPVC pipes.)

+++Bearing the UL Listing Mark.

*Bearing the UL Classification Marking

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3M Fire Protection Products
www.3m.com/firestop

W-L-2088 • 1 of 1

Product Support Line
1-800-328-1687

Through Penetrations

Non-Metallic Pipes

2000 Series

Gypsum

W-L

System No. W-L-2551

February 15, 2010

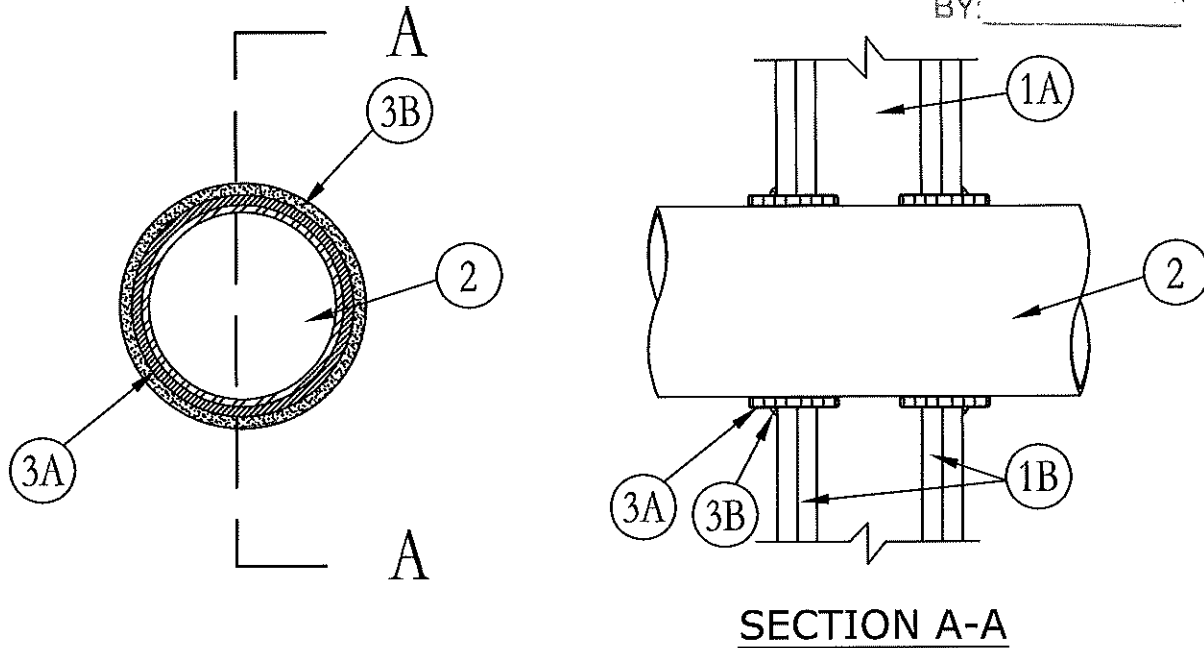
F Ratings – 1 and 2 Hr (See Item 1)

T Ratings – 1 and 2 Hr (See Item 1)

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BY: _____

**SECTION A-A**

1. **Wall Assembly** – The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Studs** – Wall framing may consist of either wood studs 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. Steel studs to be min 3-1/2 in. (89 mm) wide spaced max 24 in. (610 mm) OC.
- B. **Gypsum Board*** – The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Design in the UL Fire Resistance Directory. Max diam of opening is 5 in. (127 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed. The hourly T Rating is 1 and 2 hr for 1 and 2 hr rated assemblies, respectively.

2. **Through Penetrants** – One nonmetallic pipe or conduit concentrically or eccentrically within the firestop system. The annular space between penetrant and periphery of opening shall be min 3/8 in. (10 mm) to max 5/8 in. (16 mm). Penetrant to be rigidly supported on both sides of wall assembly. The following types and sizes of nonmetallic pipes or conduits:

- A. **Polyvinyl Chloride (PVC) Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 solid core or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
- B. **Fire Retardant Polypropylene (FRPP) Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
- C. **Rigid Nonmetallic Conduit+** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA No. 70).

3. **Firestop System** – The firestop system shall consist of the following:

- A. **Fill, Void or Cavity Materials* – Wrap Strip** – Min 3/16 in. (5 mm) thick intumescent material supplied in 2-1/2 in. (64 mm) wide strips. Single layer of pre-cut wrap strip tightly wrapped around nonmetallic pipe and secured with the adhesive closure tab. Wrap strip to be slid into opening such that the outer edge of wrap strip extends approx 5/8 in. (16 mm) from both surfaces of wall.

3M COMPANY

3M FIRE PROTECTION PRODUCTS – Tuck-In Wrap Strip WS 200, WS 300 or WS 400

- B. **Fill, Void or Cavity Material* – Caulk or Sealant** – Min 1/4 in. (6 mm) diam bead of sealant applied to gypsum board/wrap strip interface on both sides of wall.

3M COMPANY

3M FIRE PROTECTION PRODUCTS – IC 15WB+, CP 25WB+ or FB-3000 WT sealant

*Bearing the UL Classification Mark

Through Penetrations

Non-Metallic Pipes

2000 Series

Gypsum

WL

This material was extracted and drawn by 3M Fire Protection Products from the 2010 edition of the UL Fire Resistance Directory.

System No. W-L-2162

May 19, 2005

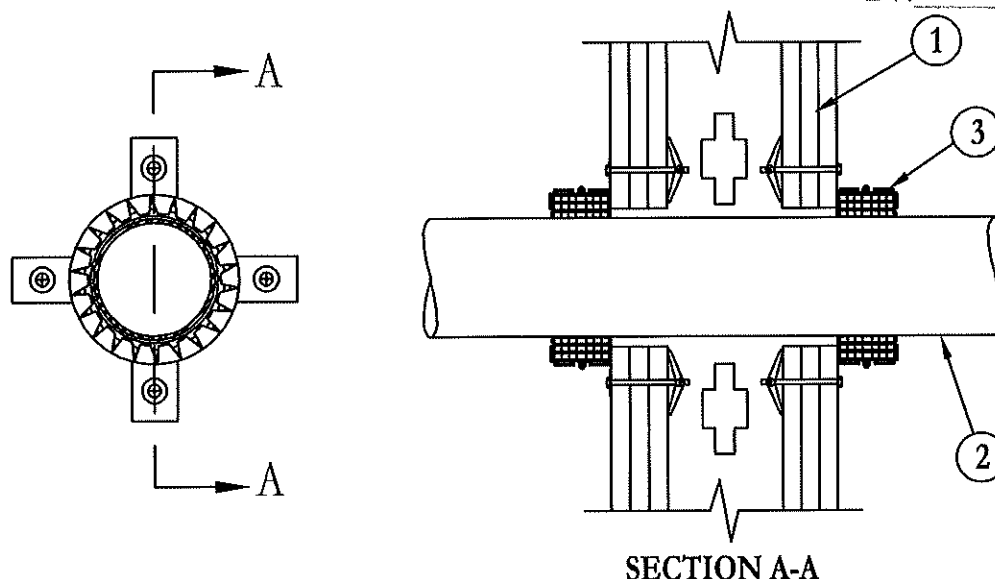
F Ratings – 1, 2 And 3 Hr (See Item 1)

T Ratings – 1, 2 And 3 Hr (See Item 1)

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OCT 09 2024

BY: _____



Through Penetrations

Non-Metallic Pipes

2000 Series

Gypsum

WL

1. **Wall Assembly** – The 1, 2 or 3 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400 or V400 Series Wall and 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 or steel channel studs. Wood studs to consist of nom 2 in. by 4 in. (51 mm by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide spaced max 24 in. (610 mm) OC. When wood studs are used, the assembly is limited to 1 and 2 hr. ratings.
- B. **Gypsum Board*** – Thickness, type, number of layers and fasteners as required in the individual Wall and Partition Design. Max diam of opening is 5 in. (127 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. **Through Penetrants** – One nonmetallic pipe or conduit to be centered within opening with a nom 1/4 in. (6 mm) annular space between pipe or conduit and periphery of opening. Pipe or conduit to be rigidly supported on both sides of the wall assembly. The following types and sizes of nonmetallic pipes or conduits may be used:

- A. **Polyvinyl Chloride (PVC) Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 solid core or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
- B. **Rigid Nonmetallic Conduit++** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA No. 70).
- C. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** – Nom 4 in. (102 mm) diam (or smaller) SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.
- D. **Acrylonitrile Butadiene Styrene (ABS) Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 solid core or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
- E. **Fire Retardant Polypropylene (FRPP) Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
- F. **Polyvinylidene Fluoride (PVDF) Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 PVDF pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

The T Ratings are 1, 2 and 3 Hr for pipes A, B and C in 1, 2 and 3 Hr rated wall assemblies, respectively. The T Ratings for pipe D, E and F are 1 Hr in 1 and 2 Hr rated wall assemblies and 2 Hr in 3 Hr rated wall assemblies in which it is installed.

3. **Firestop Device – Collar** – Collar to be installed in accordance with the accompanying installation instructions. Collar to be installed and latched around pipe and secured to both sides of wall with 3M Ultra Fast Anchor Straps or with 1/4 in. (6 mm) diam by min 1-1/2 in. (38 mm) long steel toggle bolts in conjunction with min 1-1/4 in. (32 mm) diam steel fender washers. Min of two, three or four anchor straps or anchor bolts, symmetrically located, for nom 2 in. (51 mm) diam (and smaller), nom 3 in. (76 mm) diam and nom 4 in. (102 mm) diam pipes, respectively.

3M COMPANY – Ultra PPD 1.5, 2.0, 3.0 and 4.0

4. **Fill, Void or Cavity Materials*** – **Caulk, Sealant or Putty** (Optional, Not Shown) – Generous bead of caulk or putty may be applied to outer perimeter of collar at its interface with wall surfaces.

3M COMPANY – CP 25WB+, IC 15WB+, FireDam 150+ caulk, FB-3000 WT sealant or MP+ Stix putty
(Note: CP 25WB+ not suitable for use with CPVC pipes.)

*Bearing the UL Classification Marking

++Bearing the UL Listing Mark

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System No. W-L-2300

May 19, 2005

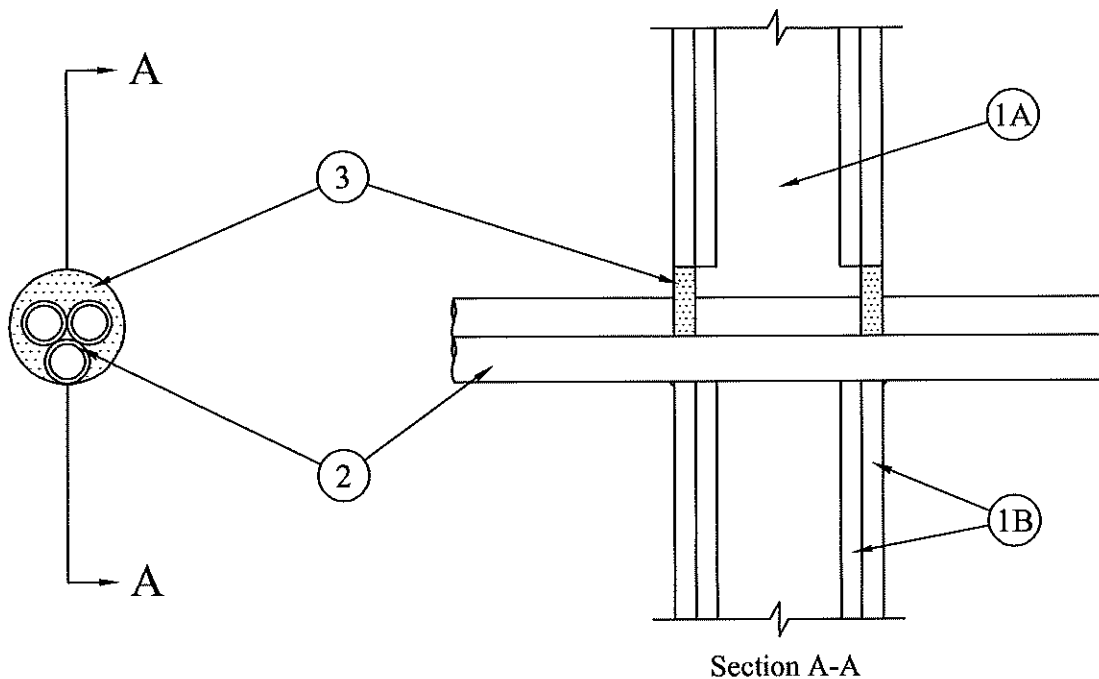
F Ratings – 1 & 2 Hr (See Item 1)

T Ratings – 0 & 1/2 Hr (See Item 1)

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- Wall Assembly** – The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
 - Studs** – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 in. by 4 in. (51 mm by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide spaced max 24 in. (610 mm) OC.
 - Gypsum Board*** – The gypsum board 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 4 in. (102 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed. The hourly T Rating is 0 and 1/2 Hr for 1 and 2 Hr rated assemblies, respectively.
- Through Penetrants** – One or more nonmetallic pipes, conduits or tubes installed concentrically or eccentrically within opening. Annular space between penetrants and periphery of opening to be min 0 in. (point contact) to max 1 in. (0 mm to max 25 mm). Space between penetrants shall be min 0 in. (point contact) to max 1 in. (0 mm to max 25 mm). Penetrants to be rigidly supported on both sides of wall. The following types and sizes of penetrants may be used:
 - Polyvinyl Chloride (PVC) Pipe** – Nom 1-1/2 in. (38 mm) diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - Rigid Nonmetallic Conduit++** – Nom 1-1/2 in. (38 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA No. 70).
 - Chlorinated Polyvinyl Chloride (CPVC) Pipe** – Nom 1-1/2 in. (38 mm) diam (or smaller) SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.
 - Crosslinked Polyethylene (PEX) Tubing** – Nom 1 in. (25 mm) diam (or smaller) SDR 9 PEX tubing for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
- Fill, Void or Cavity Material*** – **Caulk or Sealant** – Min 5/8 in. (16 mm) thickness of caulk 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.

3M COMPANY – IC 15WB+, CP 25WB+ caulk or FB-3000 WT sealant
(Note: CP 25WB+ not suitable for use with CPVC pipes.)

*Bearing the UL Classification Marking

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3M Fire Protection Products
www.3m.com/firestop

W-L-2300 • 1 of 1

Product Support Line
1-800-328-1687

Through Penetrations

Non-Metallic Pipes

2000 Series

Gypsum

W-L

System No. W-L-2553

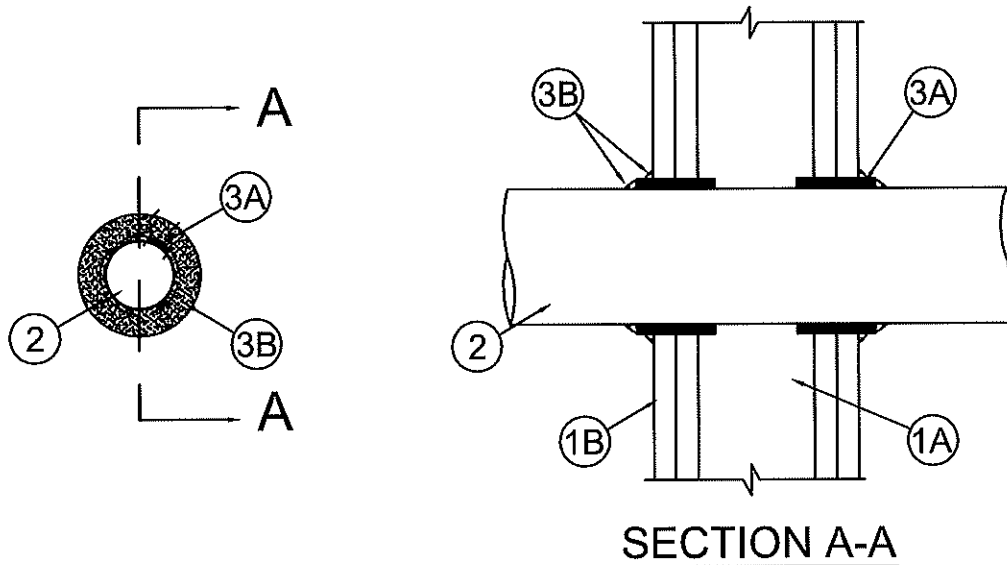
July 19, 2010

F Ratings – 1 and 2 Hr (See Item 1)
T Ratings – 1/2, 1 and 2 Hr (See Item 2)

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1. **Wall Assembly** – The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Studs** – Wall framing may consist of either wood studs 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. Steel studs to be min 3-1/2 in. (89 mm) wide spaced max 24 in. (610 mm) OC.
- B. **Gypsum Board*** – The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Design in the UL Fire Resistance Directory. Max diam of opening is 8 in. (203 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. **Through Penetrant** – One nom 6 in. (152 mm) diam nonmetallic pipe centered in the firestop system. The annular space between the penetrant and the periphery of opening shall be min 3/8 in. (10 mm) to max 5/8 in. (16 mm). Penetrant to be rigidly supported on both sides of wall assembly. The following types and sizes of nonmetallic pipe may be used:
- A. **Solid Core Polyvinyl Chloride (scPVC) Pipe** – Nom 6 in. (152 mm) diam Schedule 40 solid core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. The hourly T Rating is 1 hr and 2 hr for 1 hr and 2 hr fire rated assemblies, respectively, when Item 2A is used.
- B. **Cellular Core Polyvinyl Chloride (ccPVC) Pipe** – Nom 6 in. (152 mm) diam Schedule 40 cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. The hourly T Rating is 1/2 hr and 1 hr for 1 hr and 2 hr fire rated assemblies, respectively, when Item 2B is used.
3. **Firestop System** – The firestop system shall consist of the following:

- A. **Fill, Void or Cavity Materials* – Wrap Strip** – Nom 3/16 in. (5 mm) thick intumescent material supplied in nom 2-1/2 in. (64 mm) wide strips. Two layers of wrap strip tightly wrapped around nonmetallic pipe and secured with glass fiber-reinforced strapping tape. Wrap strip to be slid into opening such that the outer edge of wrap strip protrudes approx 5/8 in. (16 mm) from both surfaces of wall.

3M COMPANY

3M FIRE PROTECTION PRODUCTS – Fire Barrier Tuck-In WS Roll

- B. **Fill, Void or Cavity Material* – Caulk or Sealant** – Min 1/4 in. (6 mm) diam bead of sealant applied to gypsum board/wrap strip interface on both sides of wall.

3M COMPANY

3M FIRE PROTECTION PRODUCTS – IC 15WB+, CP 25WB+ or FB-3000 WT sealant

*Bearing the UL Classification Mark

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Note: Systems with Nonmetallic Through Penetrant(s) have not been evaluated with a pressure differential of 50 Pa between the exposed and unexposed surfaces as required by the National Building Code of Canada.

System No. C-AJ-1551

June 12, 2006

F Rating – 2 Hr

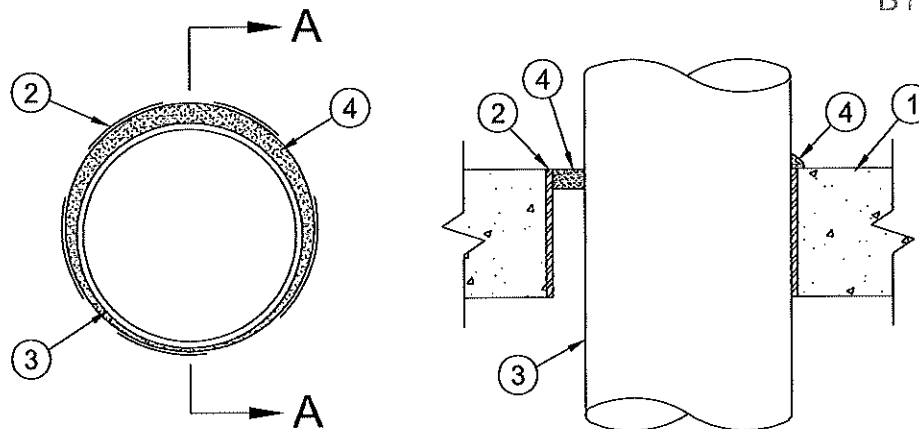
T Rating – 0 Hr

W Rating – Class 1 (See Item 4)

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**SECTION A-A**

1. **Floor or Wall Assembly** – Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600 - 2400 kg/m³) concrete floors or min 3-1/2 in. (89 mm) thick reinforced lightweight or normal weight concrete walls. Floor assembly may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow-core **Precast Concrete Units***. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening 28 in. (711 mm). Max diam of opening in floors constructed of hollow-core concrete is 7 in. (78 mm).

See **Concrete Blocks (CAZT)** and **Precast Concrete Units (CFTV)** categories in Fire Resistance Directory for names of manufacturers.

2. **Steel Sleeve** – (Optional) – Nom 28 in. (711 mm) diam (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Steel sleeve may be installed flush or may project max 2 in. (51 mm) beyond the floor or wall surfaces.
3. **Through Penetrant** – One metallic pipe, conduit, tubing or flexible metal piping installed concentrically or eccentrically within opening. Annular space between penetrant and periphery of opening or sleeve shall be min of 0 in. (0 mm, point contact) to max 3-7/8 in. (98 mm). Penetrant to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of penetrants 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) cast or ductile iron 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 INC

4. **Firestop System** – The details of the firestop system shall be as follows:

- A. **Packing Material** – (Optional, Not Shown) – Polyethylene backer rod or min 1 in. (25 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening 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 fill material. In floors constructed of hollow-core concrete, packing material to be recessed from top and bottom surfaces of floor as required to accommodate the required thickness of fill material.
- B. **Fill, Void or Cavity Materials*** – **Caulk or Sealant** – Min 1 in. (25 mm) thickness of caulk applied within the annulus, flush with top surface of floor or with both surfaces of wall. In floors constructed of hollow-core concrete, min 1 in. (25 mm) thickness of caulk applied within the annulus, flush with top and bottom surfaces of floor. Min 1/4 in. (6 mm) diam bead of caulk applied to the penetrant/concrete or penetrant/sleeve interface at the point contact location on the top surface of floor or both surfaces of wall or hollow-core floor.

3M COMPANY – IC 15WB+ Caulk, CP 25WB+ Caulk or FB-3000 WT Sealant

(Note - W Rating applies only when FB-3000 WT is used.)

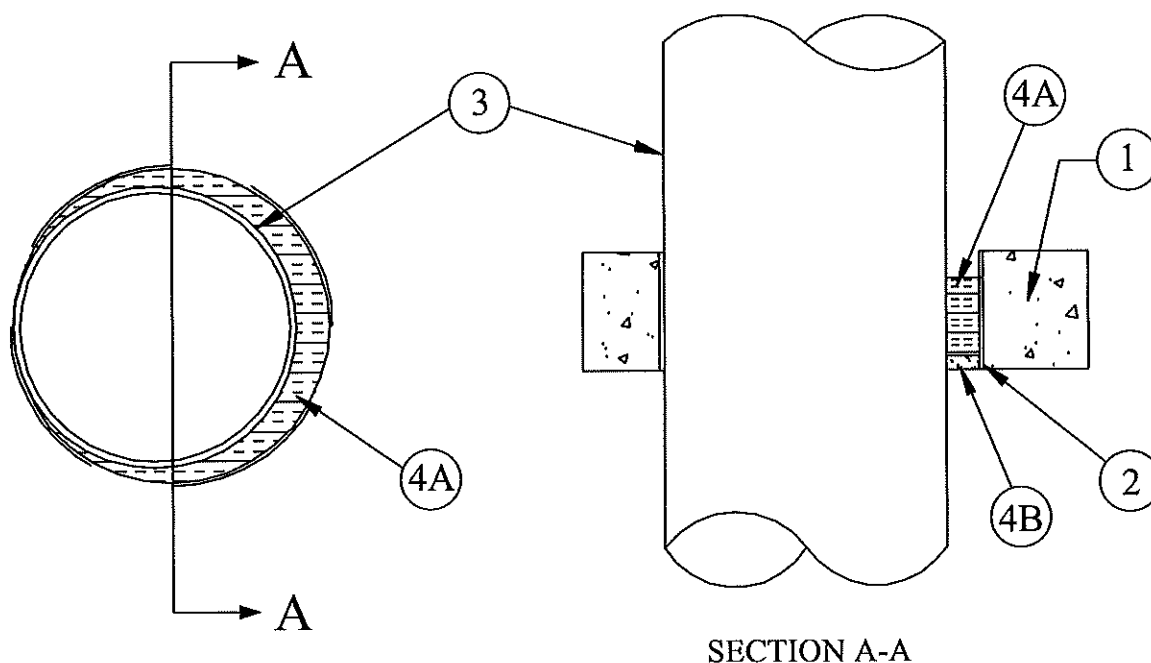
*Bearing the UL Classification Mark

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3M Fire Protection Products
www.3m.com/firestop

C-AJ-1551 • 1 of 1

Product Support Line: 1-800-328-1687
Choose option 4 for FAX ON DEMAND



1. **Floor or Wall Assembly** – Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening 13-3/4 in. (349 mm).
See **Concrete Blocks (CAZT)** category in Fire Resistance Directory for names of manufacturers.
2. **Steel Sleeve** – (optional) – Schedule 10 (or heavier) steel sleeve cast or grouted into slab, flush with bottom of floor. Sleeve may extend a max of 2 in. (51 mm) above top surface of floor or both surfaces of wall.
3. **Through Penetrant** – One metallic pipe or tubing installed concentrically or eccentrically within opening. Annular space between penetrant and sleeve or periphery of opening shall be min of 0 in. (0 mm) (point contact) to max 3 in. (76 mm). Penetrant to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of penetrants may be used:
 - A. **Steel Pipe** – Nom 10 in. (254 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
 - B. **Iron Pipe** – Nom 10 in. (254 mm) diam (or smaller) cast or ductile iron pipe.
 - C. **Conduit** – Nom 6 in. diam (or smaller) steel conduit or nom 4 in. diam (or smaller) steel electrical metallic tubing.
 - D. **Copper Tubing** – Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
 - E. **Copper Pipe** – Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
4. **Firestop System** – The firestop system shall consist of the following:
 - A. **Packing Material** – Min 3 in. (76 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from bottom surface of floor or from both surfaces of wall to accommodate the required thickness of fill material.
 - B. **Fill, Void or Cavity Materials* – Caulk or Sealant** – Min 1/2 in. (13 mm) thickness of caulk applied within the annulus, flush with bottom surface of floor or with both surfaces of wall.
3M COMPANY – CP 25WB+, IC 15WB+ caulk or FB-3000 WT sealant.

*-Bearing the UL Classification Mark

System No. C-AJ-1429

March 05, 2007

F Rating – 2 Hr

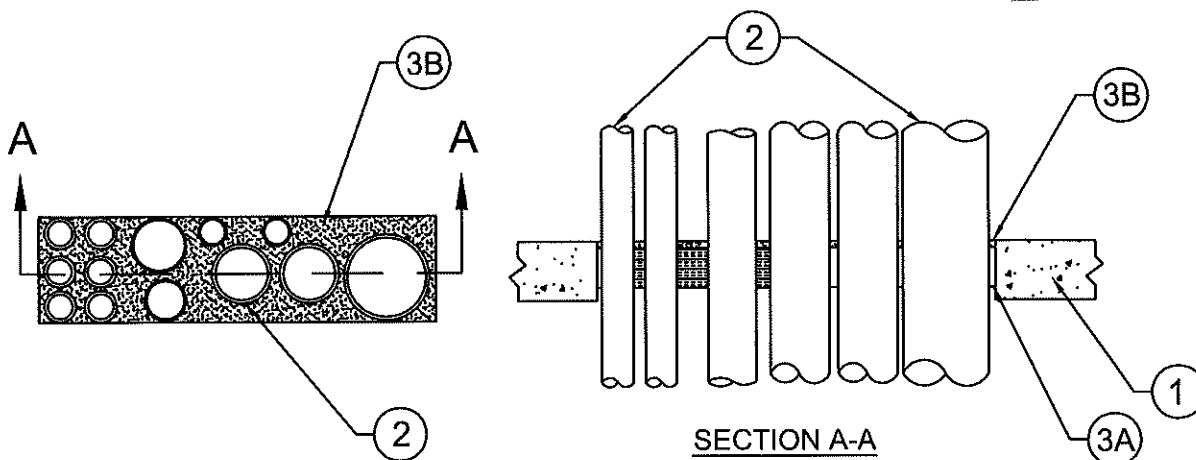
T Rating – 0 Hr

W Rating – Class 1 (See Item 3)

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1. **Floor or Wall Assembly** – Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Floor assembly may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow-core **Precast Concrete Units***. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max area of opening 240 sq in. (1548 sq cm) with a max dimension of 30 in. (762 mm). Max area of opening in floors constructed of hollow-core concrete is 49 sq in. (316 sq cm) with a max dimension of 7 in. (178 mm).

See **Concrete Blocks (CAZT)** and **Precast Concrete Units (CFTV)** categories in Fire Resistance Directory for names of manufacturers.

- 1A. **Steel Sleeve** – (Optional, Not Shown) – Nom 16 in. (406 mm) diam (or smaller) circular sleeve fabricated from nom 0.028 in. (0.71 mm) thick galv steel cast or grouted into floor or wall assembly flush with floor or wall surfaces.
2. **Through Penetrant** – One or more metallic pipes, conduits, tubes or flexible metal pipes installed concentrically or eccentrically within opening. Annular space between penetrants and periphery of opening shall be min of 0 in. (0 mm) (point contact) to max 2 in. (51 mm) Space between penetrants shall be min of 1/4 in. (6 mm) to max 2 in. (51 mm). Penetrants to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of penetrants may be used:

- A. **Steel Pipe** – Nom 6 in. (152 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. **Iron Pipe** – Nom 6 in. (152 mm) diam (or smaller) cast or ductile iron 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 3 in. (76 mm) diam (or smaller) Type L (or heavier) copper tubing.
- E. **Copper Pipe** – Nom 3 in. (76 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 INC.

3. **Firestop System** – The details of the firestop system shall be as follows:

- A. **Packing Material** – Min 3 in. (76 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening 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 fill material. In floors constructed of hollow-core concrete, packing material to be recessed from top and bottom surfaces of floor as required to accommodate the required thickness of fill material.

- B. **Fill, Void or Cavity Materials* – Caulk or Sealant** – Min 1/2 in. (13 mm) thickness of caulk applied within the annulus, flush with top surface of floor or with both surfaces of wall. In floors constructed of hollow-core concrete, min 1/2 in. (13 mm) thickness of caulk applied within the annulus, flush with top and bottom surfaces of floor. Min 1/4 in. (6 mm) diam bead of caulk applied to the penetrant/concrete interface at the point contact location on the top surface of floor or both surfaces of wall or hollow-core concrete.

3M COMPANY – IC 15WB+, CP 25WB+ caulk or FB-3000 WT sealant.

(Note: W Rating applies only when FB-3000 WT is used.)

* Bearing the UL Classification Marking

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3M Fire Protection Products
www.3m.com/firestop

C-AJ-1429 • 1 of 1

Product Support Line
1-800-328-1687

System No. C-AJ-2001

May 18, 2005

F Rating – 2 Hr

T Ratings – 0, 1-1/2 and 2 Hr (See Item 3)

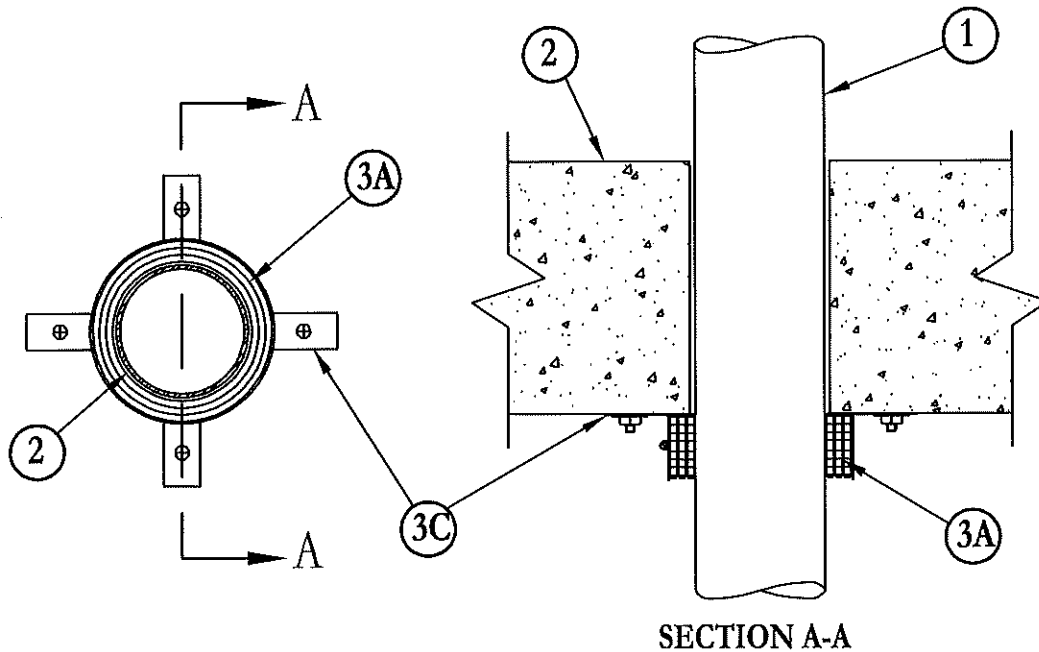
L Rating at Ambient – 7 CFM/sq ft (See Item 3B)

L Rating at 400 F – 1 CFM/sq ft (See Item 3B)

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**SECTION A-A**

- 1. Floor or Wall Assembly** – Lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Except as footnoted for floor assembly in table under Item 3, min thickness of solid concrete floor or wall assembly is 4-1/2 in. (114 mm). Floor assembly may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow core Precast Concrete Units*. Wall may also be constructed of any UL Classified Concrete Blocks*. Diam of opening through floor or wall to be 0 in. to 1/4 in. (0 mm to 6 mm) larger than the outside diam of nom 2 in. (51 mm) diam and smaller pipes or conduits. Diam of opening to be 0 in. to 1/2 in. (0 mm to 13 mm) larger than the outside diam of nom 2-1/2 in. (64 mm) diam and larger pipes or conduits. Max diam of opening is 7 in. (178 mm).

See Concrete Blocks (CAZT) and Precast Concrete Units (CFTV) categories in Fire Resistance Directory for names of manufacturers.

- 2. Through Penetrants** – One nonmetallic pipe or conduit to be centered in the through opening. Pipe or conduit to be rigidly supported on both sides of the floor or wall assembly. The following types and sizes of nonmetallic pipes or conduits may be used:
 - A. Polyvinyl Chloride (PVC) Pipe** – Nom 6 in. (152 mm) diam (or smaller) Schedule 40 solid-core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
 - B. Cellular – Core Polyvinyl Chloride (ccPVC) Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
 - C. Chlorinated Polyvinyl Chloride (CPVC) Pipe** – Nom 6 in. (152 mm) diam (or smaller) SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.
 - D. Acrylonitrile Butadiene Styrene (ABS) Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 solid-core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - E. Cellular Core Acrylonitrile Butadiene Styrene (ccABS) Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - F. Polybutylene (PB) Pipe** – Nom 3 in. (76 mm) diam (or smaller) SDR11 (or heavier) PB pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - G. Rigid Nonmetallic Conduit++** – Nom 4 in. (102 mm) diam (or smaller) (Schedule 40 or 80) PVC conduit installed in accordance with Article 347 of the National Electric Code (NFPA No. 70).
 - H. Flame Retardant Polypropylene (FRPP) Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 (or heavier) FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

See Rigid Nonmetallic Conduit (DZKT) category in UL Electrical Construction Materials Directory for names of manufacturers.

- 3. Firestop System** – The details of the firestop system shall be as follows:

- A. Fill, Void or Cavity Materials* – Wrap Strip** – Nom 1/4 in. (6 mm) thick intumescent elastomeric material faced on one side with aluminum foil, supplied in 1 in. and 2 in. (25 mm and 51 mm) wide strips. Strips tightly wrapped around nonmetallic pipe (foil side exposed) with the edges butted against the underside of the concrete floor or both sides of wall surface. Sufficient layers of wrap strip shall be installed to lap a min of 3/16 in. (5 mm) on the concrete around the entire perimeter of the through opening. The min wrap strip width and the min number of layers of wrap required is dependent upon the pipe type, the nom pipe diam, the wall of floor thickness and the hourly T Rating required, as shown in the following table.

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OCT 09 2024

System No. C-AJ-2001 *continued*

Pipe Type	Nom Pipe Diam In. (mm)	Min Wall or Floor Thkns In. (mm)	Wrap Strip Width In. (mm)	Min Wrap Strip Layers	T Rating, Hr
PVC, ccPVC or CPVC	1/2 to 1-1/2 (13 to 38)	2-1/2 (64)	1 (25)	1	0
ABS, ccABS or FRPP(a)	1/2 to 1-1/2 (13 to 38)	2-1/2 (64)	1 (25)	1	1
PVC, ccPVC or CPVC	1/2 to 2 (13 to 51)	2-1/2 (64)	2 (51)	1	0
PVC, ccPVC or CPVC	2 (51)	2-1/2 (64)	1 (25)	2	0
ABS, ccABS or FRPP(a)	2 (51)	2-1/2 (64)	1 (25)	2	1
PVC, ccPVC or CPVC	2-1/2 to 3 (64 to 76)	2-1/2 (64)	2 (51)	2	0
PVC, ccPVC or CPVC	3-1/2 to 4 (89 to 102)	2-1/2 (64)	2 (51)	3	0
PVC, ccPVC or CPVC, ABS, ccPVC or FRPP(a)	1/2 to 1-1/2 (13 to 38)	4-1/2 (114)	1 (25)	1	2
PVC, ccPVC, CPVC, ABS, ccABS or FRPP(a)	2 (51)	4-1/2 (114)	1 (25)	2	2
PVC, ccPVC, CPVC, ABS, ccABS or FRPP(a)	2-1/2 to 3 (64 to 76)	4-1/2 (114)	1 (25)	3	2
PVC, ccPVC, CPVC, ABS, ccABS, PB or FRPP(a)	2-1/2 to 3 (64 to 76)	4-1/2 (114)	2 (51)	2	2
PVC, ccPVC or CPVC	3-1/2 to 4 (89 to 102)	4-1/2 (114)	2 (51)	2	1-1/2
PVC, ccPVC, CPVC, ABS, ccABS or FRPP(b)	3-1/2 to 4 (89 to 102)	4-1/2 (114)	2 (51)	3	2
PVC	6 (152)	4-1/2 (114)	3 (76)	3	0

(a) – Requires use of aluminum tape detailed in Item 3E.

(b) – Requires use of pipe covering detailed in Item 3D.

(c) – For nom 6 in. (152 mm) diam pipe, 1 in. and 2 in. (25 mm and 51 mm), wide wrap strips are “Stacked” to attain nom 3 in. (76 mm) wrap strip width.

Each layer of wrap strip to be installed with butted seam with butted seams in successive layers staggered. Wrap strip layers temporarily held in position using aluminum foil tape, steel wire tie, or equivalent. In wall assemblies, the wrap strip is to be installed in the same manner used for floor assemblies, but it shall be installed symmetrically on both sides of the wall assembly.

3M COMPANY – FS-195+

- B. **Fill, Void or Cavity Materials* – Caulk, Sealant or Putty (Not Shown)** – Generous bead of caulk or putty to be applied to outer perimeter of wrap strip at its interface with floor or wall surface(s).

3M COMPANY – CP 25WB+, IC 15WB+ caulk, FB-3000 WT sealant or MP+ Stix putty.

(Note: L Ratings apply only when CP 25WB+ caulk or FB-3000 WT sealant is used. CP 25WB+ not suitable for use with CPVC pipes.)

- C. **Steel Collar** – Nom 1 in., 2 in. or 3 in. (25 mm, 51 mm or 76 mm) deep collar, dependent upon wrap strip width, with 1-1/4 in. (32 mm) wide by 2 in. (51 mm) long anchor tabs and min 1/2 in. (13 mm) long tabs to retain wrap strip layers. Coils of precut 0.016 in. (0.41 mm) thick (28 gauge) galv sheet steel available from wrap strip manufacturer. As an alternate, collar may be field-fabricated from min 0.016 in. (0.41 mm) thick (28 gauge) galv sheet steel in accordance with instruction sheet supplied by wrap strip manufacturer. Steel collar, with anchor tabs bent outward 90 deg, wrapped tightly around wrap strip layers with min 1 in. (25 mm) overlap at seam. Anchor tabs to be pressed tightly against floor or wall surface(s), and collar to be compressed around wrap strip layers using a min 1/2 in. (13 mm) wide by 0.028 in. (0.71 mm) thick stainless steel band clamp at the collar midheight. Two band clamps are required for 3 in. (76 mm) high collar on nom 6 in. (152 mm) diam pipe. As an alternate to the band clamps, 1 in. and 2 in. (25 mm and 51 mm) deep collars may be secured by a means No. 10 by 1/2 in. (13 mm) long sheet metal screws installed in the vertical axis at the center of the 1 in. (25 mm) overlap along the perimeter joint of the collar. A min of two and three screws are required for 1 in. and 2 in. (25 mm and 51 mm) deep collars, respectively. Collar to be secured to floor or wall surface(s) with 1/4 in. (6 mm) diam by min 1-1/2 in. (38 mm) long steel expansion bolts, or equivalent, in conjunction with steel nuts and min 1-1/4 in. (32 mm) diam steel fender washers. Anchor bolts to be used with every other anchor tab or as described in the following which ever is greater. Two anchor bolts, symmetrically located, required for nom 1/2 in. (13 mm) to nom 2 in. (51 mm) diam pipes. Three anchor bolts, symmetrically located, required for nom 2-1/2 in. to 3 in. (64 mm to 76 mm) diam pipes. Four anchor bolts, symmetrically located, required for nom 3-1/2 in. and 4 in. (89 mm to 102 mm) diam pipes. For 6 in. (152 mm) diam pipes, anchor bolts to be used with each anchor tab. Retainer tabs to be bent 90 deg toward pipe to lock wrap strip layers in position.
- D. **Pipe Covering*** – Nom 1 in. (25 mm) thick hollow cylindrical heavy density glass fiber units jacketed on the outside with an all service jacket. When required (see table), min 6 in. (152 mm) length of pipe covering installed around pipe at its egress from the steel collar (Item C) on the underside of floor or on both sides of wall. Pipe covering secured to pipe with steel wire ties spaced max 4 in. (102 mm) OC. Edge of pipe covering abutting steel collar to be sealed with a min 1/4 in. (6 mm) diam bead of caulk or putty (Item B).

See **Pipe and Equipment Covering – Materials (BRGU)** category in Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

OCT 09 2024

System No. C-AJ-2001 *continued*

- E. **Foil Tape (Not Shown)** – When required (see tables), nom 4 in. (102 mm) wide, 3 mil thick aluminum tape installed around pipe prior to installation of wrap strip (Item 3A) or Firestop Device (Item 3F). Min one layer wrapped around pipe with top edge of tape flush with bottom of surface of floor and extending downward. In walls, min one layer wrapped around pipe flush with both sides of wall and extending outward.
- F. **Firestop Device*** (Not Shown) – As an alternate to Items A and C when nom 1-1/2, 2, 3, 4 or 6 in. (38, 51, 76, 102 or 152 mm) diam nonmetallic pipes are used, a firestop device consisting of a sheet-steel split collar lined with intumescent material and provided with steel clips for attachment may be used. Firestop device to be installed on underside of floor or on both sides of wall in accordance with the accompanying installation instructions. The firestop device type to be used is dependent upon the wall or floor thickness, the pipe type and nom pipe diam, as tabulated below:

Pipe Type	Nom Pipe Diam In. (mm)	Min Wall or Floor Thkns In. (mm)	Firestop Device
PVC, ccPVC or CPVC, ABS, ccABS or FRPP(a)	1-1/2 (38 mm)	2-1/2 (64)	PPD 1.5 or PPD 150
PVC, ccPVC or CPVC, ABS, ccABS or FRPP(a)	2 (51 mm)	2-1/2 (64)	PPD 2 or PPD 200
PVC, ccPVC or CPVC	3 (76 mm)	2-1/2 (64)	PPD 300
PVC, ccPVC or CPVC	4 (102 mm)	2-1/2 (64)	PPD 400
PB	1-1/2 (38 mm)	4-1/2 (114 mm)	PPD 150
PB	2 (51 mm)	4-1/2 (114 mm)	PPD 200
PVC, ccPVC or CPVC, ABS, ccABS or FRPP(a)	3 (76 mm)	4-1/2 (114 mm)	PPD 3 or PPD 300
PB	3 (76 mm)	4-1/2 (114 mm)	PPD 300
PVC, ccPVC or CPVC, ABS, ccABS or FRPP(a)	4 (102 mm)	4-1/2 (114 mm)	PPD 4 or PPD 400
PVC	6 (152 mm)	4-1/2 (114 mm)	PPD 6

(a) – Requires use of aluminum tape detailed in Item 3E.

(b) – Requires use of pipe covering detailed in Item 3D.

3M COMPANY

++Bearing the UL Listing Mark

*Bearing the UL Classification Mark

Through Penetrations

Non-Metallic Pipes

2000 Series

Concrete

CAJ

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System No. C-AJ-2510

June 30, 2005

F Rating – 2 Hr

T Ratings – 0, 3/4 and 2 Hr (See Item 2)

L Rating at Ambient – Less Than 1 CFM/sq ft

L Rating at 400 F – 5 CFM/sq ft

W Rating – Class 1

OCT 09 2024

BY: _____

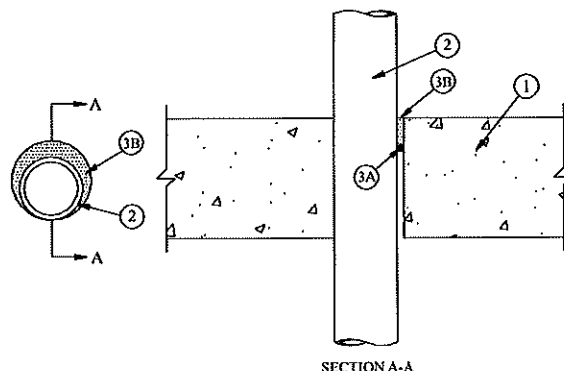
Through Penetrations

Non-Metallic Pipes

2000 Series

Concrete

CAJ



1. **Floor or Wall Assembly** – Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. The opening shall be 1 in. (25 mm) larger than the nom diam of penetrant.
See Concrete Blocks (CAZT) category in Fire Resistance Directory for names of manufacturers.
- 1A. **Steel Sleeve** – (optional, not shown) – Schedule 40 (or heavier) steel sleeve cast or grouted into floor or wall assembly, flush with both surfaces of floor or wall assembly. The nom size of sleeve shall be 1 in. (25 mm) larger than the nom size of through penetrant.
2. **Through Penetrants** – For nom 2 in. (51 mm) diam (or smaller) pipes, one nonmetallic pipe, conduit or tubing to be installed concentrically or eccentrically within the firestop system. The annular space between the penetrant and the periphery of the opening shall be a min of 0 in. (0 mm, point contact) to a max of 5/8 in. (16 mm). For nom 3 in. (76 mm) diam pipes, one nonmetallic pipe, conduit or tubing to be installed concentrically within the firestop system. The annular space between the penetrant and the periphery of the opening shall be 1/4 in. (6 mm). When steel sleeve is used, the annular space between the penetrant and the sleeve shall be a min of 1/4 in. (6 mm) to a max of 3/8 in. (10 mm). Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of nonmetallic pipes, conduits or tubing may be used:
 - A. **Polyvinyl Chloride (PVC) Pipe** – Nom 3 in. (51 mm) diam (or smaller) Schedule 40 solid core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** – Nom 3 in. (51 mm) diam (or smaller) SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.
 - C. **Rigid Nonmetallic Conduit+** – Nom 3 in. (51 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA No. 70).
 - D. **Crosslinked Polyethylene (PEX) Tubing** – Nom 2 in. (51 mm) diam (or smaller) SDR 7.3 or SDR 9 PEX tubing for use in closed (process or supply) piping systems.
 - E. **Electrical Nonmetallic Tubing (ENT+)** – Nom 2 in. (51 mm) diam (or smaller) corrugated-wall electrical nonmetallic tubing (ENT) constructed of polyvinyl chloride (PVC) and installed in accordance with Article 331 of the National Electrical Code (NFPA No. 70).
See Electrical Nonmetallic Tubing (FKHU) category in the Electrical Construction Materials Directory for names of manufacturers.
 - F. **Flexible Nonmetallic Conduit, Liquid-Tight (FNMC)+** – Nom 2 in. (51 mm) diam (or smaller) corrugated-wall flexible nonmetallic conduit, liquid-tight (FNMC) constructed of polyvinyl chloride (PVC) and installed in accordance with Article 351 of the National Electrical Code (NFPA No. 70).
See Flexible Nonmetallic Conduit, Liquid-Tight (DXOQ) category in the Electrical Construction Materials Directory for names of manufacturers.
 - G. **Polyvinyl Chloride (PVC) Pipe** – Nom 2 in. (51 mm) diam (or smaller) Schedule 40 cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - H. **Acrylonitrile Butadiene Styrene (ABS) Pipe** – Nom 2 in. (51 mm) diam (or smaller) Schedule 40 solid core or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. T Rating is 0 Hr when steel sleeve is used. When sleeve is not used and pipe diam is 2 in. (51 mm) or less, T Rating is 2 Hr for penetrants A, B, C, D, E and F. When sleeve is not used and pipe diam is 3 in. (76 mm), T Rating is 3/4 Hr for penetrants A, B and C. T Rating is 0 Hr for penetrants G and H.
3. **Firestop System** – The details of the firestop system shall be as follows:
 - A. **Packing Material** – (Optional) – Nom 3/8 in. (10 mm) diam polyethylene backer rod or min 3/8 in. (10 mm) thickness of mineral wool batt insulation firmly packed into opening as a permanent form and recessed from both surfaces of floor or wall as required to accommodate the required thickness of fill material.
 - B. **Fill, Void or Cavity Material* – Sealant** – For nom 2 in. (51 mm) diam (or smaller) pipes, a min 2 in. (51 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall. For nom 3 in. (76 mm) diam pipes, a min 2-1/2 in. (64 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall. An additional 1/4 in. (6 mm) bead of sealant applied at the penetrant/concrete interface at point contact location.

3M COMPANY – FB-3000 WT

*Bearing the UL Classification Mark

+Bearing the UL Listing Mark

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www.3m.com/firestop**C-AJ-2510 • 1 of 1**Product Support Line
1-800-328-1687

System No. C-AJ-2377

May 19, 2005

F Rating – 2 Hr

T Rating – 2 Hr

W Rating – Class I (See Item 3)

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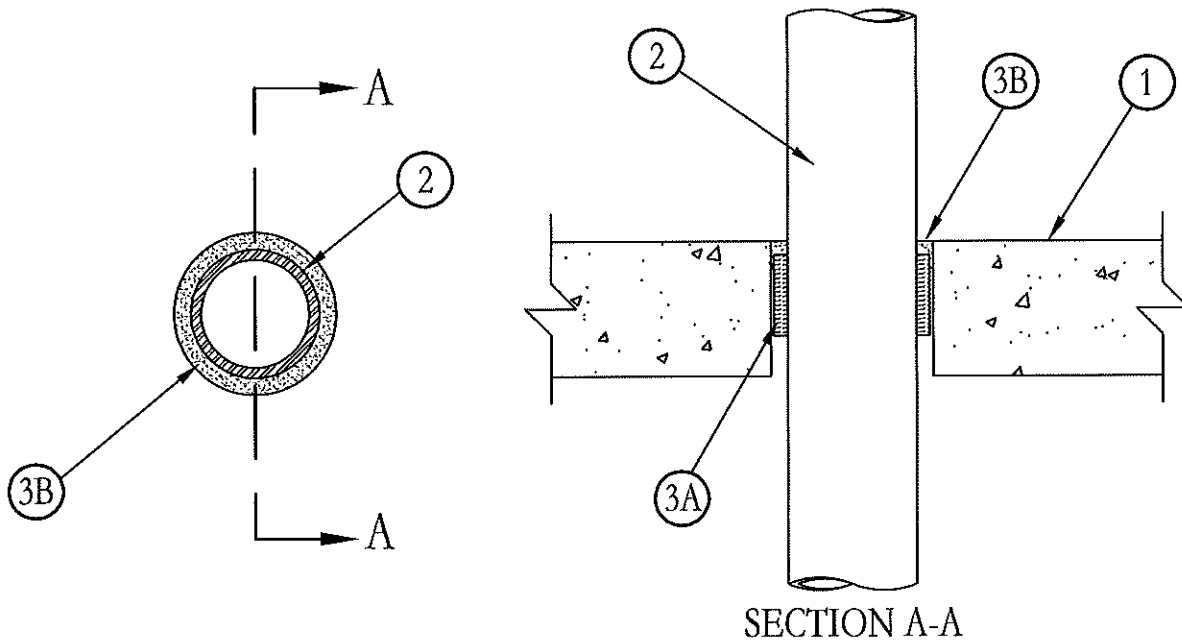
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Through Penetrations

Non-Metallic Pipes

2000 Series

Concrete

CAJ

1. **Floor or Wall Assembly** – Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Floor assembly may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow-core **Precast Concrete Units***. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening 5 in. (127 mm).
See **Concrete Blocks (CAZT)** and **Precast Concrete Units (CFTV)** categories in Fire Resistance Directory for names of manufacturers.
2. **Through Penetrant** – Nom 3 in. (76 mm) diam (or smaller) Schedule 40 polyvinyl chloride (PVC) or SDR13.5 chlorinated polyvinyl chloride (CPVC) pipe for use in closed (process or supply) piping systems. One pipe to be installed concentrically or eccentrically within opening. Annular space between pipe and periphery of opening shall be min 1/2 in. to max 1 in. (13 mm to max 25 mm). Pipe to be rigidly supported on both sides of floor or wall assembly.
3. **Firestop System** – The firestop system shall consist of the following:
 - A. **Packing Material** – Min 3 in. (76 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening 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 fill material. In floors constructed of hollow-core concrete, packing material to be recessed from top and bottom surfaces of floor as required to accommodate the required thickness of fill material.
 - B. **Fill, Void or Cavity Materials* – Caulk or Sealant** – Min 1/2 in. (13 mm) thickness of caulk applied within the annulus, flush with top surface of floor or with both surfaces of wall. In floors constructed of hollow-core concrete, min 1/2 in. (13 mm) thickness of caulk applied within the annulus, flush with top and bottom surfaces of floor.
3M COMPANY – IC 15WB+, CP 25WB+ caulk or FB-3000 WT sealant.
(Note: W Rating applies only when FB-3000 WT sealant is used. CP 25WB+ not suitable for use with CPVC pipes.)

*Bearing the UL Classification Marking

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www.3m.com/firestop**C-AJ-2377 • 1 of 1**Product Support Line
1-800-328-1687

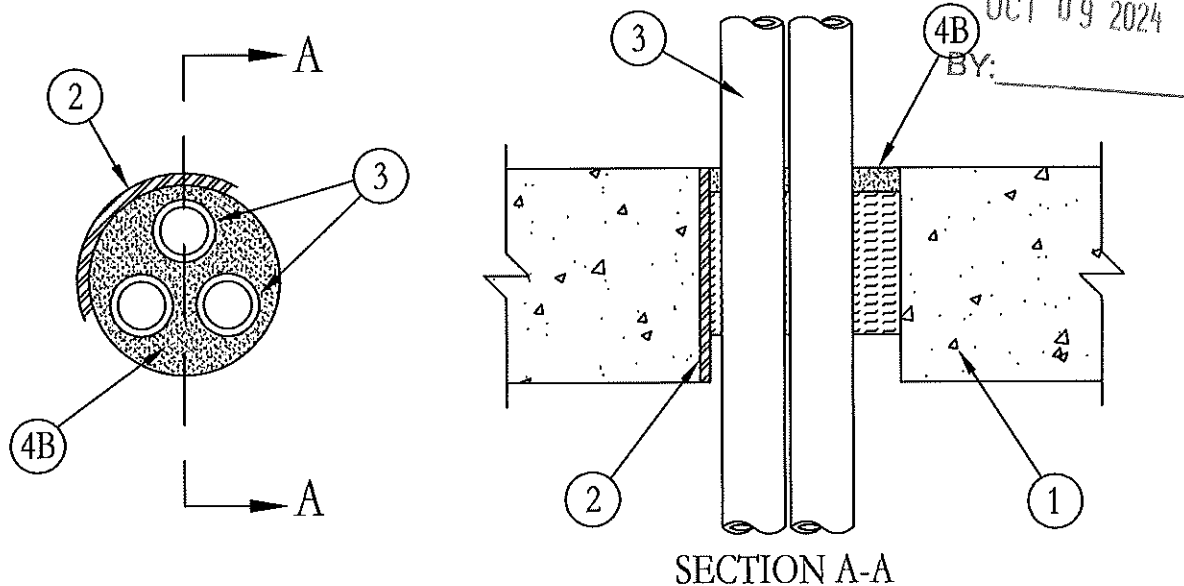
System No. C-AJ-2378

May 19, 2005

F Rating – 2 Hr

T Rating – 0 Hr

W Rating – Class I (See Item 4)



Through Penetrations

Non-Metallic Pipes

2000 Series

Concrete

CAJ

1. **Floor or Wall Assembly** – Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Floor assembly may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow-core **Precast Concrete Units***. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening 5 in. (127 mm).
See **Concrete Blocks (CAZT)** and **Precast Concrete Units (CFTV)** categories in Fire Resistance Directory for names of manufacturers.
2. **Steel Sleeve (Optional)** – Nom 5 in. (127 mm) diam (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Steel sleeve may be installed flush or may project max 2 in. (51 mm) beyond the floor or wall surfaces.
3. **Through Penetrants** – One or more nonmetallic pipes, conduits or tubes installed concentrically or eccentrically within opening. Annular space between penetrants and periphery of opening or sleeve shall be min of 1/4 in. to max 2 in. (6 mm to max 51 mm). The space between penetrants shall be min of 1/4 in. to max 2 in. (6 mm to max 51 mm). Penetrants to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of penetrants may be used:
 - A. **Polyvinyl Chloride (PVC) Pipe** – Nom 1-1/2 in. (38 mm) diam (or smaller) Schedule 40 solid core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - B. **Rigid Nonmetallic Conduit†** – Nom 1-1/2 in. (38 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA No. 70).
 - C. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** – Nom 1-1/2 in. (38 mm) diam (or smaller) SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.
 - D. **Crosslinked Polyethylene (PEX) Tubing** – Nom 1 in. (25 mm) diam (or smaller) SDR 9 PEX tubing for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
4. **Firestop System** – The details of the firestop system shall be as follows:
 - A. **Packing Material** – Min 3 in. (76 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or top edge of sleeve or from both surfaces of wall or both ends of sleeve as required to accommodate the required thickness of fill material. In floors constructed of hollow-core concrete, packing material to be recessed from top and bottom surfaces of floor or sleeve as required to accommodate the required thickness of fill material.
 - B. **Fill, Void or Cavity Materials* – Caulk or Sealant** – Min 1/2 in. (13 mm) thickness of caulk applied within the annulus, flush with top surface of floor or top edge of sleeve or with both surfaces of wall or both ends of sleeves. In floors constructed of hollow-core concrete, min 1/2 in. (13 mm) thickness of caulk applied within the annulus, flush with top and bottom surfaces of floor or sleeve. Min 1/4 in. (6 mm) diam bead of caulk applied to the penetrant/concrete or penetrant/sleeve interface at the point contact location on the top surface of floor or both surfaces of wall or hollow-core concrete.
3M COMPANY – IC 15WB+, CP 25WB+ caulk or FB-3000 WT sealant.
(Note: W Rating applies only when FB-3000 WT sealant is used. CP 25WB+ not suitable for use with CPVC pipes.)

*Bearing the UL Classification Marking

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System No. C-AJ-2637

February 15, 2010

F Rating – 2 & 3 Hr (See Item 2)

T Rating – 1-1/2 Hr

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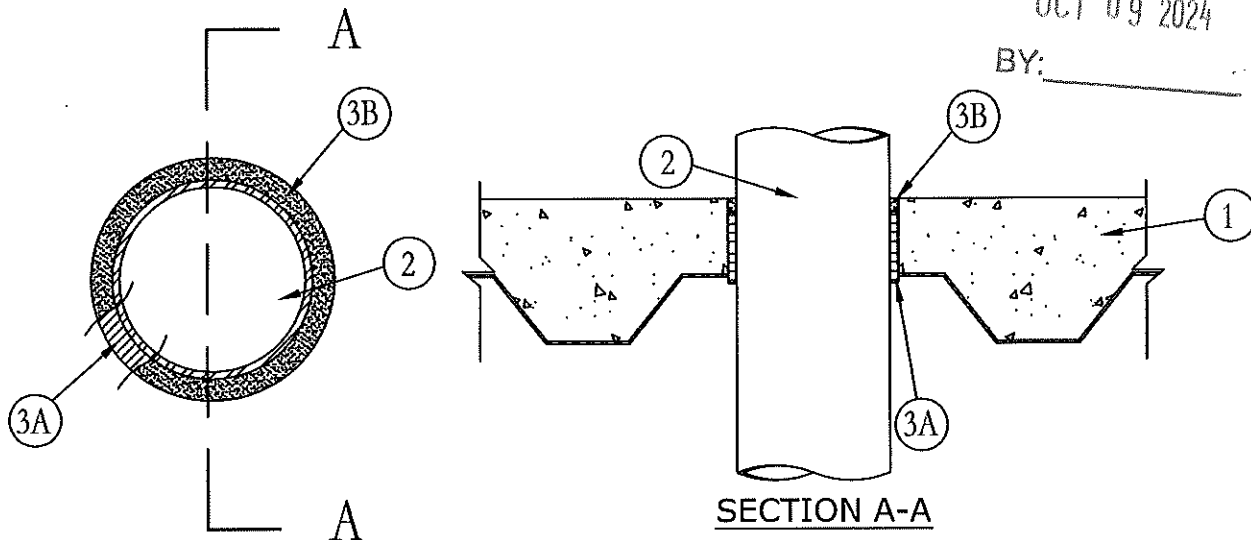
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Through Penetrations

Non-Metallic Pipes

2000 Series

Concrete

CAJ

1. **Wall Assembly** – Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Wall may also be constructed of any UL Classified Concrete Blocks*. Floor assembly may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow-core Precast Concrete Units*. Max diam of opening is 5 in. (127 mm).

See Concrete Blocks (CAZT) and Precast Concrete Units (CFTV) category in the Fire Resistance Directory for names of manufacturers.

- 1A. **Floor Assembly (As an alternate to Item 1)** – The fire-rated unprotected concrete and steel floor assembly shall be constructed of the materials and in the manner specified in the individual D900 Series designs in the UL Fire Resistance Directory and as summarized below:
 - A. **Concrete** – Min 2 1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete topping, as measured from the top of the steel floor units.
 - B. **Steel Floor and Form Units*** – Composite or noncomposite 1-1/2, 2 or 3 in. (38, 51 or 76 mm) deep fluted galv units as specified in the individual Floor-Ceiling design. Diam of opening through floor to be 1/2 to 5/8 in. (13 to 16 mm) larger than the outside diam of through-penetrant (Item 2). Max diam of opening is 5 in. (127 mm).
2. **Through Penetrants** – One nonmetallic pipe or conduit to be installed concentrically within the firestop system. The annular space between the pipe or conduit and the periphery of the opening shall be 1/4 in. (6 mm). Circular opening size must be 1 in. larger than the nominal pipe size. Pipe or conduit to be rigidly supported on both sides of the floor or wall assembly. The following types and sizes of nonmetallic pipes or conduits may be used:
 - A. **Polyvinyl Chloride (PVC) Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 solid core or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - B. **Fire Retardant Polypropylene (FRPP) Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - C. **Rigid Nonmetallic Conduit+** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA No. 70).

Cellular core PVC pipe (Item 2A) limited to a maximum 2 Hr F Rating.

3. **Firestop System** – The firestop system shall consist of the following:
 - A. **Fill, Void or Cavity Materials* – Wrap Strip** – Min 3/16 in. (5 mm) thick intumescent material supplied in 2-1/2 in. (64 mm) wide strips. Single layer of pre-cut wrap strip tightly wrapped around nonmetallic pipe and secured with the adhesive closure tab. When installed in floors, wrap strip is to be recessed within the opening such that the bottom of the wrap strip layer is min 1/4 in. (6 mm) below the bottom surface of floor. For wall assemblies, wrap strip is to be installed on both sides of wall and installed in the wall such that the wrap strip is extending 5/8 in. (16 mm) from both surfaces of wall.

3M COMPANY

3M FIRE PROTECTION PRODUCTS – Tuck-In Wrap Strip WS 200, WS 300 or WS 400

- B. **Fill, Void or Cavity Materials* – Sealant** – Min 1/4 in. (6 mm) thickness of sealant applied within annular space, flush with top surface of floor. When hollow-core Precast concrete units are used Min 1/2 (13 mm) thickness of sealant applied within annular space, flush with top surface of floor. Wall assemblies are to have a min 1/4 in. (6 mm) diam bead of sealant applied to concrete or concrete block/wrap strip interface on both sides of wall.

3M COMPANY

3M FIRE PROTECTION PRODUCTS – IC-15WB+, CP 25WB+, or 3000 WT Sealant

*Bearing the UL Classification Mark

++Bearing the UL Listing Mark

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System No. W-L-5011

September 07, 2004

(Formerly System No. 568)

F Ratings – 1 and 2 Hr(See Item 1)

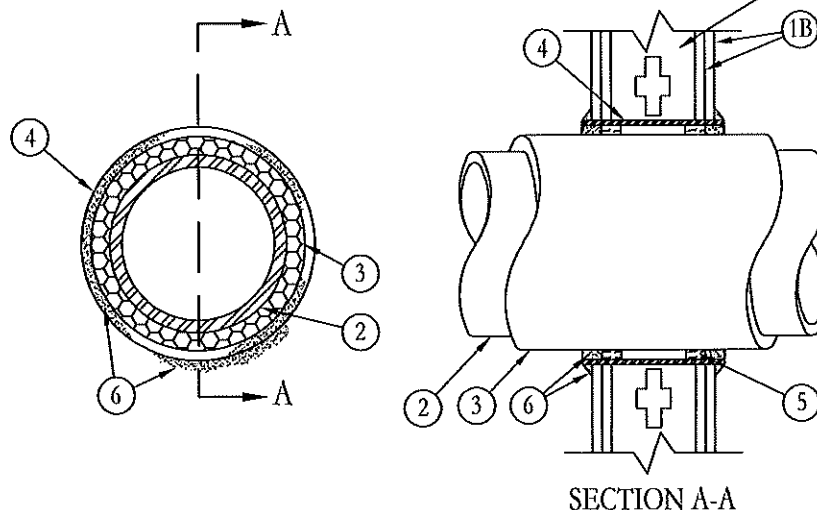
T Ratings – 1/2 and 1 Hr(See Item 2)

L Rating At Ambient – 2 CFM/sq ft

L Rating At 400 F – less than 1 CFM/sq ft

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1. **Wall Assembly** – The 1 or 2 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 and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Studs** – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min 3-5/8 in. wide by 1-3/8 deep channels spaced max 24 in. OC.
- B. **Gypsum Board*** – Nom 5/8 in. thick, 4 ft 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 14-1/2 in. for wood stud walls and 17 in. for steel stud walls.

The hourly F Rating of the firestop system is 1 hr when installed in a 1 hr fire rated wall and 2 hr when installed in a 2 hr fire rated wall.

2. **Through Penetrants** – One metallic pipe or tubing to be centered within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:

- A. **Steel Pipe** – Nom 12 in. diam (or smaller) Schedule 10 (or heavier) steel pipe. When steel pipe is used, T Rating is 1 hr.
- B. **Copper Tubing** – Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing. When copper tubing is used, T Rating is 1/2 and 1 hr when installed in 1 and 2 hr rated walls, respectively.
- C. **Copper Pipe** – Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe. When copper pipe is used, T Rating is 1/2 and 1 hr when installed in 1 and 2 hr rated walls, respectively.

3. **Pipe Covering*** – Nom 1 or 1-1/2 in. thick hollow cylindrical heavy density (min 3.5 pcf) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints sealed with metal fastener strip tape supplied with the product.

See **Pipe and Equipment Coverings – Materials** – (BRGU) category in Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

4. **Steel Sleeve** – Cylindrical sleeve fabricated from min 0.019 in. thick (No. 28 gauge) galv sheet steel and having a min 2 in. lap along the longitudinal seam. Length of steel sleeve to be equal to thickness of wall plus 1 in. such that, when installed, the ends of the sleeve will project approx 1/2 in. beyond the surface of the wall on both sides of the wall assembly. The diam of the openings cut in the gypsum wallboard layers on each side of the wall assembly (concentric with pipe) to be 2 to 2-1/2 in. larger than outside diam of pipe insulation such that, when the steel sleeve is installed, a 1 to 1-1/4 in. annular space will be present between the steel sleeve and the pipe insulation around the entire circumference of the pipe. Sleeve installed by coiling the sheet steel to a diam smaller than the through opening, inserting the coil through the openings and releasing the coil to let it uncoil against the circular cutouts in the gypsum wallboard layers.
5. **Packing Material** – Polyethylene backer rod or min 1 in. thickness of mineral wool batt insulation firmly packed into steel sleeve on both sides of the wall assembly as permanent forms. Packing material to be recessed min 1 in. from end of steel sleeve (recessed min 1/2 in. into gypsum wallboard surface) on both sides of wall assembly.
6. **Fill, Void or Cavity Materials*** – **Caulk or Sealant** – Min 1 in. thickness of fill material applied within annulus on both sides of wall assembly. Thickness for fill material for nom 3 in. diam (or smaller) steel pipes or conduits may be reduced to a min 1/2 in. A nom 1/4 in. diam continuous bead of caulk shall be applied around the circumference of the steel sleeve at its egress from the gypsum wallboard layers on both sides of the wall assembly.

3M COMPANY – CP 25WB+ caulk or FB-3000 WT sealant

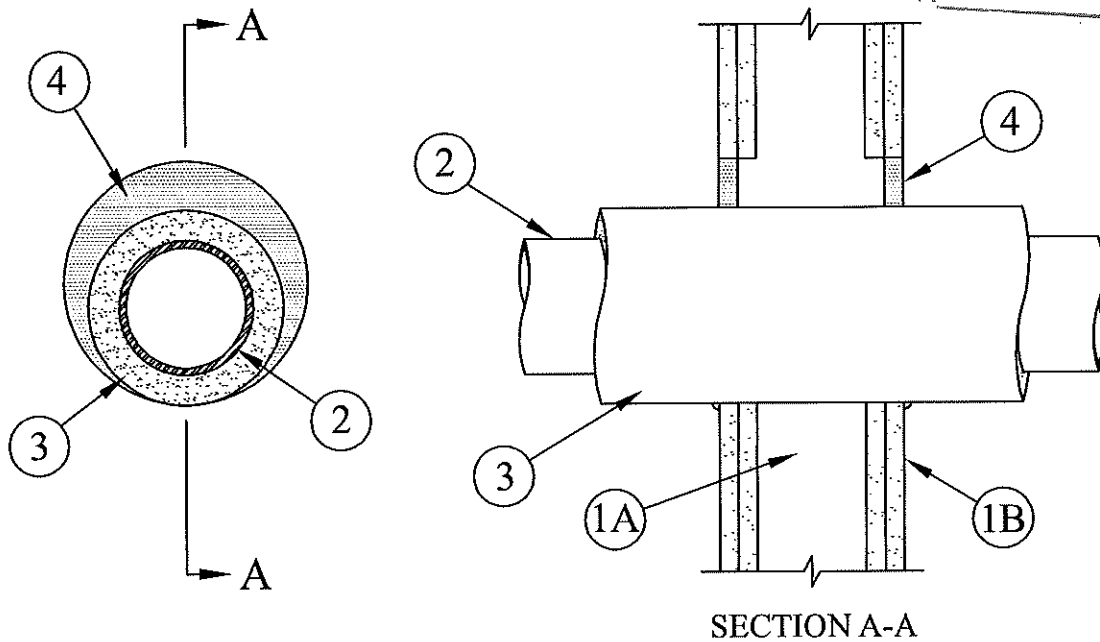
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Through Penetrations

Insulated Pipes

5000 Series

Gypsum

WL

- Wall Assembly** – The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- Studs** – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 in. by 4 in. (51 mm by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide spaced max 24 in. (610 mm) OC.
- Gypsum Board*** – The gypsum board 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 12-1/2 in. (318 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

- Through Penetrants** – One metallic pipe or tubing installed concentrically or eccentrically within opening. Penetrant to be rigidly supported on both sides of wall. The following types and sizes of penetrants may be used:

- Steel Pipe** – Nom 8 in. (203 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
- Iron Pipe** – Nom 8 in. (203 mm) diam (or smaller) cast or ductile iron pipe.
- Copper Tubing** – Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
- Copper Pipe** – Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

- Pipe Covering*** – Nom 1 in., 1-1/2 in. or 2 in. (25 mm, 38 mm or 51 mm) thick hollow cylindrical heavy density glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied SSL tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. Annular space between pipe covering and periphery of opening to be min 0 in. (point contact) to max 1-7/8 in. (0 mm to max 48 mm).

See **Pipe and Equipment Covering-Materials (BRGU)** category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

The hourly T Rating is 1-1/4 Hr for pipe coverings of nom 1 in. and 1-1/2 in. (25 mm and 38 mm) thick for 2 Hr rated assemblies. The hourly T Rating is 1-1/2 Hr for pipe coverings of nom 2 in. (51 mm) thick for 2 Hr rated assemblies. The hourly T Rating is 1/2 Hr for pipe coverings of nom 1 in. and 1-1/2 in. (25 mm and 38 mm) thick for 1 Hr rated assemblies. The hourly T Rating is 3/4 Hr for pipe coverings of nom 2 in. (51 mm) thick for 1 Hr rated assemblies.

- Fill, Void or Cavity Material*** – Caulk or Sealant – Min 5/8 in. (16 mm) thickness of caulk applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/pipe covering interface at point contact location on both sides of wall.

3M COMPANY – CP 25WB+, IC 15WB+ caulk or FB-3000 WT sealant

*Bearing the UL Classification Marking

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System No. W-L-5169

May 19, 2005

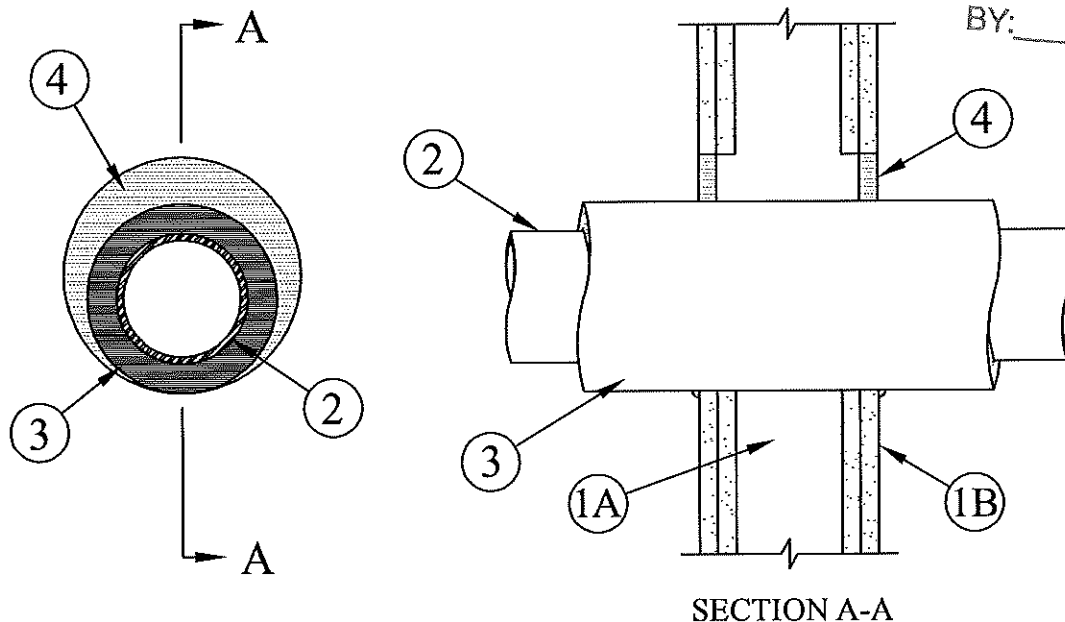
F Ratings – 1 & 2 Hr (See Item 1)

T Ratings – 0 & 1 Hr (See Item 3)

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- Wall Assembly** – The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
 - Studs** – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 in. by 4 in. (51 mm by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide spaced max 24 in. (610 mm) OC.
 - Gypsum Board*** – The gypsum board 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 7-1/2 in. (191 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
- Through Penetrants** – One metallic pipe or tubing installed concentrically or eccentrically within opening. Penetrant to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:
 - Steel Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
 - Iron Pipe** – Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe.
 - Copper Tubing** – Nom 2 in. (51 mm) diam (or smaller) Type L (or heavier) copper tubing.
 - Copper Pipe** – Nom 2 in. (51 mm) diam (or smaller) Regular (or heavier) copper pipe.
- Tube Insulation-Plastics+** – Nom 3/4 in. (19 mm) thick (or less) acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. Annular space between tube insulation and periphery of opening to be min 0 in. (point contact) to max 1-1/2 in. (0 mm to 38 mm).
See Plastics (QMFZ2) category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL 94 Flammability Classification of 94-5A may be used.
T Rating is 1 Hr for nom 3/4 in. (19 mm) thick tube insulation in 2 Hr rated assemblies. T Rating is 0 Hr for 3/4 in. (19 mm) thick tube insulation in 1 Hr rated assemblies. T Rating is 0 Hr for tube insulations less than nom 3/4 in. (19 mm) thick in 1 and 2 Hr rated assemblies.
- Fill, Void or Cavity Material*** – **Caulk or Sealant** – Min 5/8 in. (16 mm) thickness of caulk applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/tube insulation interface at point contact location on both sides of wall.

3M COMPANY – CP 25WB+, IC 15WB+ caulk or FB-3000 WT sealant

*Bearing the UL Classification Marking

+Bearing the UL Recognized Component Marking

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System No. W-L-8010

May 19, 2005

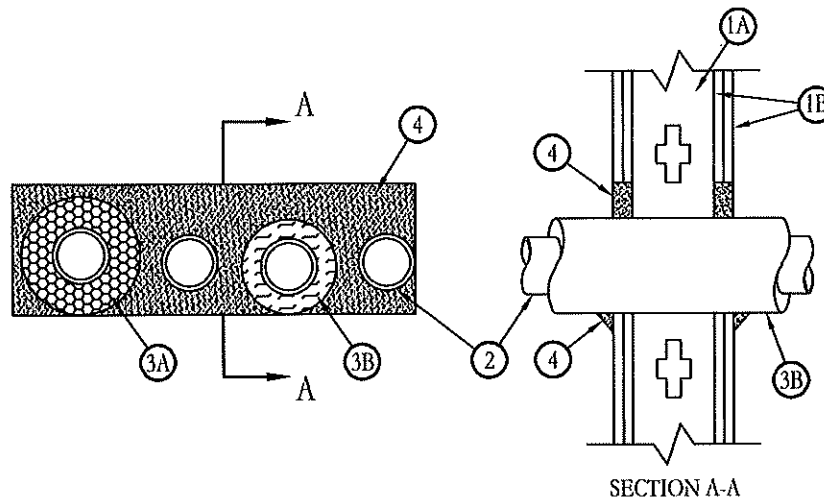
F Ratings – 1 & 2 Hr (See Item 1)

T Ratings – 1/4, 3/4, 1, 1-1/2 and 1-3/4 Hr (See Items 2 & 3)

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- Wall Assembly** – The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400 or V400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- Studs** – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 in. by 4 in. (51 mm to max 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-5/8 in. (92 mm) wide and spaced max 24 in. (610 mm) OC.
- Gypsum Board*** – Nom 5/8 in. (16 mm) thick gypsum board, as specified in the individual Wall and Partition Design. Max area of opening is 65-1/4 sq in. (421 cm²) with max dimension of 14-1/2 in. (368 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly.

- Through Penetrants** – A max of four pipes, conduits or tubing to be installed within the opening. The space between pipes, conduits or tubing shall be min 1/2 in. to max 1-5/16 in. (13 mm to max 33 mm). The space between pipes, conduits or tubing and periphery of opening shall be min 1-3/16 in. (30 mm) for uninsulated copper tubes and copper pipes (Items 2C and 2D) and 0 in. (point contact) for insulated copper tubes and copper pipes and uninsulated steel pipes and conduit (Item 2B). The space between pipes, conduits or tubing and periphery of opening shall be max 1-5/16 in. (33 mm). Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

- Steel Pipe** – Nom 2 in. (51 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
- Conduit** – Nom 2 in. (51 mm) diam (or smaller) steel electrical metallic tubing or steel conduit.
- Copper Tubing** – Nom 2 in. (51 mm) diam (or smaller) Type L (or heavier) copper tubing.
- Copper Pipe** – Nom 2 in. (51 mm) diam (or smaller) Regular (or heavier) copper pipe.

When uninsulated steel pipe or conduit is used, T Rating is 3/4 hr and 1-1/2 hr for 1 and 2 hr rated assemblies, respectively.

When uninsulated copper tubing or pipe is used, T Rating is 1/4 hr for both 1 and 2 hr rated assemblies.

- Pipe Covering*** (Optional) – Nom 1 in. (25 mm) hollow cylindrical heavy density glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product.

See **Pipe and Equipment Covering – Materials*** (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

When pipe covering is used on all through penetrants, T Rating is 1 hr and 1-3/4 hr for 1 and 2 hr rated assemblies, respectively.

- Tube Insulation – Plastics#** (Optional) – Nom 3/4 in. (19 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing.

See **Plastics** (QMF22) category in the Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL94 Flammability Classification of 94-5VA may be used.

When tube insulation is used on all through penetrants, T Rating is 3/4 hr and 1-1/2 hr for 1 and 2 hr rated assemblies, respectively.

- Fill, Void or Cavity Material* – Caulk or Sealant** – Min 5/8 in. or 1-1/4 in. (16 mm or 32 mm) thickness of fill material, for 1 or 2 hr walls, respectively, applied within the annulus, flush with both surfaces of wall. At point contact locations, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the wall/pipe and wall/pipe insulation interface on both surfaces of wall.

3M COMPANY – CP 25WB+, IC 15WB+ caulk or FB-3000 WT sealant

- Fill, Void or Cavity Materials* – Wrap Strip** (Not Shown) – Min one layer of 2 in. (51 mm) wide, nom 1/4 in. (6 mm) thick intumescent elastomeric material faced on one side with aluminum foil, required only when tube insulation (Item 3B) is used in 2 hr rated assemblies. Wrap strip tightly wrapped around tube insulation (foil side exposed) within the opening on both sides of the wall, flush with both surfaces of the wall assembly.

3M COMPANY – FS-195+

#Bearing the UL Recognized Component Mark

*Bearing the UL Classification Marking

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System No. C-AJ-5210

March 15, 2007

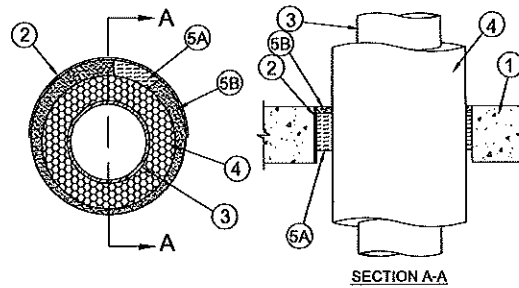
F Ratings – 1-1/2 & 2 Hr (See Item 4)

T Ratings – 1/2, 3/4, 1 & 1-1/4 Hr (See Item 4)

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- Floor or Wall Assembly** – Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Floor assembly may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow-core Precast Concrete Units*. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening 14 in. (356 mm). Max diam of opening in floors constructed of hollow-core concrete is 7 in. (178 mm).

See Concrete Blocks (CAZT) and Precast Concrete Units (CFTV) categories in Fire Resistance Directory for names of manufacturers.

- Steel Sleeve** – (Optional) – Nom 14 in. (356 mm) diam (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Steel sleeve may be installed flush or may project max 2 in. (51 mm) beyond the floor or wall surfaces. As an alternate, nom 14 in. (356 mm) diam (or smaller) sleeve fabricated from nom 0.028 in. (0.71 mm) thick galv steel cast or grouted into floor or wall assembly flush with floor or wall surfaces.

- Through Penetrants** – One metallic pipe or tubing to be installed concentrically or eccentrically within opening. Penetrant to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes or tubes may be used:

- Steel Pipe** – Nom 8 in. (203 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
- Iron Pipe** – Nom 8 in. (203 mm) diam (or smaller) cast or ductile iron pipe.
- Copper Tubing** – Nom 4 in. (102 mm) diam (or smaller) Type M (or heavier) copper tube.
- Copper Pipe** – Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

- Pipe Covering** – Nom 2 in. (51 mm) thick (or less) hollow cylindrical heavy density glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with product. Annular space between the pipe covering and periphery of opening or sleeve shall be min 1/2 in. to max 1 in. (13 mm to max 25 mm).

See Pipe and Equipment Covering – Materials – (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a smoke Developed Index of 50 or less may be used.

The hourly F and T Ratings are dependent on the type of pipe or tube and the nom thickness of the pipe covering, as shown below:

Penetrant	Pipe Covering Nom Thickness, in. (mm)	F Rating, Hr	T Rating, Hr
A & B	2 (51)	2	1-1/4
C & D	2 (51)	1-1/2	1
A, B, C & D	1 (25)	2	3/4
A, B, C & D	1/2 (13)	2	1/2

- Firestop System** – The details of the firestop system shall be as follows:

- Packing Material** – Min 3 in. (76 mm) thickness of min 4 pcf or (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or top edge of sleeve or from both surfaces of wall or both ends of sleeve as required to accommodate the required thickness of fill material. In floors constructed of hollow-core concrete, packing material to be recessed from top and bottom surfaces of floor or sleeve as required to accommodate the required thickness of fill material.

- Forming Material*** – As an alternate to the packing material in Item 5A, nom 4 in. (102 mm) wide strips of min 1/2 in (13 mm) thick compressible mat to be stacked to a thickness greater than the width of the annular space and compression-fitted, edge-first, to fill the annular space to a min 4 in. (102 mm) depth. Top of forming material to be recessed from top surface of floor or from both surfaces of wall as necessary to accommodate the required thickness of caulk fill material. In floors constructed of hollow-core concrete, forming material to be recessed from top and bottom surfaces of floor or sleeve as required to accommodate the required thickness of fill material.

3M COMPANY – Fire Barrier Packing Material

- Fill, Void or Cavity Materials* – Caulk or Sealant** – Min 1/2 in. (13 mm) thickness of caulk applied within the annulus, flush with top surface of floor or top edge of sleeve or with both surfaces of wall or both ends of sleeves. In floors constructed of hollow-core concrete, min 1/2 in. (13 mm) thickness of caulk applied within the annulus, flush with top and bottom surfaces of floor or sleeve.

3M COMPANY – IC 15WB+, CP 25WB+ caulk or FB-3000 WT sealant

*Bearing the UL Classification Mark

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3M Fire Protection Products
www.3m.com/firestop

C-AJ-5210 • 1 of 1

Product Support Line
1-800-328-1687

Through Penetrations

Insulated Pipes

5000 Series

Concrete

CAJ

System No. C-AJ-5211

March 05, 2007

F Rating – 2 Hr

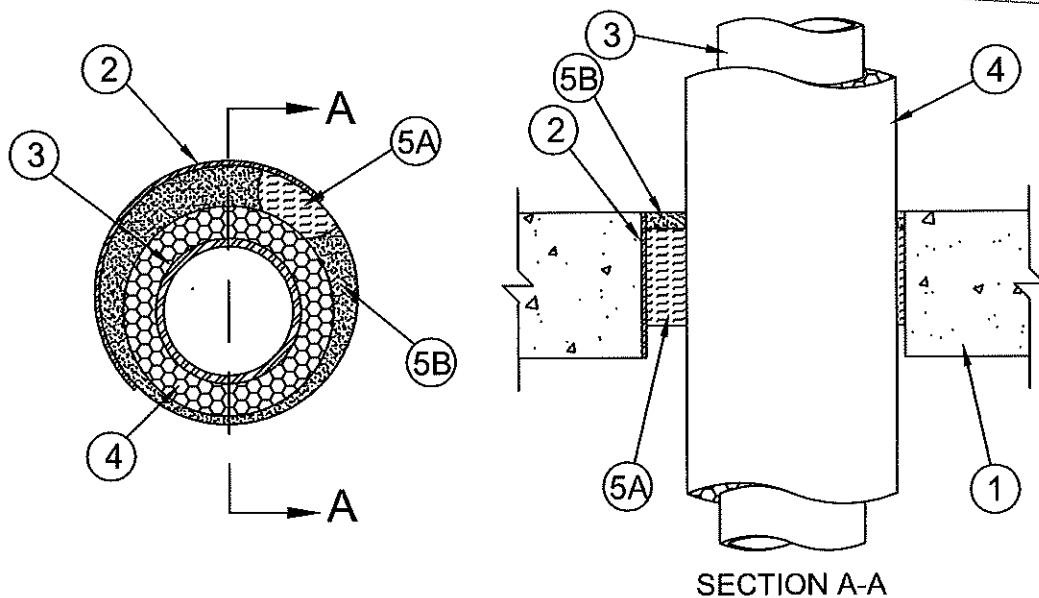
T Ratings – 0 & 1/2 Hr (See Item 4)

W Rating – Class 1 (See Item 5)

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Through Penetrations

Insulated Pipes

5000 Series

Concrete

CAJ

- 1. Floor or Wall Assembly** – Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600 - 2400 kg/m³) concrete. Floor assembly may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow-core **Precast Concrete Units***. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening 8 in. (203 mm) Max diam of opening in floors constructed of hollow-core concrete is 7 in. (178 mm).

See **Concrete Blocks (CAZT)** and **Precast Concrete Units (CFTV)** categories in Fire Resistance Directory for names of manufacturers.

- 2. Steel Sleeve** – (Optional) - Nom 8 in. (203 mm) diam (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Steel sleeve may be installed flush or may project max 2 in. (51 mm) beyond the floor or wall surfaces. As an alternate, nom 8 in. (203 mm) diam (or smaller) sleeve fabricated from nom 0.019 in. (0.48 mm) thick galv steel cast or grouted into floor or wall assembly flush with floor or wall surfaces.
- 3. Through Penetrants** – One metallic pipe to be installed concentrically or eccentrically within opening. Penetrant to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes may be used:
 - A. Steel Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
 - B. Iron Pipe** – Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe.
 - C. Copper Tubing** – Nom 2 in. (51 mm) diam (or smaller) Type L (or heavier) copper tubing.
 - D. Copper Pipe** – Nom 2 in. (51 mm) diam (or smaller) Regular (or heavier) copper pipe.
- 4. Tube Insulation** – **Plastics+** – Nom 3/4 in. (19 mm) thick (or less) acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. Annular space between the insulated penetrating item and the periphery of the opening shall be min 1/2 in. to max 1-1/2 in. (13 mm to max 38 mm).

See **Plastics (QMfZ2)** category in the Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL 94 Flammability Classification of 94-5A may be used.

T Rating is 1/2 Hr for nom 3/4 in. (19 mm) thick tube insulation. T Rating is 0 Hr for tube insulations less than nom 3/4 in. (19 mm) thick.

- 5. Firestop System** – The details of the firestop system shall be as follows:

- A. Packing Material** – Min 3 in. (76 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or top edge of sleeve or from both surfaces of wall or both ends of sleeve as required to accommodate the required thickness of fill material. In floors constructed of hollow-core concrete, packing material to be recessed from top and bottom surfaces of floor or sleeve as required to accommodate the required thickness of fill material.
- B. Fill, Void or Cavity Materials* – Caulk or Sealant** – Min 1/2 in. (13 mm) thickness of caulk applied within the annulus, flush with top surface of floor or top edge of sleeve or with both surfaces of wall or both ends of sleeves. In floors constructed of hollow-core concrete, min 1/2 in. (13 mm) thickness of caulk applied within the annulus, flush with top and bottom surfaces of floor or sleeve.
3M COMPANY – IC 15WB+, CP 25WB+ caulk or FB-3000 WT sealant
 (Note: W Rating applies only when FB-3000 WT is used.)

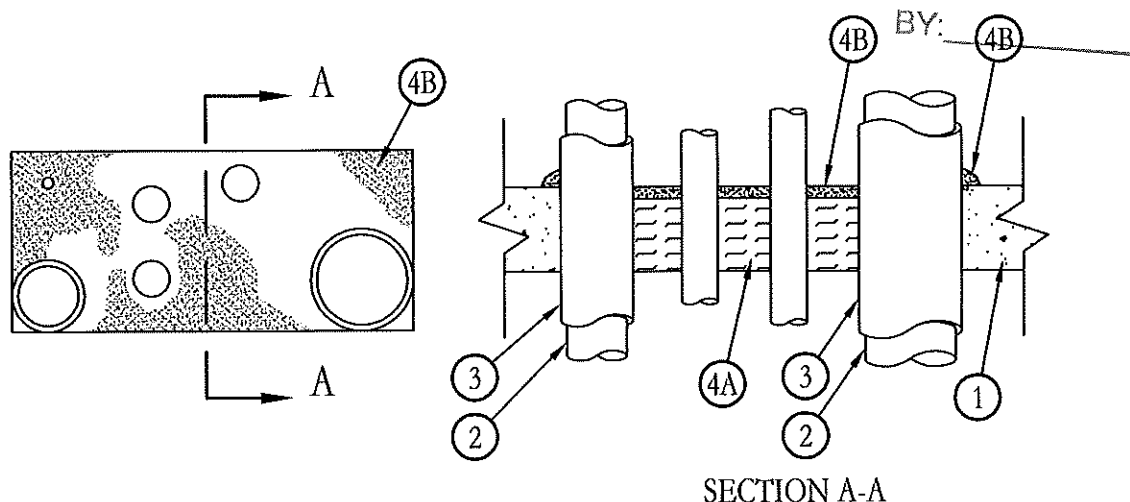
* Bearing the UL Classification Mark

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Through Penetrations

Combos

8000 Series

Concrete

CAJ

1. **Floor or Wall Assembly** – Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete floor or min 5 in. thick reinforced lightweight or normal weight concrete wall. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max area of opening 84 square in. with max dimension of 14 in.

See **Concrete Blocks (CAZT)** category in the Fire Resistance Directory for names of manufacturers.

2. **Through Penetrants** – Multiple metallic pipes, conduits, tubings or cables to be installed within the firestop system. Min 1/2 in. clearance between penetrants. Min clearance between uninsulated penetrants or cables and wall of through opening 0 in. (point contact). Penetrants rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits, tubings or cables may be used:

- A. **Steel Pipe** – Nom 2 in. diam (or smaller) Schedule 5 (or heavier) steel pipe.
- B. **Iron Pipe** – Nom 2 in. diam (or smaller) cast or ductile iron pipe.
- C. **Conduit** – Nom 2 in. diam (or smaller) steel electrical metallic tubing or steel conduit.
- D. **Copper Tubing** – Nom 2 in. diam (or smaller) Type L (or heavier) copper tube.
- E. **Copper Pipe** – Nom 2 in. diam (or smaller) Regular (or heavier) copper pipe.
- F. **Cable** – Max 7/C No. 12 AWG (or smaller) copper conductor cable with PVC insulation and jacket.

The hourly T Rating is 1/4 hr when penetrants A, B and C are used, 0 hr when penetrants D and E are used and 1/2 hr when penetrant F is used. The hourly T Rating is 1 hr when penetrants A, B, C, D and E are used with pipe insulation (Item 3).

3. **Pipe Insulation (Optional)** – The following types of pipe insulation may be used:

- A. **Pipe Covering*** – Nom 1-1/2 in. thick (or thinner) hollow cylindrical heavy density glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. The annular space between the insulated pipe and the edge of the through opening shall be min 0 in. (point contact).

See **Pipe and Equipment Covering – Materials* (BRGU)** category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

- B. **Tube Insulation – Plastics++** – Nom 3/4 in. thick (or thinner) acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. The annular space between the insulated pipe and the edge of the through opening shall be min 0 in. (point contact).

See **Plastics (QMFZ2)** category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.

4. **Firestop System** – The details of the firestop system shall be as follows:

- A. **Packing Material** – Min 4 in. thickness of min 4 pcf mineral wool batt insulation firmly packed into opening 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 fill material.
- B. **Fill, Void or Cavity Materials* – Caulk or Sealant** – Min 1/2 in. thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall. Min 1/2 in. diam bead of caulk applied to the concrete/penetrant interface at the point contact location on the top surface of floor or both surfaces of wall.

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

*Bearing the UL Classification Marking

++Bearing the UL Recognized Component Marking

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3M Fire Protection Products

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BY: _____

Date: April 6, 2017

Subject: GENERAL CERTIFICATE OF CONFORMANCE
3M FIRE PROTECTION PRODUCTS

Product Category: Through Penetration Firestop Products

3M™ Aluminum Foil Tape 425	3M™ Fire Barrier Sealant FD 150+
3M™ Expantrol™ Flexible Intumescent Strip E-FIS	3M™ Fire Barrier Sealant IC 15WB+
3M™ Fire Barrier 2" Plug PLG2	3M™ Fire Barrier Self-Locking Pillows
3M™ Fire Barrier 4" Plug PLG4	3M™ Fire Barrier Silicone Sealant 2000+
3M™ Fire Barrier Block B258	3M™ Fire Barrier Tuck-In Wrap Strips
3M™ Fire Barrier Cast-In Devices & Accessories	3M™ Fire Barrier Ultra Plastic Pipe Device (UPPD)
3M™ Fire Barrier Composite Sheet CS-195+	3M™ Fire Barrier Water Tight Sealant 1000 NS
3M™ Fire Barrier Sealant CP 25WB+	3M™ Fire Barrier Water Tight Sealant 1003 SL
3M™ Fire Barrier Moldable Putty+ Pads (MPP+)	3M™ Fire Barrier Water Tight Sealant 3000 WT
3M™ Fire Barrier Moldable Putty+ Sticks (MP+)	3M™ Fire Barrier Watertight Spray
3M™ Fire Barrier Mortar	3M™ Fire Barrier Wrap Strips FS-195+
3M™ Fire Barrier Packing Material PM4	3M™ Fire Barrier Wrap Ultra GS
3M™ Fire Barrier Pass-Through Devices	3M™ Fire Block Foam FB-Foam
3M™ Fire Barrier Pillows	3M™ Fire Block Sealant FB 136
3M™ Fire Barrier Plank PK39	3M™ FireDam™ Spray 200
3M™ Fire Barrier Plastic Pipe Device (PPD)	3M™ Interam™ Stainless Steel Foil Tape T-65
3M™ Fire Barrier Putty Sleeve Kits	3M™ Marine Fire Wrap
3M™ Fire Barrier Rated Foam FIP 1-Step	3M™ Smoke and Sound Sealant SS 100
3M™ Fire and Water Barrier Tape FWBT	3M™ Fire Barrier RC-1 Restricting Collar
3M™ Smoke and Sound Tape SST	

The above listed products are tested to one or more of the following standards:

- ASTM E 119 (ANSI/UL 263) Standard Test Methods for Fire Tests of Building Construction and Materials
- ASTM E 814 (ANSI/UL 1479) Standard Test Method for Fire Tests of Penetration Firestop Systems (under positive furnace pressure of minimum .01 inches of water column)
- ASTM E 84 (ANSI/UL 723) Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM E 1966 (ANSI/UL 2079) Standard Test Method for Fire-Resistive Joint Systems
- NFPA 252 Standard Methods of Fire Test and Door Assemblies
- UBC Standard 7-2(97)
- IMO Res. A.754(18)
- ASTM E 2307 Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus
- ASTM E 136 Standard Test Method for Behavior of Material in a Vertical Tube Furnace at 750° C

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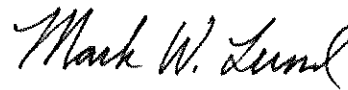
- ASTM C 1338 Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings
- ISO 6944-1985 Fire resistance tests -- Ventilation ducts
- ASTM C 1241 Standard Test Method for Volume Shrinkage of Latex Sealants During Cure
- CAN/ULC S115 Standard Method of Fire Tests of Firestop Systems
- ASTM E 90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

These products are formulated without asbestos, polychlorinated biphenyls (PCBs), or lead.

Issued by:



Quality Manager or Designee



Technical Manager, or Designee

Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for user's particular purpose and suitable for user's method of application.

Technical Information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Warranty and Limited Remedy: 3M warrants that each 3M Fire Protection Product will be free from defects in material and manufacture for 90 days from the date of purchase from 3M's authorized distributor. 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 this warranty, the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price. **Limitation of Liability:** Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted."



Industrial Adhesives and Tapes Division
St. Paul, MN 55144-1000
1-800-328-1687
www.3M.com/firestop



Broadcast Number: T20-001
Date: 07-20-2020
Issued by: 3M IATD EH&R Department and
FPP Application Engineering

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Title: LEED® v4 BD+C (New Construction and Major Renovation) Credit Contribution
and Compliance for 3M™ Fire Protection Products

Indoor Environmental Quality (IEQ)

Low-Emitting Materials:

Product Name	VOC Content (g/l)	Total VOC Emissions CDPH Spec 01350 v1.1
3M™ Fire and Water Barrier Tape FWBT	N/A	Complies
3M™ Smoke and Sound Tape SST	N/A	Complies
3M™ FPP Watertight Spray	131.2	Complies
3M™ FireDam Spray 200	2.9	Complies
3M™ Fire Barrier Sealant FD 150+	114.6	Complies
3M™ Fire Barrier Sealant IC 15 WB+	3.96	Complies
3M™ Fire Barrier Sealant CP 25WB+	5.69	Complies
3M™ Fire Barrier Water Tight Sealant 1000NS	47.3	Complies
3M™ Fire Barrier Water Tight Sealant 1003SL	52.6	Complies
3M™ Fire Barrier Silicone Sealant 2000+	29.0	Complies
3M™ Fire Barrier Water Tight Sealant 3000 WT	64.7	Complies
3M™ Fire Barrier Composite Sheet CS-195+	N/A	Complies
3M™ Fire Barrier Duct Wrap 615+	N/A	Complies
3M™ Interam™ E-5A-4 Endothermic Mat	N/A	Complies
3M™ Fire Barrier Tuck-In Wrap Strip	N/A	Complies
3M™ Fire Barrier Moldable Putty Pads MPP+	0.1	Complies
3M™ Fire Barrier Moldable Putty Stix MP+	0.3	Complies
3M™ Fire Barrier Rated Foam FIP 1-Step	6.6	Complies
3M™ Fire Barrier Blocks, Plugs, and Planks	N/A	Complies
3M™ Smoke and Sound Sealant SS 100	114.6	Complies

VOC content was measured per EPA Method 24 or SCAQMD Method 304 (less H₂O and exempt solvents per SCAQMD Rule 1168).

All tested samples comply with limits specified in CDPH Spec 01350 v1.1 for Targeted VOC and Formaldehyde limits in a private office and classroom. All samples were found to have a measured range of total VOCs, per LEED v4 for total VOC and Target Chemical listed in CDPH v 1.1 Table 4-1, of 0.5 mg/m³ or less after 14 days.

All samples were tested at Intertek Testing Services NA Inc. or UL LLC, ISO/IEC Standard 17025 accredited laboratories. VOC Emission test certificates and reports available at 3M.com/firestop or upon request.

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Materials and Resources

BY: _____

Building Product Disclosure and Optimization - Environmental Product Declaration (EPD)
3M IATD chooses not to pursue this declaration at this time.

Building Product Disclosure and Optimization - Sourcing of Raw Materials
Raw Material source and extraction information
3M Company publishes Corporate Sustainability Report (CSR) reports annually. This report is available at https://www.3m.com/3M/en_US/sustainability-report/.

Building Product Disclosure and Optimization - Material Ingredients Reporting
3M IATD chooses the Health Product Declaration repository to demonstrate the chemical inventory of the product to at least 0.1% (1000 ppm).

HPDs have been created for the products indexed below.

Product Name
3M™ Fire and Water Barrier Tape FWBT
3M™ Smoke and Sound Tape SST
3M™ FPP Watertight Spray
3M™ FireDam Spray 200
3M™ Fire Barrier Sealant FD 150+
3M™ Fire Barrier Sealant IC 15 WB+
3M™ Fire Barrier Sealant CP 25WB+
3M™ Fire Barrier Water Tight Sealant 1000NS
3M™ Fire Barrier Water Tight Sealant 1003SL
3M™ Fire Barrier Silicone Sealant 2000+
3M™ Fire Barrier Water Tight Sealant 3000 WT
3M™ Fire Barrier Composite Sheet CS-195+
3M™ Fire Barrier Duct Wrap 615+
3M™ Interam™ E-5A-4 Endothermic Mat
3M™ Fire Barrier Tuck-In Wrap Strip
3M™ Fire Barrier Moldable Putty Pads MPP+
3M™ Fire Barrier Moldable Putty Stix MP+
3M™ Fire Barrier Rated Foam FIP 1-Step
3M™ Fire Barrier Blocks, Plugs, and Planks
3M™ Smoke and Sound Sealant SS 100

Visit <https://hpdrepository.hpd-collaborative.org> to view the HPDs.
Search by Manufacturer Name = 3M Company.

Construction and Demolition Waste Management:

Recycled Content: The above listed products do not contain any pre- or post-consumer recycled material at this time.

Salvaged/Refurbished: The above listed products do not contain any salvaged/refurbished materials at this time.

Rapidly Renewable Materials: The above listed products do not contain any rapidly renewable materials.

Product Data - Sustainable Attributes Table

Product	Env. Product Declaration (EPD)?	FSC Certified Wood Products (%)	Post-Consumer Recycled Content (%)	Pre-Consumer Recycled Content (%)	Mfg. Sustainability Report?	Declare Label	Declared HPD to 1000 ppm ⁱⁱ	C2C version	Extracted, Manuf. & Purchased within 100 miles?	Mfg. Location ⁱⁱⁱ	VOC Content (g/L)	Wet-(L) Applied Products Volume Used ^{iv}	RedList Free ^v	Link to 3M RDS
615+	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	NA	NA	Yes	Link to RDS
CP 25WB+	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	5.69	NA	Yes	Link to RDS
FD 150+	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	CA	114.6	NA	Yes	Link to RDS
IC 15WB+	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	3.96	NA	Yes	Link to RDS
1000NS	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	CA	47.3	NA	No	Link to RDS
2000+	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	29	NA	No	Link to RDS
3000WT	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	CA	64.7	NA	No	Link to RDS
FDS200	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	2.9	NA	Yes	Link to RDS
CS195+	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	NA	NA	No	Link to RDS
FWBT	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	NA	NA	Yes	Link to RDS

ⁱ GRI = Global Reporting Initiative

ⁱⁱ <https://hpdrepository.hpd-collaborative.org>

ⁱⁱⁱ CA = Canada, EU = European Union, US = United States

^{iv} It is 3M's interpretation that regulated product categories under SCAQMD Rule 1168 'Adhesives and Sealants' do not apply to firestopping products

^v For more information contact 3M Product Application Support at 1-800-328-1687 and inquire about Environmental, Health & Regulatory support

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Product	Env. Product Declaration (EPD)?	FSC Certified Wood Products (%)	Post-Consumer Recycled Content (%)	Pre-Consumer Recycled Content (%)	Mfg. Sustainability Report? ^{vi}	Declare Label	Declared HPD to 1000 ppm ^{vii}	C2C version	Extracted, Manuf. & Purchased within 100 miles?	Mfg. Location ^{viii}	VOC Content (g/L)	Wet-L Applied Products Volume Used ^{ix}	RedList Free ^x	Link to 3M RDS
SST	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	NA	NA	Yes	Link to RDS
SS 100	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	114.6	NA	Yes	Link to RDS
WT Spray	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	131.2	NA	Yes	Link to RDS
Putty	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	0.3	NA	No	Link to RDS
E-Mat	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	NA	NA	Yes	Link to RDS
Tuck-In	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	US	NA	NA	No	Link to RDS
Flp	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	EU	6.6	NA	Yes	Link to RDS
Block, Plugs, Planks	Not available	Not available	Not available	Not available	Yes - Corporate GRI	No	Yes	No	No	EU	NA	NA	Yes	Link to RDS

Note: For information on product composition greater than 1%, or chemicals of concern, please see www.3m.com/sds for Safety Data Sheets (SDS) and Regulatory Data Sheets (RDS)

^{vi} GRI = Global Reporting Initiative

^{vii} <https://hpdrepository.hpd-collaborative.org>

^{viii} CA = Canada, EU = European Union, US = United States

^{ix} It is 3M's interpretation that regulated product categories under SCAQMD Rule 1168 'Adhesives and Sealants' do not apply to firestopping products

^x For more information contact Product Application Support at 1-800-328-1687 and inquire about Environmental, Health & Regulatory support

Disclaimers: The information provided in this document related to material content represents 3M's knowledge and belief, which may be based in whole or in part on information provided by suppliers to 3M. This is intended to answer commonly asked questions about 3M products and is not intended to be a comprehensive listing of all substances that may be of interest or that may be regulated in this or other 3M products, nor is it intended to be a comprehensive summary of any and all regulations that may apply to this product. Where substances are listed, their listing does not infer or constitute a judgment as to their safety, environmental or health impacts. Information is supplied upon the condition that the persons receiving the same will make their own determination as to its suitability for their purposes prior to use. Customers are encouraged to consult with legal and regulatory experts to determine applicable regulations in light of intended use of the product.

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3M™ Fire Barrier Sealant IC 15WB+ Product Data Sheet

1. Product Description

3M™ Fire Barrier Sealant IC 15WB+ is a cost-effective, one-part, gun-grade, latex-based, intumescent firestop sealant that dries to form a monolithic firestop seal that also acts as a barrier to airborne sound transmission. 3M™ Fire Barrier Sealant IC 15WB+ firestops through penetrations passing through fire-rated floor, floor/ceiling or wall assemblies, as well as other fire-rated interior building partitions and assemblies (e.g. static construction joints or blank openings). In addition, the unique intumescent property of this material allows 3M™ Fire Barrier Sealant IC 15WB+ to expand and help maintain a firestop penetration seal for up to 3 hours as penetrants are exposed to fire. 3M™ Fire Barrier Sealant IC 15WB+ bonds to most construction substrates, including: gypsum wallboard, concrete, metals, wood, plastic (including CPVC) and cable jacketing. No mixing is required.



FBC
SYSTEM COMPATIBLE

Product Features

- Firestop tested up to 3 hours in accordance with ASTM E 814 (UL 1479), ASTM E 1966 (UL 2079) & CAN/ULC-S115
- CPVC compatible
- Expanded fire protection systems
- Helps minimize sound transfer*
- Sag-resistant
- Halogen-free
- Excellent adhesion
- Re-enterable/repairable
- Excellent caulk rate
- Paintable
- Water clean up

Cost-effective firestop sealant available in tube, pail or sausage.

Product Color: Yellow.

Complies with the intent of LEED® NC-EQ Credit 4.1 for Low-Emitting Materials: Adhesives and Sealants, contains <250 g/L VOC contents (less H₂O and exempt solvents per SCAQMD Rule 1168).

**Minimizes noise transfer—STC-Rating of 54 when tested in STC 54-rated wall assembly.*

FIRE BARRIER



SMOKE SEAL



SOUND BARRIER



FILL, VOID, OR CAVITY
FOR USE IN JOINT SYSTEMS,
THROUGH-PENETRATION FIRESTOP SYSTEMS
AND PERIMETER CONTAINMENT SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY
9069



LISTED
FILL, VOID OR CAVITY
MATERIALS
9069

LISTED



Intertek
FIRESTOP SYSTEMS
SEE INTERTEK DIRECTORY

2. Applications

3M™ Fire Barrier Sealant IC 15WB+ is a general-purpose intumescent firestop ideal for sealing single or multiple through penetrations in fire-rated construction. 3M™ Fire Barrier Sealant IC 15WB+ 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: metallic pipe, plastic pipe, conduit, power and communication cable, cable trays, busways, combos, insulated pipe and HVAC duct penetrations. 3M™ Fire Barrier Sealant IC 15WB+ is also used to firestop blank openings and static construction joints.

3. Specifications

3M™ Fire Barrier Sealant IC 15WB+ shall be a one component, ready-to-use, gun-grade, latex-based, intumescent firestop sealant capable of expanding a minimum of 3 times at 1000°F. The material shall be thixotropic and be applicable to overhead, vertical and horizontal firestops. The sealant shall be listed by independent test agencies such as UL, ULC, Intertek or FM. 3M™ Fire Barrier Sealant IC 15WB+ 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 CAN/ULC-S115 Standard Method of Fire Tests of Firestop Systems. 3M™ Fire Barrier Sealant IC 15WB+ meets the requirements of the IBC, IRC, NBCC, IFC, IPC, IMC, NFPA 5000, NEC (NFPA 70) and NFPA 101.

Typically Specified MasterFormat (2004)

Section 07 84 00 – Firestopping

Related Sections

Section 07 27 00 – Air Barriers
Section 07 84 16 – Annular Space Protection
Section 07 84 43 – Fire-Resistant Joint Sealants
Section 07 86 00 – Smoke Seals
Section 07 87 00 – Smoke Containment Barriers
Section 07 92 13 – Elastomeric Joint Sealants
Section 07 92 19 – Acoustical Joint Sealants
Section 21 00 00 – Fire Suppression
Section 22 00 00 – Plumbing
Section 23 00 00 – Heating, Ventilating, and Air Conditioning (HVAC)
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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4. Performance & Typical Physical Properties

Color:	Yellow	Hardness (ASTM D 2240 Shore A):	70
Application Temperature Range:	40° to 122°F (4° to 50°C)	Tensile Strength:	85 psi (0.59 MPa)
(ASTM C 1299)		Volume Shrinkage (ASTM C 1241):	28%
Service Temperature Range:	-20° to 180°F (-28° to 82°C)	VOC Less H ₂ O and Exempt Solvents:	<2 g/L
STC Acoustic Barrier:	54 when tested in STC 54 rated wall assembly	Dry:	Under typical conditions of 75°F (23°C) and 50% R.H., sealant becomes tack-free in about ten minutes and dry-to-touch in 30 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.
Surface Burning (ASTM E 84):	Flame Spread 5, Smoke Development 50		

Unit Volume: 10.1 fl. oz tube (298.7 ml, 18.2 in.³), 20 fl. oz. sausage (591.5 ml, 36.1 in.³), 27 fl. oz tube (798.5 ml, 48.7 in.³), 4.5 gal. pail (17.03 L, 1039.5 in.³)

5. Packaging, Storage, Shelf Life

Packaging	Product packaged in cartridge or pail is enclosed in HDPE plastic containers, sausage is packaged in aluminum foil wrap.
Storage	3M™ Fire Barrier Sealant IC 15WB+ 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 freeze / thaw exposures of the 3M™ Fire Barrier Sealant IC 15WB+ prior to installation.
Shelf Life	3M™ Fire Barrier Sealant IC 15WB+ shelf life is 12 months in original unopened containers from date of packaging when stored above 68°F (2°C).
	Lot numbering (e.g. 8183AS): First digit = Last digit of year manufactured, Second to fourth digit = Julian Date, Letters = Random to distinguish between lot numbers

6. Installation Techniques

Consult a 3M Authorized Fire Protection Products Distributor / Dealer or Sales Representative

for applicable UL, cUL, ULC, Intertek, FM 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 the 3M™ Fire Barrier Sealant IC 15WB+. 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, cUL, ULC, Intertek, FM or other third-party listed system. Cut the end of the 3M™ Fire Barrier Sealant IC 15WB+ tube spout to achieve the desired bead width when applying. Install the applicable depth of 3M™ Fire Barrier Sealant IC 15WB+ 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 rating that is required. Tool within 5 minutes. Clean all tools immediately after use with water.
Limitations	Do not apply 3M™ Fire Barrier Sealant IC 15WB+ when surrounding temperature is than less 40°F (4°C) and in conditions where seals may be exposed to rain or water spray within 18 hours of application. Do not apply 3M™ Fire Barrier Sealant IC 15WB+ 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 IC 15WB+ to wet or frost-coated surfaces or to areas that are continuously damp or immersed in water.

7. Maintenance

No maintenance is expected to be required when installed in accordance with the applicable UL, cUL, ULC, Intertek, FM or other third-party listed system. Once installed, if any section of the 3M™ Fire Barrier Sealant IC 15WB+ is damaged, the following procedure will apply: remove and reinstall 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 IC 15WB+ is available from 3M Authorized Fire Protection Products Distributors and Dealers. 3M™ Fire Barrier Sealant IC 15WB+ is available in 10.1 fl. oz. cartridges (3M ID 98-0400-5509-1, 12/case), 20.0 fl. oz. sausages (3M ID 98-0400-5512-5, 10/case), and 4.5 gallon pails (3M ID 98-0400-5510-9, 1/case). For additional technical and purchasing information regarding this and other 3M Fire Protection Products, please call: 1-800-328-1687 or visit www.3m.com/firestop.

9. Safe Handling Information

Consult country-of-use Material Safety Data Sheet (MSDS) prior to handling and disposal.



Building and Commercial Services Division
3M Center, Building 223-2N-21
St. Paul, MN 55144-1000 USA
1-800-328-1687
www.3m.com/firestop

Important Notice to User:

Technical Information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

Warranty and Limited Remedy: 3M warrants that each 3M Fire Protection Product will be free from defects in material and manufacture for 90 days from the date of purchase from 3M's authorized distributor. 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 this warranty, the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted.

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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 fire-stop 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 gasses 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) & CAN/ULC S115
- Fire Resistance tested for static construction joint systems in accordance with ASTM E 1966 (UL 2079)
- Re-enterable / repairable
- Meets UL 1479 aging requirements
- Helps minimize sound transfer*
- Applied with conventional caulking equipment (excellent caulk rate)
- Extensive listed systems
- Sag-resistant
- Halogen-free
- Excellent adhesion
- Paintable
- Water clean up

Meets the intent of LEED® VOC regulations—helps reduce the quantity of indoor air contaminants that may be odorous, irritating and harmful to the comfort and well-being of the installers and occupants. <250 g/L VOC contents (less H₂O and exempt solvents).

**Minimizes noise transfer—STC-Rating of 54 when tested in STC 54-rated wall assembly.*

High-performance firestop sealant that also helps minimize sound transfer

Product Color: ■ Red

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: metallic 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 static 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 thixotropic and shall be applicable to overhead, vertical and horizontal firestops. The sealant shall be listed by independent test agencies such as UL, Intertek or FM. 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 CAN/ULC S115 Standard Method of Fire Tests of Firestop Systems. 3M™ Fire Barrier Sealant CP 25WB+ meets the requirements of the IBC, IRC, IFB, IPC, IMC, NFPA 5000, NEC (NFPA 70) and NFPA 101.

Typically Specified Division
Division 7

Section 07 84 00 – Firestopping

Related Sections

Section 07 84 16 – Annular Space Protection

Section 07 84 43 – Fire-Resistant Joint Sealants

Section 07 86 00 – Smoke Seals

Section 07 87 00 – Smoke Containment Barriers

Section 07 27 00 – Air Barriers

Section 21 00 00 – Fire Suppression

Section 22 00 00 – Plumbing

Section 23 00 00 – Heating, Ventilation and Air-Conditioning (HVAC)

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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SOUND BARRIER



FILL, VOID OR CAVITY MATERIAL
FOR USE IN THROUGH-PENETRATION
FIRESTOP SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY
90G9



FILL, VOID OR CAVITY
MATERIALS
90G9



APPROVED

SUBJECT TO THE CONDITIONS OF APPROVAL
AS A WALL & FLOOR PENETRATION
FIRESTOP WHEN INSTALLED AS DESCRIBED
IN THE CURRENT EDITION OF THE FMRC
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FIRESTOP SYSTEMS
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4. Physical Properties

Color: Red
Application Temperature Range: 40° to 122°F (4° to 50°C)
 (ASTM C 1299)
Service Temperature Range: -20° to 180°F (-28° to 82°C)
STC (ASTM E 90 and ASTM E 413): 54 when tested in STC 54-rated wall assembly
Surface Burning (ASTM E 84): Flame Spread 0
 Smoke Development 0

Hardness (ASTM D 2240 Shore A): 45
Tensile Strength: BY: 85 psi (0.59 MPa)
Volume Shrinkage (ASTM C 1241): 28%
VOC Less H₂O and Exempt Solvents: <1 g/L

Dry: Under typical conditions of 75°F (23°C) and 50% R.H., sealant becomes tack-free in about ten minutes and dry-to-touch in 30 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 (298.7 mL, 18.2 in.³), 20 fl. oz. sausage (591.5 mL, 36.1 in.³), 27 fl. oz tube (798.5 mL, 48.7 in.³), 2 gal. pail (7.57 L, 462 in.³), 5 gal. pail (18.9 L, 1155 in.³)

5. Packaging, Storage, Shelf Life

Packaging: Product packaged in cartridge or pail is enclosed in HDPE plastic containers, sausage 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 freeze / 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 from date of packaging when stored above 68°F (2°C).
 Lot numbering (e.g. 8183AS): First digit = Last digit of year manufactured, Second to fourth digit = Julian Date, Letters = Random to distinguish 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 the 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 spout to achieve the desired bead 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 rating 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 seals 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 reinstall 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 (12/case), 20.0 fl. oz. sausages (10/case), 27.0 fl. oz. cartridges (6/case), 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: 1-800-328-1687 or visit www.3m.com/firestop.

9. Safe Handling Information

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

Important Notice to User:

Technical Information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

Warranty and Limited Remedy: 3M warrants that each 3M Fire Protection Product will be free from defects in material and manufacture for 90 days from the date of purchase from 3M's authorized distributor. 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 this warranty, the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted.



Building and Commercial Services Division

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 St. Paul, MN 55144-1000 USA
 1-800-328-1687
www.3m.com/firestop

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 Literature Order Info: 98-0400-5012-6

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3M™ Fire Barrier Water Tight Sealant 3000WT

Product Data Sheet

1. Product Description

3M™ Fire Barrier Water Tight Sealant 3000 WT is a high-performance, ready-to-use, single component, neutral cure, non-slumping intumescent silicone sealant. Product cures upon exposure to atmospheric humidity to form a flexible firestop seal that also acts as a barrier to water leakage and airborne sound transmission. 3M™ Fire Barrier Water Tight Sealant 3000 WT helps control the spread of fire, smoke and noxious gasses before, during and after exposure to a fire when installed in accordance with a listed through penetration or fire-resistive joint assembly. 3M™ Fire Barrier Water Tight Sealant 3000 WT meets UL Water Leakage Test, W Rating – Class 1 requirements for systems tested and listed in accordance with ANSI/UL 1479 and is tested in accordance with ASTM G 21 standard practice for determining resistance of synthetic polymeric materials to fungi.

3M™ Fire Barrier Water Tight Sealant 3000 WT firestops penetrations passing through fire-rated floor, floor/ceiling or wall assemblies, static construction joints, blank openings and other fire-rated interior building construction. The intumescent property of 3M™ Fire Barrier Water Tight Sealant 3000 WT allows it to expand and help maintain a firestop penetration seal for up to 4 hours as penetrants are exposed to fire.

Available in: ■ Light Gray with Black Flecks

Product Features

- Firestop tested up to 4 hours in accordance with ASTM E 814 (UL 1479) & CAN/ULC S115
- Fire Resistance tested for static construction joint systems in accordance with ASTM E 1966 (UL 2079)
- Meets UL Water Leakage Test, W Rating — Class 1 requirements
- Meets optional L-Rating Requirements (smoke seal)
- Minimizes noise transfer — STC-rating of 53 when tested in STC 54-rated wall assembly
- Sag-resistant, re-enterable and repairable
- Halogen-free
- Excellent adhesion, weatherability and caulk rate
- Meets UL 1479 aging requirements

Meets the intent of LEED® VOC environmental quality requirements—helps reduce the quantity of indoor air contaminants that may be odorous, irritating and harmful to the comfort and well-being of the installers and occupants. <250g/L VOC contents (less H₂O and exempt solvents).



High-performance silicone sealant provides a barrier against fire, water and sound

2. Applications

3M™ Fire Barrier Water Tight Sealant 3000 WT is a high-performance intumescent firestop ideal for sealing single or multiple through penetrations in fire-rated construction. 3M™ Fire Barrier Water Tight Sealant 3000 WT 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: metallic pipe, non-metallic pipe (e.g. plastic), conduit, power and communication cable, cable trays, busways, combos, insulated pipe and HVAC duct penetrations. This product is also used to firestop blank openings and bottom-of-wall static construction joints.

3. Specifications

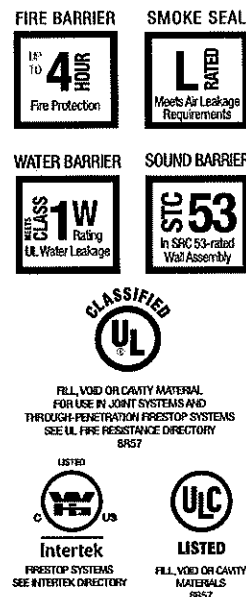
3M™ Fire Barrier Water Tight Sealant 3000 WT shall be a high-performance, ready-to-use, single component, neutral cure, non-slumping, intumescent silicone sealant capable of expanding a minimum of six times its cured volume when exposed to temperatures above 662°F (350°C). The sealant shall be listed by independent test agencies such as UL, Intertek or FM. 3M™ Fire Barrier Water Tight Sealant 3000 WT 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 CAN/ULC S115 Standard Method of Fire Tests of Firestop Systems. 3M™ Fire Barrier Water Tight Sealant 3000 WT meets the requirements of the IBC, IRC, IFB, IPC, IMC, NFPA 5000, NEC (NFPA 70) and NFPA 101.

Typically Specified MasterFormat (2004)

Section 07 84 00 – Firestopping

Related Sections

Section 07 27 00 – Air Barriers
Section 07 84 16 – Annular Space Protection
Section 07 84 43 – Fire-Resistant Joint Sealants
Section 07 86 00 – Smoke Seals
Section 07 87 00 – Smoke Containment Barriers
Section 07 92 19 – Acoustical Joint Sealants
Section 21 00 00 – Fire Suppression
Section 22 00 00 – Plumbing
Section 23 00 00 – Heating, Ventilating, and Air Conditioning (HVAC)
Section 26 00 00 – Electrical



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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

4. Performance & Typical Physical Properties

Color:	Light Gray with Black Flecks	Working Time:	20–40 minutes
Application Temperature Range: (ASTM C 1299)	-20°F to 122°F (-29°C to 50°C)	Expansion Volume:	> 6 times at 662°F (350°C)
Service Temperature Range:	-40°F to 230°F (-40°C to 110°C)	Specific Gravity:	1.25
STC (ASTM E 90 and ASTM E 413):	53 when tested in STC 54 rated wall assembly	VOC Less H₂O and Exempt Solvents:	< 31g/L
Fungi Testing:	Meets ASTM G 21 requirements	Cure: Full cure depends upon ambient conditions and volume of sealant. Cure rate is approximately 1/8 inch (3mm) per day under typical conditions of 75°F (23°C) and 50% R.H.	
Surface Burning (ASTM E 84 Mod):	Flame Spread 0, Smoke Development 0	<i>Meets the intent of LEED® VOC environmental quality requirements.</i>	

Unit Volume: 10.1 fl. oz tube (298.7cc, 18.2 in.), 20 fl. oz. sausage (591.5cc, 36.1 in.), 4.5 gal. pail (171.4 L, 1039.5 in.)

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5. Packaging, Storage, Shelf Life

Packaging:	Volume: 10.1 fl. oz. cartridge (tube), 20 fl. oz. sausage and 4.5 gallon pail	BY:
Storage:	3M® Fire Barrier Water Tight Sealant 3000 WT should be stored indoors in dry conditions between 40°F and 90°F (4°C and 32°C). Avoid repeated freeze / thaw exposures of the 3M® Fire Barrier Water Tight Sealant 3000 WT while still in the packaging.	
Shelf Life:	3M® Fire Barrier Water Tight Sealant 3000 WT shelf life is 12 months in original unopened containers from date of packaging when stored above 68°F (2°C).	
	Lot numbering: First to sixth digit = Date of Production (MMDDYY), Seventh indicator = dash symbol (-), Eighth digit = shift number	

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 clean and free of dirt and debris to allow for the proper adhesion of 3M® Fire Barrier Water Tight Sealant 3000 WT. Do not use alcohol to clean surfaces in penetration or joint opening, instead use a commercial solvent such as mineral spirits, xylene, toluene or methyl ethyl ketone (MEK). 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 or other third-party listed system. Cut the end of the 3M® Fire Barrier Water Tight Sealant 3000 WT tube spout to achieve the desired bead width. After cutting tip, puncture inner foil seal. Install the applicable depth of 3M® Fire Barrier Water Tight Sealant 3000 WT into the opening flush with the surface of the substrate, or as detailed within the applicable listed system, at the required depth for the assembly and rating that is required. Tool within 5 minutes, if required. Clean all tools immediately after use with a commercial solvent such as mineral spirits, xylene, toluene or methyl ethyl ketone (MEK).
Limitations:	Do not apply 3M® Fire Barrier Sealant 3M® Fire Barrier Water Tight Sealant 3000 WT when surfaces are wet (Note: once applied, sealant may be exposed to intermittent water -- exhibits excellent weatherability when fully cured) or frost-coated, where seals may be exposed to rain or in unvented spaces where sealant is not exposed to atmospheric moisture. In confined cure conditions there may be discoloration of brass, copper or other sensitive metals. Do not apply 3M® Fire Barrier Water Tight Sealant 3000 WT to polycarbonates or to building materials that bleed oil, plasticizers or solvent (e.g. impregnated wood, oil-based sealants, or green or partially vulcanized rubber).

7. Maintenance

No maintenance is expected to be required when installed in accordance with the applicable UL, Intertek or other third-party listed system. Once installed, if any section of the 3M® Fire Barrier Water Tight Sealant 3000 WT is damaged, the following procedure will apply: the damaged section should be removed and reinstalled in accordance with the applicable listed system, with a minimum 1/2 in. (26mm) overlap onto the adjacent material.

8. Availability

3M® Fire Barrier Water Tight Sealant 3000 WT is available from 3M Authorized Fire Protection Products Distributors and Dealers. 3M® Fire Barrier Water Tight Sealant 3000 WT is available in 10.1 fl. oz. cartridges (12/case), 20.0 oz. sausages (12/case) and 4.5 gallon pails (1/case). For additional technical and purchasing information regarding this and other 3M Fire Protection Products, please call: 1-800-328-1687 or visit www.3M.com/firestop.

9. Safe Handling Information

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

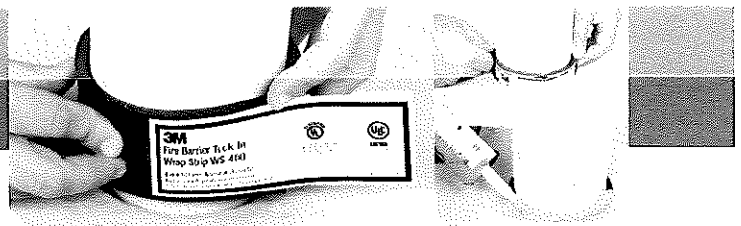


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3M.com/firestop

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3M™ Fire Barrier Tuck-In Wrap Strips

Product Data Sheet



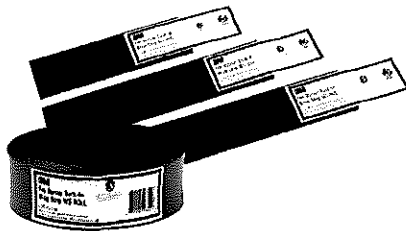
FILL, VOID OR CAVITY MATERIAL
FOR USE IN THROUGH-PENETRATION
FIRESTOP SYSTEMS SEE UL FIRE
RESISTANCE DIRECTORY
9069



LISTED
Firestop System
Components 9069

1. Product Description

3M™ Fire Barrier Tuck-In Wrap Strips are designed to help prevent the passage of fire and smoke in new or existing non-metallic (e.g. plastic) pipe penetrations through wall or floor assemblies. 3M™ Fire Barrier Tuck-In Wrap Strips are engineered primarily for top-side firestop installations and help eliminate the need for retaining collars, concrete screws, ladders or most other material and equipment necessary for bottom-side installations. 3M™ Fire Barrier Tuck-In Wrap Strips come ready-to-install with an adhesive-backed closure label (excludes WS Roll). The wrap strips can be easily installed in both concrete floor and wall assemblies, as well as gypsum wallboard assemblies.



Ideal for top-side firestop installations
in concrete floors.

Product Features

- Firestop tested for up to 3 hours in accordance with ASTM E 814 (UL 1479)
- Top-side concrete floor installations help eliminate the need for steel retaining collars and most other bottom-side installation equipment and materials
- Adhesive-backed label for quick installation
- Ready-to-install wrap strip—precut to length for 2 in. (51 mm), 3 in. (76 mm) and 4 in. (102 mm) non-metallic pipes
- Firestop up to 6 in. (152 mm) PVC pipe (requires 2-layers using 3M™ Fire Barrier Tuck-In Wrap Strip WS Roll)

2. Applications

3M™ Fire Barrier Tuck-In Wrap Strips are ideal for use when firestopping through penetrations in fire-rated concrete floor or wood floor/ceiling assemblies. The wrap strips also have the ability to be used within concrete and gypsum wallboard assemblies. Current non-metallic listed applications include PVC, ccPVC, RNC and FRPP piping systems. Can be used in conjunction with 3M™ Fire Barrier Pillows (standard or self-locking) or 3M™ Fire Barrier Mortar to firestop large openings penetrated by non-metallic pipe).

3. Specifications

To be used for penetrations through fire-rated construction with non-metallic penetrating items. 3M™ Fire Barrier Tuck-In Wrap Strips provide through-penetration firestop systems when used in conjunction with 3M™ Fire Barrier Sealants (e.g. 3M™ Fire Barrier Sealant IC 15WB+, 3M™ Fire Barrier Sealant CP 25WB+, 3M™ Fire Barrier Water Tight Sealant 3000 WT)*. When properly installed, these through-penetration firestops help resist the spread of fire, smoke and other gases and help maintain the original fire resistance rating of the construction assembly that has been penetrated. 3M™ Fire Barrier Tuck-In Wrap Strips shall be listed by independent test agencies such as UL, Intertek, or FM and shall be tested under the pass/fail requirements of ASTM E 814 (UL 1479) Standard Test Method for Fire Tests of Penetration Firestop Systems. These through-penetration firestops meet the current requirements of the International Building Code (IBC) and National Fire Protection Association (NFPA 5000 and NFPA 101).

Typically Specified MasterFormat (2004)

Section 07 84 00 – Firestopping
Section 07 84 13 – Penetration Firestopping
Section 22 00 00 – Plumbing

* Consult specific system details for approved firestop sealants.

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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4. Performance & Typical Physical Properties

Color: Gray with Red Liner
Fire Resistance: 1-3 Hours (wall- or floor-rating dependent)
Activation Temperature: 550° F (288° C)
Expansion Volume: 100x

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Product Number	Thickness	Width	Length	Nominal Pipe Diameter	Installation Hole Size (max.)
WS 200	3/16 in. (5 mm)	2-1/2 in. (64 mm)	8-1/4 in. strip (210 mm)	2 in. (51 mm)	4 in. (102 mm)
WS 300	3/16 in. (5 mm)	2-1/2 in. (64 mm)	11-1/2 in. strip (292 mm)	3 in. (76 mm)	5 in. (127 mm)
WS 400	3/16 in. (5 mm)	2-1/2 in. (64 mm)	14-7/8 in. strip (378 mm)	4 in. (102 mm)	6 in. (152 mm)
WS Roll	3/16 in. (5 mm)	2-1/2 in. (64 mm)	8.2 ft. roll (2.5 m)	up to 6 in. (152 mm)*	up to 8 in. (203 mm)*

*Installation hole size can be up to two inches larger than nominal pipe diameter.

5. Packaging, Storage, Shelf Life

Packaging 3M™ Fire Barrier Tuck-In Wrap Strips (WS 200, WS 300, WS 400) are packed in a cardboard box containing 24 pre-labeled wrap strips. 3M™ Fire Barrier Tuck-In Wrap Strips WS Roll comes 6 individual rolls per case.

Storage 3M™ Fire Barrier Tuck-In Wrap Strips should be stored indoors in dry conditions.

Shelf Life 3M™ Fire Barrier Tuck-In Wrap Strips shelf life is indefinite when stored in original unopened packaging indoors.

6. Installation Techniques

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

Preparatory Work The 3M™ Fire Barrier Wrap Strip should be sized appropriately for the penetrating item. The opening should be clean, dry, free of dust or debris. 3M™ Fire Barrier Wrap Strip WS Roll can be pre-cut to length (note: for a 6-inch pipe, wrap the roll around the pipe twice, mark the length and cut (approx. 44-1/4 in. +/- 1/4 in. (1.12 m +/- 6.4 mm)). 3M™ Fire Barrier Wrap Strip WS Roll can be secured around pipe by using glass-reinforced Scotch® Filament Tape, 3M Aluminum Foil Tape or similar.

Installation Details Install the correct 3M™ Fire Barrier Tuck-In Wrap Strip and 3M™ Fire Barrier Sealant as detailed within the applicable UL, or other third-party, system for the assembly and required system rating(s).

Limitations This product is not acceptable for use with chlorinated polyvinyl chloride (CPVC) pipes.

7. Maintenance

No maintenance should be required when installed in accordance with the applicable independent test agency's listed system and 3M™ Fire Barrier Tuck-In Wrap Strip Installation Guide. Once installed, if any portion of the 3M™ Fire Barrier Tuck-In Wrap Strip is damaged, the entire damaged wrap strip should be removed and re-installed with a new 3M™ Fire Barrier Tuck-In Wrap Strip and new 3M™ Fire Barrier Sealant as detailed within the applicable Listed System.

8. Availability

3M™ Fire Barrier Tuck-In Wrap Strips are available from 3M Authorized Fire Protection Products Distributors and Dealers. 3M™ Fire Barrier Tuck-In Wrap Strips are available for the following nominal pipe diameters: 2 in. WS 200 (51 mm), 3 in. WS 300 (76 mm), 4 in. WS 400 (102 mm) and up to 6 in. WS Roll (152 mm). For additional technical and purchasing information regarding this and other 3M Fire Protection Products, please call: 1-800-328-1687 or visit www.3m.com/firestop.

9. Safe Handling Information

Consult applicable country-of-use Material Safety Data Sheet (MSDS) of any 3M™ Fire Barrier Sealant, Mortar or Pillows used in conjunction with 3M™ Fire Barrier Tuck-In Wrap Strips prior to handling and disposing of that product.

Important Notice to User:

Technical Information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

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Fire Protection Products

3M™ Fire Barrier Ultra Plastic Pipe Device (Ultra PPD)

Technical Data Sheet

December / 2020

Product Description

3M™ Fire Barrier Ultra Plastic Pipe Device is a one-piece metallic collar assembly encasing 3M™ Fire Barrier Ultra GS Wrap Strip intumescent material. Manufactured with 3M's firestop technology, 3M™ Fire Barrier Ultra Plastic Pipe Device has been designed to firestop non-metallic penetrations in fire rated assemblies, helping prevent the passage of smoke and flames in the event of a fire.

3M™ Fire Barrier Ultra Plastic Pipe Device is used for new and retrofit installations and will accommodate nominal 1-1/2 in. (48.3 mm actual), 2 in. (60.3 mm actual), 3 in. (88.9 mm actual) and 4 in. (114.3 mm actual) non-metallic penetrants.

Product Features

- Intumescent – Expands when exposed to heat sealing voids created by combustible items
- One piece – making installation rapid and simple
- Factory made, assuring consistent build quality
- Smoke seal – retards spread of toxic by-products of combustion
- Superior aging properties
- Multiple fastening methods: steel/masonry fasteners or 3M™ Fire Barrier Ultra-Fast Anchors

Applications

3M™ Fire Barrier Ultra Plastic Pipe Device provides a rapid and simple method of sealing wall, floor and floor/ceiling assembly non-metallic penetrations where fire resistance is needed.

3M™ Fire Barrier Ultra Plastic Pipe Device can be used to seal ccPVC, PVC, CPVC, FRPP, PVDF, ccABS and ABS pipes penetrating up to 3-hour fire rated assemblies. Assemblies may be constructed of gypsum wallboard, solid concrete, concrete blocks and even hollow core concrete floors. See a third-party Fire Resistance Directory for up to date through penetration systems and designs.

3M Fire Protection Products

3M™ Fire Barrier Ultra Plastic Pipe Device (Ultra PPD)

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Specifications

The penetration seal employing 3M™ Fire Barrier Ultra Plastic Pipe Device must be capable of passing ASTM E814 (ANSI/UL 1479/CAN ULC S115) Standard Method of Fire Tests for Through Penetration Fire Stops up to the desired fire resistance. All penetrations in fire-rated walls or floors shall be fitted and sealed with 3M Brand Fire Barrier Products in accordance with a tested and listed third party system/design and the manufacturer's installation instructions. 3M™ Fire Barrier Ultra Plastic Pipe Device installations shall meet the requirements of the IBC, IRC, IFC, IPC, IMC, NFPA 5000, NEC (NFPA 70), NFPA 101 and NBCC

Performance and Typical Physical Properties

Colors Available	Silver and Black
Unit	One (1) Steel collar with 3M™ Fire Barrier Ultra GS Wrap Strip
Sizes Available	1-1/2 in.* (48.3 mm actual)
	2 in.* (60.3 mm actual)
	3 in.* (88.9 mm actual)
	4 in.* (114.3 mm actual)
*Nominal pipe size	

Installation Techniques

Equipment: 3M™ Fire Barrier Ultra Plastic Pipe Device may be applied in conjunction with mechanical/masonry fasteners and steel washers or 3M™ Fire Barrier Ultra-Fast Anchors. Power tools and hand tools may be used for fastening material onto assemblies.

Preparatory Work: 3M™ Fire Barrier Ultra Plastic Pipe Device does not need any preparatory work. Holes may be drilled in concrete assemblies for fastening.

Installation Details: Tightly wrap 3M™ Fire Barrier Ultra Plastic Pipe Device around penetrating item. Device to be held in place using the closure tab. Device to be fastened to the assembly using mechanical/masonry fasteners in conjunction with steel washers or 3M™ Fire Barrier Ultra-Fast Anchors.

Limitations: It is recommended that 3M™ Fire Barrier Ultra Plastic Pipe Device is applied when the product is at a temperature between 40°F (4°C) and 110°F (43°C). It is recommended that 3M™ Fire Barrier Ultra Plastic Pipe Device be applied when the ambient air temperature is 32°F (0°C) or higher. Do not apply 3M™ Fire Barrier Ultra Plastic Pipe Device to wet or frost-coated surfaces or to areas that are continuously damp or immersed in water.

Maintenance

No maintenance is expected to be required when 3M™ Fire Barrier Ultra Plastic Pipe Device is installed in accordance with manufacturer's installation instructions. Once installed, if 3M™ Fire Barrier Ultra Plastic Pipe Device is damaged, the following procedure will apply: damaged device must be removed. Device must be replaced with new product.

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3M™ Fire Barrier Ultra Plastic Pipe Device (Ultra PPD)

Storage and Shelf Life	3M™ Fire Barrier Ultra Plastic Pipe Device should be stored indoor in dry conditions. It is recommended that the product remains in heated storage above 40°F (4°C) prior to installation. 3M™ Fire Barrier Ultra Plastic Pipe Device shelf life is indefinite when stored indoor in dry conditions above 40°F (4°C) and below 100°F (38°C).
Availability	Available from 3M Authorized Fire Protection Products Distributors. For additional technical and purchasing information, call 1-800-328-1687 or visit 3M.com/firestop.
Safe Handling	Consult Safety Data Sheet prior to handling and disposing of 3M™ Fire Barrier Ultra Plastic Pipe Device.
Technical Information	The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.
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Fire Protection Products

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3M™ Fire Barrier Ultra GS Wrap Strip

Product Data Sheet

November / 2018

Product Description

3M™ Fire Barrier Ultra GS Wrap Strip is an intumescent wrap, used to form a penetration seal around cables, metallic and non-metallic pipes, and other penetrants with or without insulation, to restore the fire resistance performance of wall, floor and floor-ceiling assemblies.

The intumescent property of this material allows 3M™ Fire Barrier Ultra GS Wrap Strip to expand and help maintain a firestop for protection against the passage of flame, smoke and the rise of temperature as service penetrations are exposed to fire.

The wrap is cut to the appropriate length, wrapped around the penetrating item(s) the required number of times. 3M™ Fire Barrier Ultra GS Wrap Strip can be installed as an in-hole solution or retained with collars and secured to the supporting construction. It is used in conjunction with 3M™ Fire Barrier 3000 WT, 3M™ Fire Barrier CP 25 WB+, or 3M™ Fire Barrier IC 15 WB+ Sealant.

Product Features

- 3M™ Fire Barrier Ultra GS Wrap Strip is a graphite-based, flexible, intumescent strip.
- May be used to provide a penetration seal in framed gypsum wall, block wall and solid concrete wall or floor constructions.
- Fire classification up to 4 hours in accordance with ASTM E814.
- Strong intumescence: expands when heated to seal around services when exposed to fire.
- Supplied in continuous rolls which are quick and easily installed.
- Excellent thermal insulator when expanded

Applications

3M™ Fire Barrier Ultra GS Wrap Strip provides a rapid and cost-effective means of sealing wall and floor penetrations where fire resistance is required.

The 3M™ Fire Barrier Ultra GS Wrap Strip can be used to seal ccPVC, PVC, CPVC, FRPP, PVDF, ccABS, and ABS pipes as well as cables penetrating up to 4-hour fire rated assemblies. Assemblies may be constructed from gypsum wallboard, block wall and solid concrete walls and floors. It may be applied to drain, waste, vent or closed pipe systems. The 3M™ Fire Barrier Ultra GS Wrap Strip is often used in conjunction with the RC-1 Restricting Collar for firestopping plastic pipe. See UL Fire Resistance Directory for current through-penetration systems.

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3M™ Fire Barrier Ultra GS Wrap Strip

Specifications

The penetration seal must be capable of passing ASTM E814 (ANSI/UL 1479) Standard Method of Fire Tests for Through Penetration Fire Stops up to the desired fire resistance. All penetrations in fire-rated walls or floors shall be fitted and sealed with 3M Brand Fire Barrier Products in accordance with the manufacturer's installation instructions. 3M™ Fire Barrier Ultra GS Wrap Strip installations shall meet the requirements of the IBC, IRC, IFC, IPC, IMC, NFPA 5000, NEC (NFPA 70), NFPA 101 and NBCC.

Performance and Typical Physical Properties

Roll Size	3M™ Fire Barrier Ultra GS Wrap Strip
	1/8" x 2" x 40' (3 mm x 5,08 cm x 12,1 m)
	3M™ Fire Barrier Ultra GS XL Wrap Strip
	1/8" x 4" x 40' (3 mm x 10,16 cm x 12,1 m)
Color	Gray/Black

Installation Techniques

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

Installation Details: Tested and listed system details must be followed for each specific application.

Limitations: Do not apply 3M™ Fire Barrier Ultra GS Wrap Strip when surrounding temperature is less than 32°F (0°C) and in conditions where seals may be exposed to rain or water spray within 18 hours of application. Do not apply 3M™ Fire Barrier Ultra GS Wrap Strip 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 Ultra GS Wrap Strip to wet or frost-coated surfaces or to areas that are continuously damp or immersed in water. Avoid repeated freeze/thaw exposures of the 3M™ Fire Barrier Ultra GS Wrap Strip prior to installation.

Maintenance

No maintenance is expected to be required when installed in accordance with the 3M™ Fire Barrier Ultra GS Wrap Strip tested and listed 3rd party systems.

Storage and Shelf Life

3M™ Fire Barrier Ultra GS Wrap Strip is packaged in corrugated cardboard boxes. Product is stable under normal storage conditions. Normal stock and stock rotation practices are recommended. Pallets should not be stacked.

- Store dry in a cool place
- Storage temperature: not under 0°C and not over 35°C
- Take care of sufficient ventilation
- Keep out of reach of children

3M™ Fire Barrier Ultra GS Wrap Strip shelf life is indefinite when stored in original unopened packaging in a dry warehouse environment.

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3M™ Fire Barrier Ultra GS Wrap Strip

Availability

Available from 3M Authorized Fire Protection Products Distributors.
For additional technical and purchasing information, call 1-800-328-1687 or visit 3M.com/firestop.

Safe Handling

Consult Article Information Sheet prior to handling and disposing of 3M™ Fire Barrier Ultra GS Wrap Strip.

Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

Product Selection and Use

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product and appropriate safety products, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

Warranty, Limited Remedy and Disclaimer

Unless an additional warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

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3M Fire Protection Products

3M™ Fire Barrier Ultra GS Wrap Strip

Limitation of Liability

Except for the limited remedy stated above, and except to the extent prohibited by law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.



Industrial Adhesives and Tapes Division
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St. Paul, MN 55144-1000

Phone 800-328-1687
Fax 877-369-2923
Web 3M.com/firestop

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Fire Protection Products

3M™ Fire Barrier FS-195+ Intumescent Wrap Strip

Technical Data Sheet

July / 2020

Product Description

3M™ Fire Barrier FS-195+ Intumescent Wrap Strip is one-part, organic/inorganic, fire resistive elastomeric sheet with aluminum foil on one side. Designed to firestop metallic and non-metallic penetrations in fire rated assemblies.

When exposed to a heat source, 3M™ Fire Barrier FS-195+ Intumescent Wrap Strip expands and forms a char to deter the spread of fire. The intumescent technology allows for its use with plastic pipes, cable jacketing and insulation materials.

Product Features

- Intumescent – Expands when exposed to heat sealing voids created by combustible items
- Smoke seal – retards spread of toxic by-products of combustion
- Superior aging properties
- Simple, cost effective installation
- Low flame spread and smoke development
- Re-enterable. No special tools required
- Low odor
- High quality aluminum foil serves as an installation aid.

Applications

3M™ Fire Barrier FS-195+ Intumescent Wrap Strip provides a rapid, cost-effective solution for firestopping combustible penetrants where fire resistance is necessary. Its unique intumescent action is effective in a fire scenario sealing and preventing the passage of flames and smoke.

3M™ Fire Barrier FS-195+ Intumescent Wrap Strip can be used to seal a variety of penetration types including but not limited to: cable bundle, metal pipe, plastic pipe and conduit, insulated metal pipe and blank opening.

Specifications

3M™ Fire Barrier FS-195+ Intumescent Wrap Strip is tested according to the following standards:

- ASTM E814
- UL 1479, CAN/ULC S115

3M™ Fire Barrier FS-195+ Intumescent Wrap Strip shall be installed following a tested and listed third party system. Installation shall meet the requirements of the IBC, IRC, IFC, IPC, IMC, NFPA 5000, NEC (NFPA 70), NFPA 101 and NBCC. For available sizes, check with your 3M representative.

3M Fire Protection Products

3M™ FS-195+ Intumescent Wrap Strip

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Performance and Typical Physical Properties

Colors Available	Red/Silver	
Unit	2in. (5cm) x 24in. (61cm) Strips.	
Surface Burning Characteristics (ASTM E 84)	Flame Spread: 5	Smoke Developed Index: 50
Hardness	70-90 Shore A	
Tensile Strength (ASTM D 412-83)	104 psi	
Elongation at Break (ASTM D 412-83)	514%	
Intumescent Activation	Expansion sequence begins	300°F (150°C)
	Significant expansion	350°F (175°C)
	Multidirectional free expansion	8x Size (average)
Service Temperature	-40°F to 350°F (-35°C to 176°C)	
Thermal Conductivity (ASTM C 518)*	0.034 W/m°C @ 43°C (2.39 BTU-in/hr/ft²/°F @ 110°F)	
	0.035 W/m°C @ 74°C (2.41 BTU-in/hr/ft²/°F @ 165°F)	

*Calculated based on a 1/8in. (3mm) thick sheet

Installation Techniques

Equipment: 3M™ Fire Barrier FS-195+ Intumescent Wrap Strip may be applied by hand entirely

Installation Details: Apply 3M™ Fire Barrier FS-195+ Intumescent Wrap Strip by hand. Third party tested and listed systems details must be followed for each specific application

Limitations: Do not apply 3M™ Fire Barrier FS-195+ Intumescent Wrap Strip when surrounding temperature is less than 32°F (0°C) and in conditions where seals may be exposed to rain or water spray within 18 hours of application. Do not apply 3M™ Fire Barrier FS-195+ Intumescent Wrap Strip 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 FS-195+ Intumescent Wrap Strip to wet or frost-coated surfaces or to areas that are continuously damp or immersed in water. Avoid repeated freeze/thaw exposures of the 3M™ Fire Barrier FS-195+ Intumescent Wrap Strip prior to installation.

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

Maintenance

No maintenance is expected to be required when installed in accordance with the 3M™ Fire Barrier FS-195+ Intumescent Wrap Strip tested and listed third party systems. Once installed, if any section of the 3M™ Fire Barrier FS-195+ Intumescent Wrap Strip is damaged, the following procedure will apply: Any damaged product must be cut out and removed. The open area created must then be filled with new product following third party tested and listed systems.

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3M Fire Protection Products

3M™ FS-195+ Intumescent Wrap Strip

Storage and Shelf Life	3M™ Fire Barrier FS-195+ Intumescent Wrap Strip should be stored indoors in dry conditions. It is recommended that the product remains in heated storage above 40°F (4°C) prior to installing material. When stored indoor in dry conditions above 40°F (4°C) and below 100°F (38°C), 3M™ Fire Barrier FS-195+ Intumescent Wrap Strip shelf life is indefinite. Lot numbering (e.g. 017316): First three digits = Last three digits of year manufactured (017316 = 2017), fourth to sixth digit = Julian Date (017316 = 316th day of year 2017, November 12, 2017).
Availability	Available from 3M Authorized Fire Protection Products Distributors. For additional technical and purchasing information, call 1-800-328-1687 or visit 3M.com/firestop.
Safe Handling	Consult Safety Data Sheet prior to handling and disposing of 3M™ Fire Barrier FS-195+ Intumescent Wrap Strip.
Technical Information	The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.
Product Use	Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.
Warranty, Limited Remedy and Disclaimer	Unless an additional warranty is specifically stated on the applicable 3M product packaging or product literature, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.
Limitation of Liability	Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability



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Fire Protection Products

Gypsum Head of Wall Construction Joint Firestop Submittal Package

FireDam 150+



Fire Protection Products

Bryan Moreau

860.392.8843

bmoreau.tnm@gmail.com

Table of Contents

3M/UL Systems applicable to construction trade and assembly type

3M Fire Protection Products Certificate of Conformance

Product Data and MSDS sheets for applicable 3M products



Matrix of 3M Listed Systems for Drywall Construction Joints

NOTE: This matrix provides an overview of the contents of the submittal - check systems details for specific parameters and alternate allowable products

Listed System #	F Rated Wall Assembly #1	F Rated Assembly #2	F Rating	Product(s)	Notes
HW-D-0111	Gypsum Wall	Fluted Deck	1&2	FireDam 150+	3/4" max joint
HW-D-0134	Gypsum Wall	Concrete	1&2	FireDam 150+	3/4" max joint
HW-D-0178	Gypsum Wall	Fluted Deck	1&2	FireDam 150+	1" max joint width perpendicular to flutes
HW-D-0205	Gypsum Wall	Fluted Deck	1&2	FireDam 150+	1" max joint width parallel to flutes
BW-S-0007	Gypsum Wall	Concrete	1&2	FireDam 150+	1" max joint width bottom of wall

Engineering Judgements may be attached to submittal for unique field conditions

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System No. HW-D-0111

May 02, 2009

Assembly Ratings – 1 and 2 Hr (See Item 2)

L Rating At Ambient – Less Than 1 CFM/Lin Ft

L Rating At 400 F – Less Than 1 CFM/Lin Ft

Nominal Joint Width – 3/4 In.

Class II Movement Capabilities – 17% Compression or Extension

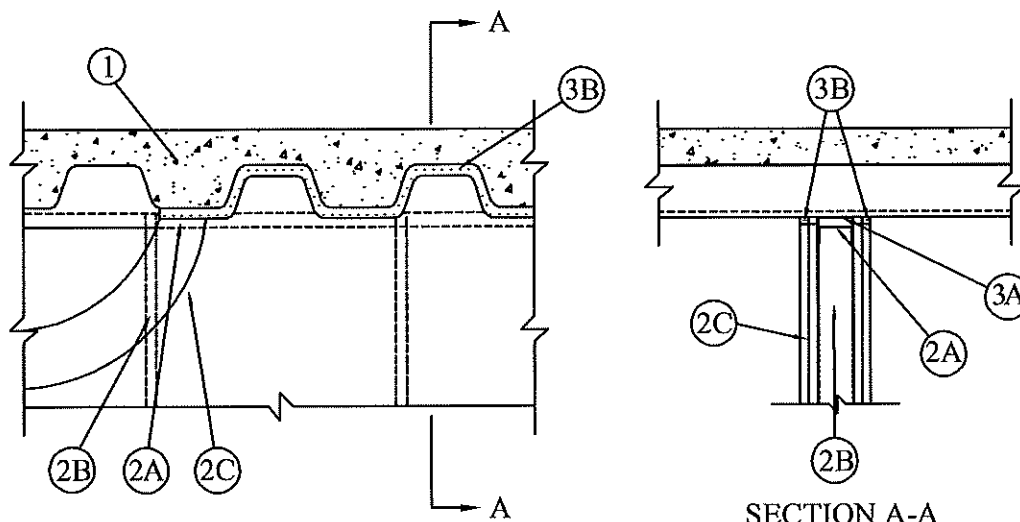
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Construction Joints

Head of Wall



1. **Floor Assembly** – The fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
 - A. **Steel Floor and Form Units*** – Max 3 in. (76 mm) deep galv fluted units.
 - A1. **Spray Applied Fire Resistive Materials*** – (Optional, not shown) – After the installation of ceiling runner or deflection channel (Items 2A, 2A1, 3A) and prior to the installation of the Fill, Void or Cavity Materials (Item 3B), the steel floor units may be sprayed with fire resistive material in accordance with the specifications in the individual D700 Series Design.
W R GRACE & CO - CONN – Type MK-6/HY
 - B. **Concrete** – Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.
2. **Wall Assembly** – The 1 or 2 fire rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
 - A. **Steel Floor And Ceiling Runners** – Floor and ceiling runners of wall assembly shall consist of min 1-1/4 in. (32 mm) or 2 in. (51 mm) galv steel channels for D900 and D 700 Series Designs, respectively, sized to accommodate steel studs (Item 2B). When U-shaped deflection channel (Item 3A) is used, ceiling runner installed within the deflection channel with 1 in. (25 mm) gap maintained between the top of ceiling runner and top of deflection plate. When deflection channel is not used, ceiling runner is installed perpendicular to direction of fluted steel deck prior to application of the spray-applied fire resistive material and secured to valleys with steel masonry anchors or by welds spaced max 24 in. (610 mm) OC.
 - A1. **Light Gauge Framing*** – Slotted Ceiling Runner – As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Slotted ceiling runner installed perpendicular to direction of fluted steel deck prior to application of the spray-applied fire resistive material and secured to valleys with steel masonry anchors spaced max 24 in. (610 mm) OC. When slotted ceiling runner is used, deflection channel (Item 3A) shall not be used.
BRADY CONSTRUCTION INNOVATIONS INC,
DBA SLIPTRACK SYSTEMS – SLP-TRK
CLARKWESTERN BUILDING SYSTEMS INC – Type SLT, SLT-H
METAL-LITE INC – The System
SCAFCO STEEL STUD MANUFACTURING CO
 - A2. **Light Gauge Framing*** – Clipped Ceiling Runner – As an alternate to the ceiling runner in Items 2A and 2A1, clipped runner to consist of galv steel channel with clips preformed in track flanges which positively engage the inside flange of the steel studs (Item 2B). Track sized to accommodate steel studs (Item 2B). Track flanges to be min 2-1/2 in. (64 mm). Clipped ceiling runner installed perpendicular to direction of fluted steel deck prior to application of the spray-applied fire resistive material and secured to valleys with steel masonry anchors spaced max 24 in. (610 mm) OC. When clipped ceiling runner is used, deflection channel (Item 3A) shall not be used.
TOTAL STEEL SOLUTIONS L L C – Snap Trak

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System No. HW-D-0111 *continued*

- A3. **Light Gauge Framing* – Notched Ceiling Runner** – As an alternate to the ceiling runners in Items 2A through 2A2, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner installed perpendicular to direction of fluted steel floor deck prior to application of the spray-applied fire resistive material and secured to valleys with steel masonry anchors spaced max 24 in. (610 mm) OC. When notched ceiling runner is used, deflection channel (Item 3A) shall not be used.

DENMAR STEEL INC – Type SCR

- B. **Studs** – Steel studs to be min 3-1/2 in. (89 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height. Studs attached to ceiling runner with sheet metal screws a min of 1/2 in. (13 mm) below bottom of deflection channel, when deflection channel is used. When deflection channel is not used, studs shall not be secured to ceiling runner. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. Stud spacing not to exceed 24 in. (610 mm) OC.
- C. **Gypsum Board*** – Gypsum board sheets to be installed to a min total thickness of 5/8 or 1-1/4 in. (16 or 32 mm) on each side of the wall for a 1 or 2 hr fire rated wall, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that the gypsum board is cut to fit the contour of the steel floor units or the contour of the spray applied material with a nom 3/4 in. (19 mm) gap. The screws attaching the gypsum board to studs at the top of the wall shall be located 1 in. (25 mm) below the bottom of the deflection channel, when deflection channel is used. When deflection channel is not used, the screws attaching the gypsum board to studs at the top of the wall shall be located 1 in. (25 mm) below the bottom of the ceiling runner (Item 2A) or slotted ceiling runner (Item 2A1). The hourly fire rating of the joint system is dependant on the hourly fire rating of the wall.
3. **Joint System** – Max separation between bottom of floor or spray applied material and top of wall is 3/4 in. (19 mm). The joint system is designed to accommodate a max 17 percent compression or extension from its installed width. The joint system consists of a deflection channel and a fill material, as follows:
- A. **Deflection Channel** – (Optional) – A nom 3-1/2 in. (89 mm) wide by min 2 in. (51 mm) deep, min 24 galv steel U-shaped channel. Deflection channel installed perpendicular to direction of fluted steel deck prior to application of the spray-applied fire resistive material and secured to valleys with steel masonry anchors or by welds spaced max 24 in. (610 mm) OC. The ceiling runner (Item 2A) is installed within the deflection channel to maintain a 1 in. (25 mm) gap between the top of the ceiling runner and the top of the deflection channel. The ceiling runner is not fastened to the deflection channel.
- B. **Fill, Void or Cavity Material*** – Caulk – Min 5/8 in. (16 mm) thickness of fill material installed on each side of the wall between the top of the gypsum board and all surfaces of the steel floor units or spray applied material, flush with each surface of gypsum board.

3M COMPANY – FD-150+

*Bearing the UL Classification Mark

Construction Joints

Head of Wall

HW/D

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System No. HW-D-0134

May 02, 2009

Assembly Rating – 1 and 2 Hr (See Item 2)

L Rating At Ambient – 4 CFM/Lin Ft

L Rating At 400 F – 6 CFM/Lin Ft

Nominal Joint Width – 3/4 In.

Class II Movement Capabilities – 17% Compression or Extension

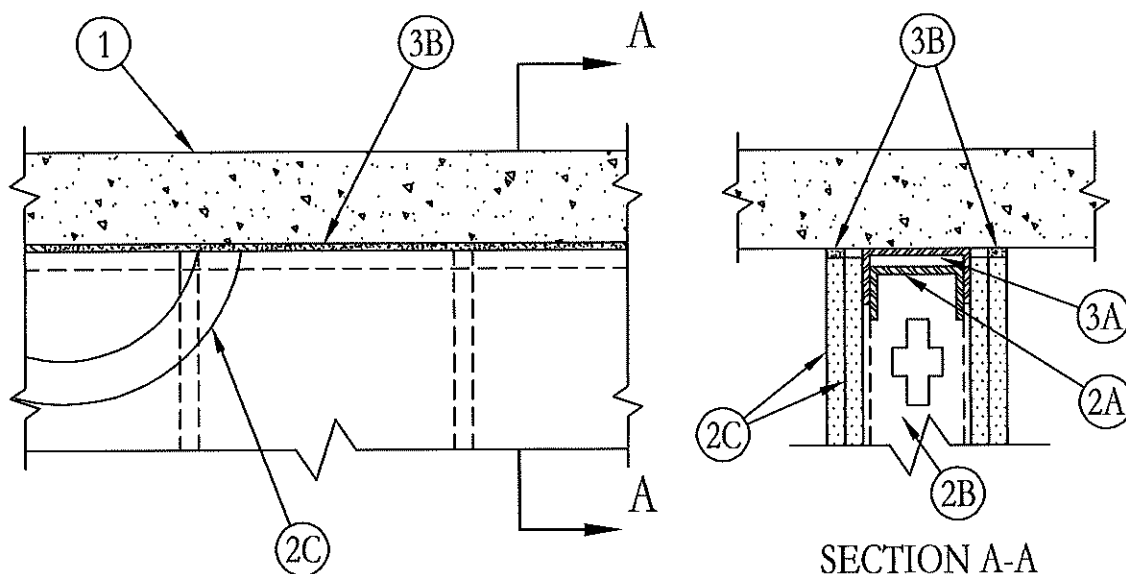
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Construction Joints

Head of Wall



1. **Floor Assembly** – Min 4-1/2 in. (114 mm) thick lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete.
2. **Wall Assembly** – The 1 or 2 fire rated gypsum wallboard/steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
 - A. **Steel Floor And Ceiling Runners** – Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B). When U-shaped deflection channel (Item 3A) is used, ceiling runner installed within the deflection channel with 1 in. (25 mm) gap maintained between the top of ceiling runner and top of deflection channel. When deflection channel is not used, ceiling runner secured to concrete floor slab with steel masonry anchors spaced a max of 24 in. (610 mm) OC.
 - A1. **Light Gauge Framing* – Slotted Ceiling Runner** – As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Slotted ceiling runner secured to concrete floor slab with steel masonry anchors spaced max 24 in. (610 mm) OC. When slotted ceiling runner is used, deflection channel (Item 3A) shall not be used.
BRADY CONSTRUCTION INNOVATIONS INC,
DBA SLIPTRACK SYSTEMS – SLP-TRK
CLARKWESTERN BUILDING SYSTEMS INC – Type SLT, SLT-H
METAL-LITE INC – The System
SCAFCO STEEL STUD MANUFACTURING CO
 - A2. **Light Gauge Framing* – Clipped Ceiling Runner** – As an alternate to the ceiling runner in Items 2A and 2A1, clipped runner to consist of galv steel channel with clips preformed in track flanges which positively engage the inside flange of the steel studs (Item 2B). Track sized to accommodate steel studs (Item 2B). Track flanges to be min 2-1/2 in. (64 mm). Clipped ceiling runner secured to concrete floor slab with steel masonry anchors spaced max 24 in. (610 mm) OC. When clipped ceiling runner is used, deflection channel (Item 3A) shall not be used.
TOTAL STEEL SOLUTIONS L L C – Snap Trak
 - A3. **Light Gauge Framing* – Notched Ceiling Runner** – As an alternate to the ceiling runners in Items 2A through 2A2, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner secured to concrete floor slab with steel masonry anchors spaced max 24 in. (610 mm) OC. When notched ceiling runner is used, deflection channel (Item 3A) shall not be used.
DENMAR STEEL INC – Type SCR
 - B. **Studs** – Steel studs to be min 3-5/8 in. (92 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height. Studs attached to ceiling runner with sheet metal screws a min of 1/2 in. (13 mm) below bottom of deflection channel, when deflection channel is used. When deflection channel is not used, steel studs shall not be secured to ceiling runner. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. Stud spacing not to exceed 24 in. (610 mm) OC.

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HWP

System No. HW-D-0134 continued

- C. **Gypsum Board*** – Gypsum board sheets installed to a min total thickness of 5/8 in. (16 mm) and 1-1/4 in. (32 mm) on each side of wall for a 1 or 2 hr rated assemblies, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a nom 3/4 in. (19 mm) gap shall be maintained between the top of the gypsum board and the lower surface of the floor. The screws attaching the gypsum board to studs at the top of the wall shall be located 1 in. (25 mm) below the bottom of the U-shaped deflection channel (Item 3A) or slotted ceiling runner (Item 2A1).

The hourly fire rating of the joint system is dependent on the hourly fire rating of the wall.

3. **Joint System** – Max separation between bottom of floor and top of wall is 3/4 in. (19 mm). The joint system is designed to accommodate a max 17 percent compression or extension from its installed width. The joint system consists of a deflection channel forming material and a fill material, as follows:

- A. **Deflection Channel** – (Optional) – A nom 3-3/4 in. (95 mm) wide by min 2 in. (51 mm) deep min 24 ga steel U-shaped channel. Deflection channel secured to concrete floor slab with steel masonry anchors or by welds spaced max 24 in. (610 mm) OC. The ceiling runner (Item 2A) is installed within the deflection channel to maintain a 1 in. (25 mm) gap between the top of the ceiling runner and the top of the deflection channel. The ceiling runner is not fastened to the deflection channel.
- B. **Fill, Void or Cavity Material*** – Caulk – Min 5/8 in. (16 mm) thickness of fill material installed on each side of the wall between the top of the gypsum board and bottom of floor, flush with each surface of gypsum board.

3M COMPANY – FD-150+

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Construction Joints

Head of Wall

HW-D

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System No. HW-D-0178

April 15, 2009

Assembly Rating – 1 and 2 Hr (See Items 2 and 3)

L Rating At Ambient – 4 CFM/Lin Ft

L Rating At 400 F – 6 CFM/Lin Ft

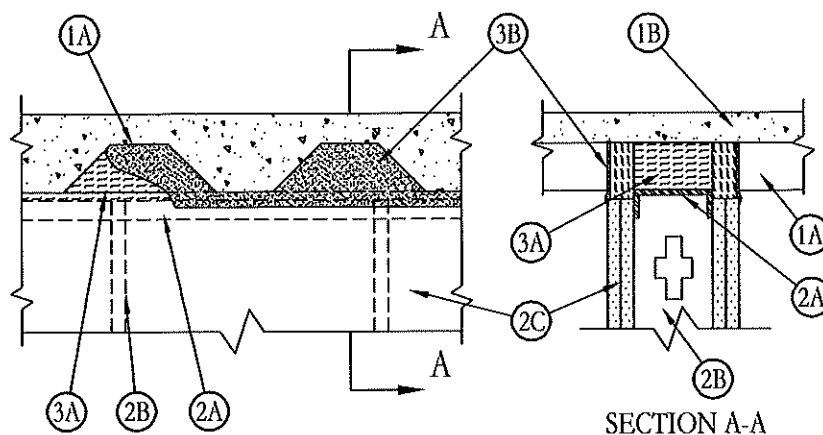
Nominal Joint Width – 1 In.

Class II Movement Capabilities – 18.75% Compression or Extension

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Construction Joints

Head of Wall

HWD

1. **Floor Assembly** – The fire rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
 - A. **Steel Floor and Form Units*** – Max 3 in. deep galv steel fluted units.
 - B. **Concrete** – Min 2-1/2 in. thick reinforced concrete, as measured from the top plane of the floor units.
2. **Wall Assembly** – The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Steel Floor and Ceiling Runners** – Floor and ceiling runners of wall assembly shall consist of min No. 25 gauge galv steel channels sized to accommodate steel studs. Ceiling runner to be provided with min 1-1/4 in. flanges. Ceiling runner secured to valleys of steel floor units with steel fasteners or by welds spaced max 12 in. OC.
- A1. **Light Gauge Framing* – Clipped Ceiling Runner** – As an alternate to the ceiling runner in Item 2A, clipped runner to consist of galv steel channel with clips preformed in track flanges which positively engage the inside flange of the steel studs (Item 2B). Track sized to accommodate steel studs (Item 2B). Track flanges to be min 2-1/2 in. Clipped ceiling runner installed perpendicular to direction of fluted steel floor units and secured to valleys with steel fasteners spaced max 12 in. OC.

TOTAL STEEL SOLUTIONS L L C – Snap Trak

- B. **Studs** – Steel studs to be min 3-1/2 in. wide. Studs cut 5/8 in. less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. Stud spacing not to exceed 24 in.
- C. **Gypsum Board*** – Gypsum board sheets installed to a min total thickness of 5/8 in. and 1-1/4 in. on each side of wall for 1 and 2 hr rated assemblies, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a nom 1 in. gap shall be maintained between the top of the gypsum board and the bottom of the steel floor units and the top row of screws shall be installed into the studs 1 in. below the bottom of the ceiling runner.

The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.

3. **Joint System** – Max width of joint (at time of installation of joint system) is 1 in. The joint system is designed to accommodate a max 18.75 percent compression or extension from its installed width. The joint system shall consist of the following:
 - A. **Forming Material*** – Min 4 in. thickness of min 4 pcf mineral wool batt insulation cut to the shape of the fluted deck, approx 20 percent larger than the area of the flutes and compressed into flutes of the steel floor units between the top of the ceiling runner and the steel deck and compressed in thickness to be flush with vertical leg of ceiling runner on both sides. Additional pieces of min 4 pcf mineral wool batt insulation are to be cut to the contour of the flutes with an additional 1-3/8 in. high section at the bottom of the shapes to fill the 1 in. gap between the top of the wallboard and bottom of the steel floor units. The additional pieces of mineral wool are to be cut to min 3/4 and 1-1/2 in. thick for 1 and 2 hr rated assemblies, respectively and compressed and firmly packed into the flutes and the gap between the top of the gypsum board and bottom of the steel floor units on both sides of the wall and compressed in thickness to be recessed from each surface of the wall to accommodate the required thickness of fill material.

FIBREX INSULATIONS INC – FBX Safing Insulation
 IIG MINWOOL L L C – MinWool-1200 Safing
 ROCK WOOL MANUFACTURING CO – Delta Safing Board
 THERMAFIBER INC – Type SAF
 - B. **Fill, Void or Cavity Material* – Caulk** – Min 1/4 in. thickness of caulk installed on each side of the wall in the flutes of the steel floor units and between the top of the wall and the bottom of the steel floor units, flush with each surface of the gypsum board. An additional min 1/8 in. thickness of caulk to overlap onto gypsum board a min 1/2 in.

3M COMPANY – FireDam 150+

*Bearing the UL Classification Mark

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System No. HW-D-0205

April 15, 2009

Assembly Rating – 1 & 2 Hr (See Items 2 & 3A)

L Rating at Ambient – Less than 1 CFM/Lin Ft.

L Rating at 400 F – Less than 1 CFM/Lin Ft.

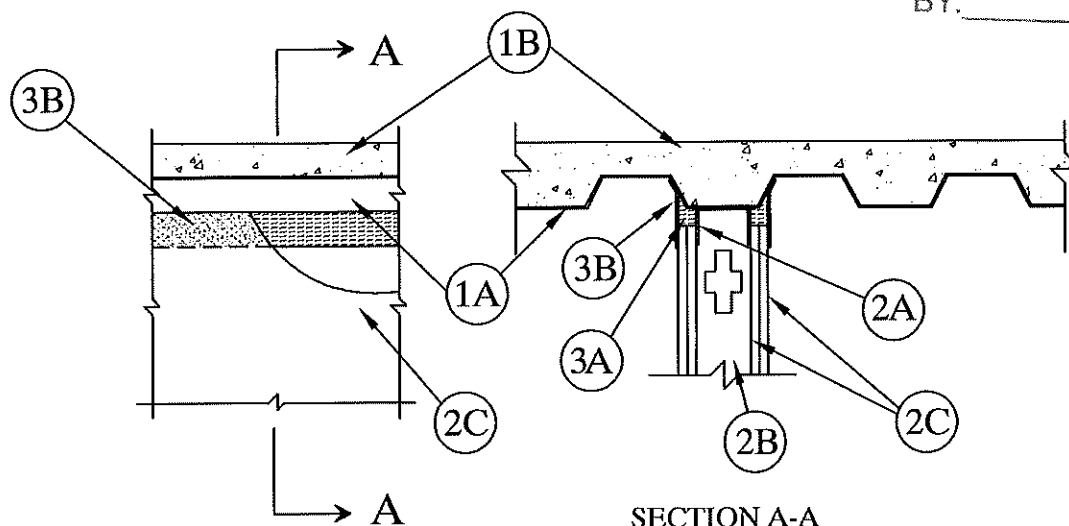
Nominal Joint Width – 1 in.

Class II Movement Capabilities – 19% Compression & Extension

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Construction Joints

Head of Wall

HWD

1. **Floor Assembly** – The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
 - A. **Steel Floor And Form Units*** – Max 3 in. (76 mm) deep galv steel fluted floor deck.
 - B. **Concrete** – Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.
 - 1A. **Roof Assembly** – (Not Shown) - As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly and shall include the following construction features:
 - A. **Steel Roof Deck** – Max 3 in. (76 mm) deep galv steel fluted roof deck.
 - B. **Roof Insulation** – Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the deck.
 2. **Wall Assembly** – The 1 or 2 hr fire rated gypsum wallboard/steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
 - A. **Steel Floor And Ceiling Runners** – Floor and ceiling runners of wall assembly shall consist of min No. 25 gauge galv steel channels sized to accommodate steel studs (Item 2B). Ceiling runner to be provided with min 1-1/2 in. (38 mm) flanges. Ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, and secured with steel masonry anchors or welds spaced max 24 in. (610 mm) OC.
 - A1. **Light Gauge Framing* – Slotted Ceiling Runner** – As an alternate to the ceiling runner in Item 2A, ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, and secured with steel masonry anchors spaced max 24 in. (610 mm) OC.

SCAFCO STEEL STUD MANUFACTURING CO
BRADY CONSTRUCTION INNOVATIONS INC,
DBA SLIPTRACK SYSTEMS – SLP-TRK

 - A2. **Light Gauge Framing* – Notched Ceiling Runner** – As an alternate to the ceiling runners in Items 2A and 2A1, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, and secured with steel masonry anchors spaced max 24 in. (610 mm) OC.
- DENMAR STEEL INC – Type SCR**
- B. **Studs** – Steel studs to be min 3-1/2 in. (89 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner is used, steel studs secured to runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. Stud spacing not to exceed 24 in (610 mm) OC.
 - C. **Gypsum Board*** – Gypsum board sheets installed to a min total thickness of 5/8 in. (16 mm) and 1-1/4 in. (32 mm) on each side of wall for 1 and 2 hr rated assemblies, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a max 1 in. (25 mm) gap shall be maintained between the top of the gypsum board and the lower surface of the floor or roof and the top row of screws shall be installed into the studs 1 in. (25 mm) below the bottom of the ceiling runner.

The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.

This material was extracted and drawn by 3M Fire Protection Products from the 2009 edition of the UL Fire Resistance Directory. cULus

System No. HW-D-0205 *continued*

3. **Joint System** – Max separation between bottom of floor or roof and top of wall is 1 in. (25 mm). The joint system is designed to accommodate a max 19 percent compression or extension from its installed width. The joint system consists of the following:
- A. **Forming Material*** – Min 3/8 and 1 in. (10 and 25 mm) wide strips of min 4 pcf (64 kg/m³) mineral wool batt insulation for 1 and 2 hr rated assemblies, respectively. Mineral wool strips to be compressed approximately 33 percent in thickness to fill the max 1 in. (25 mm) gap between the top of gypsum board and bottom of steel floor or roof deck on both sides of the wall and recessed from each surface of wall to accommodate the required thickness of fill material.
- FIBREX INSULATIONS INC** – FBX Safing Insulation
HIG MINWOOL L L C – MinWool-1200 Safing
ROCK WOOL MANUFACTURING CO – Delta Board or Delta -8
ROXUL ASIA SDN BHD – Type Safe
ROXUL INC – Type Safe
THERMAFIBER INC – Type SAF
- B. **Fill, Void or Cavity Material* – Sealant** – Min 1/4 in. (6 mm) thickness of sealant installed on each side of wall in the flutes of steel floor or roof deck and between top of wall and bottom of steel floor or roof deck to completely cover mineral wool, flush with each surface of wall. An additional min 1/8 in. (3.2 mm) thickness of sealant to overlap onto gypsum board a min of 1/2 in. (13 mm).
- 3M COMPANY** – FireDam 150+

*Bearing the UL Classification Mark

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System No. BW-S-0007

May 18, 2005

Assembly Ratings – 1 and 2 Hr (See Item 2)

L Rating at Ambient – Less Than 1 CFM/lin ft

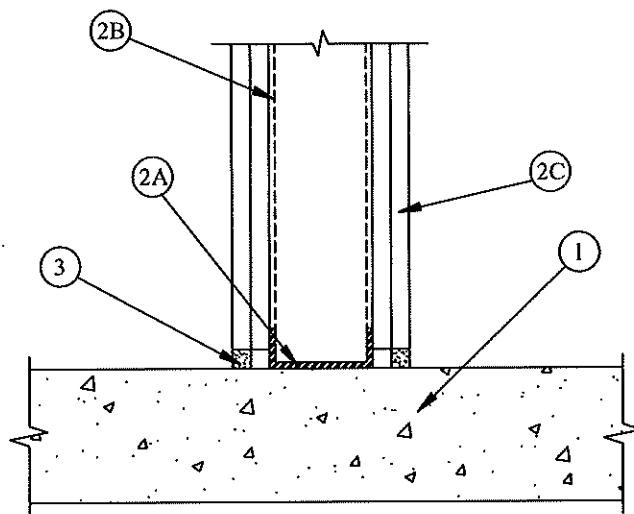
L Rating at 400° F – Less Than 1 CFM/lin ft

Joint Width – 1 in. Max

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Construction Joints

Bottom of Wall Static

BWS

1. **Floor Assembly** – Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) structural concrete. Floor may also be constructed of any 6 in. (152 mm) thick UL Classified hollow-core Precast Concrete Units*.

See Precast Concrete Units category in the Fire Resistance Directory for names of manufacturers.

2. **Wall Assembly** – The 1 or 2 h fire-rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner specified in the individual U400 or V400 Series Wall or Partition Design in the UL Fire Resistance Directory. In addition, the wall may incorporate a head-of-wall joint system constructed as specified in the HW Series Joint Systems in the UL Fire Resistance Directory. The wall shall include the following construction features:

- A. **Steel Floor Runner** – Floor runners of wall assembly shall consist of min No. 25 gauge galv steel channels sized to accommodate steel studs (Item 2C). Floor runners to be provided with min 1-1/4 in. (32 mm) flanges. Runners secured with steel fasteners spaced 12 in. (305 mm) OC.
- B. **Studs** – Steel studs to be min 3-1/2 in. wide. (89 mm) Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in, resting on and fastened to floor runner with sheet metal screws. Stud spacing not to exceed 24 in. (610 mm) OC.
- C. **Gypsum Board** – Gypsum board installed to a min total thickness of 5/8 or 1-1/4 in. (16 or 32 mm) on each side of wall for a 1 or 2 hr rated wall, respectively. Wall to be constructed as specified in the individual U400 or V400 Series Design in the UL Fire Resistance Directory, except that a max 1 in. (25 mm) gap shall be maintained between the bottom of gypsum board and top of concrete floor.

The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.

3. **Fill, Void or Cavity Material* – Caulk or Sealant** – Max separation between top of floor and bottom of gypsum board is 1 in. (25 mm). Min 5/8 in. (16 mm) thickness of fill material installed on each side of the wall between the bottom of the gypsum board and the top of the concrete floor, flush with each surface of the wall.

3M COMPANY – FB1000 NS, FB-2000, FB-2000+, FB-3000 WT sealant, FireDam 150+, IC 15WB+, CP 25WB+ caulk

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3M Fire Protection Products

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Date: April 6, 2017

Subject: GENERAL CERTIFICATE OF CONFORMANCE
3M FIRE PROTECTION PRODUCTS

Product Category: Through Penetration Firestop Products

3M™ Aluminum Foil Tape 425	3M™ Fire Barrier Sealant FD 150+
3M™ Expantrol™ Flexible Intumescent Strip E-FIS	3M™ Fire Barrier Sealant IC 15WB+
3M™ Fire Barrier 2" Plug PLG2	3M™ Fire Barrier Self-Locking Pillows
3M™ Fire Barrier 4" Plug PLG4	3M™ Fire Barrier Silicone Sealant 2000+
3M™ Fire Barrier Block B258	3M™ Fire Barrier Tuck-In Wrap Strips
3M™ Fire Barrier Cast-In Devices & Accessories	3M™ Fire Barrier Ultra Plastic Pipe Device (UPPD)
3M™ Fire Barrier Composite Sheet CS-195+	3M™ Fire Barrier Water Tight Sealant 1000 NS
3M™ Fire Barrier Sealant CP 25WB+	3M™ Fire Barrier Water Tight Sealant 1003 SL
3M™ Fire Barrier Moldable Putty+ Pads (MPP+)	3M™ Fire Barrier Water Tight Sealant 3000 WT
3M™ Fire Barrier Moldable Putty+ Sticks (MP+)	3M™ Fire Barrier Watertight Spray
3M™ Fire Barrier Mortar	3M™ Fire Barrier Wrap Strips FS-195+
3M™ Fire Barrier Packing Material PM4	3M™ Fire Barrier Wrap Ultra GS
3M™ Fire Barrier Pass-Through Devices	3M™ Fire Block Foam FB-Foam
3M™ Fire Barrier Pillows	3M™ Fire Block Sealant FB 136
3M™ Fire Barrier Plank PK39	3M™ FireDam™ Spray 200
3M™ Fire Barrier Plastic Pipe Device (PPD)	3M™ Interam™ Stainless Steel Foil Tape T-65
3M™ Fire Barrier Putty Sleeve Kits	3M™ Marine Fire Wrap
3M™ Fire Barrier Rated Foam FIP 1-Step	3M™ Smoke and Sound Sealant SS 100
3M™ Fire and Water Barrier Tape FWBT	3M™ Fire Barrier RC-1 Restricting Collar
3M™ Smoke and Sound Tape SST	

The above listed products are tested to one or more of the following standards:

- ASTM E 119 (ANSI/UL 263) Standard Test Methods for Fire Tests of Building Construction and Materials
- ASTM E 814 (ANSI/UL 1479) Standard Test Method for Fire Tests of Penetration Firestop Systems (under positive furnace pressure of minimum .01 inches of water column)
- ASTM E 84 (ANSI/UL 723) Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM E 1966 (ANSI/UL 2079) Standard Test Method for Fire-Resistive Joint Systems
- NFPA 252 Standard Methods of Fire Test and Door Assemblies
- UBC Standard 7-2(97)
- IMO Res. A.754(18)
- ASTM E 2307 Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus
- ASTM E 136 Standard Test Method for Behavior of Material in a Vertical Tube Furnace at 750° C

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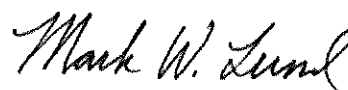
- ASTM C 1338 Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings
- ISO 6944-1985 Fire resistance tests --- Ventilation ducts
- ASTM C 1241 Standard Test Method for Volume Shrinkage of Latex Sealants During Cure
- CAN/ULC S115 Standard Method of Fire Tests of Firestop Systems
- ASTM E 90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

These products are formulated without asbestos, polychlorinated biphenyls (PCBs), or lead.

Issued by:



Quality Manager or Designee



Technical Manager, or Designee

Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for user's particular purpose and suitable for user's method of application.

Technical Information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Warranty and Limited Remedy: 3M warrants that each 3M Fire Protection Product will be free from defects in material and manufacture for 90 days from the date of purchase from 3M's authorized distributor. 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 this warranty, the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price. **Limitation of Liability:** Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted."



Industrial Adhesives and Tapes Division
St. Paul, MN 55144-1000
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www.3M.com/firestop

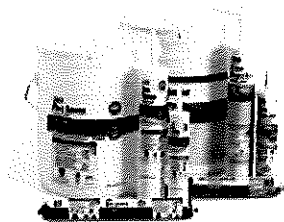
3M™ Fire Barrier Sealant FD 150+ BY: _____

Product Data Sheet

1. Product Description

3M™ Fire Barrier Sealant FD 150+ is a ready to use, gun-grade, elastomeric sealant that dries to form a monolithic flexible seal. 3M™ Fire Barrier Sealant FD 150+ firestops joints and through penetrations through floor slabs, walls and other fire-rated building partitions and assemblies. 3M™ Fire Barrier Sealant FD 150+, when properly installed, helps control the spread of fire, smoke and noxious gasses before, during and after exposure to a fire. 3M™ Fire Barrier Sealant FD 150+ remains elastomeric and exhibits excellent adhesion to a full range of construction substrates.

Available in the following colors: ■ Blue ■ Limestone ■ Red



An elastomeric firestop available in multiple colors, to meet virtually any project or specification need.

Product Features

- Firestop tested up to 3 hours in accordance with ASTM E 814 (UL 1479) & CAN/ULC S115
- Fire Resistive Joint System tested up to 4 hours in accordance with ASTM E 1966 (UL 2079)
- ±19% movement capability
- Helps minimize sound transfer*
- Re-enterable / repairable
- Sag-resistant formulation
- Excellent adhesion
- Water clean up

Meets the intent of LEED® VOC regulations—helps reduce the quantity of indoor air contaminants that may be odorous, irritating and harmful to the comfort and well-being of the installers and occupants. <250 g/L VOC contents (less H₂O and exempt solvents).

**Minimizes noise transfer—STC-Rating of 56 when tested in STC 56-rated wall assembly.*

2. Applications

3M™ Fire Barrier Sealant FD 150+ is an ideal product for sealing construction joints and through penetrations such as metallic pipes, conduits, power and communication cables. 3M™ Fire Barrier Sealant FD 150+ helps control the spread of fire and helps limit the spread of noxious gasses, smoke and water when installed in accordance with a UL or Intertek listed through penetration or fire resistive joint assembly.

3. Specifications

3M™ Fire Barrier Sealant FD 150+ shall be a one-component, ready-to-use, gun-grade, elastomeric sealant. The sealant shall be listed by independent test agencies such as Intertek or UL. 3M™ Fire Barrier Sealant FD 150+ 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 CAN/ULC S115 Standard Method of Fire Tests of Firestop Systems. 3M™ Fire Barrier Sealant FD 150+ shall meet the requirements of the IBC, IRC, IFC, IPC, IMC, NFPA 5000, NEC (NFPA 70) and NFPA 101.

Typically Specified Division

Division 7

Section 07 84 00 – Firestopping

Related Sections

Section 07 84 16 – Annular Space Protection
Section 07 84 43 – Fire-Resistant Joint Sealants
Section 07 86 00 – Smoke Seals
Section 07 87 00 – Smoke Containment Barriers
Section 07 27 00 – Air Barriers
Section 21 00 00 – Fire Suppression
Section 22 00 00 – Plumbing
Section 26 00 00 – Electrical

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FIRE BARRIER



SMOKE SEAL



SOUND BARRIER



ELASTOMERIC



FILL, VOID OR CAVITY MATERIAL
FOR USE IN JOINT SYSTEMS AND
THROUGH-PENETRATION FIRESTOP SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY
8R57



4. Performance & Typical Physical Properties

Colors Available:	Blue, Limestone and Red	Hardness (ASTM D 2240 Shore A):	60
Extension/compression:	Capability of $\pm 19\%$	Tensile Strength:	85 psi (0.59 MPa)
Application Temperature Range: (ASTM C 1299)	40° to 122°F (4° to 50°C)	Volume Shrinkage (ASTM C 1241):	28%
Service Temperature Range:	-20° to 180°F (-28° to 82°C)	VOC Less H ₂ O and Exempt Solvents:	<250 g/L
STC Acoustic Barrier: (ASTM E 90 and ASTM E 413)	56 when tested in STC 56 rated wall assembly	Dry: Under typical conditions of 75°F (23°C) and 50% R.H., sealant becomes tack-free in about ten minutes and dry-to-touch in 30 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.	
Surface Burning (ASTM E 84):	Flame Spread 0 Smoke Development 0		

Unit Volume: 10.1 fl. oz. tube (298.7 cc, 18.2 in.³), 20 fl. oz. sausage (591.5 cc, 36.1 in.³), 28 fl. oz. tube (828.1 cc, 50.5 in.³), 4.5 gal. pail (.017 m³, 1039.5 in.³)

5. Packaging, Storage, Shelf Life

Packaging	Product packaged in cartridge or pail is enclosed in HDPE plastic containers, sausage is packaged in aluminum foil wrap.
Storage	3M™ Fire Barrier Sealant FD 150+ should be stored indoors in dry conditions between 40°F and 90°F (4°C and 32°C). Avoid repeated freeze / thaw exposures of the 3M™ Fire Barrier Sealant FD 150+ while still in the packaging.
Shelf Life	3M™ Fire Barrier Sealant FD 150+ shelf life is 12 months in original unopened containers from date of packaging when stored above 68°F (20°C).
Lot numbering: First to sixth digit = Date of Production (MMDDYY) Seventh indicator = dash symbol (-) Eighth digit = shift number	

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 the 3M™ Fire Barrier Sealant FD 150+. 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 or other third-party listed system. Cut the end of the 3M™ Fire Barrier Sealant FD 150+ tube spout to achieve the desired bead width when applying. Install the applicable depth of 3M™ Fire Barrier Sealant FD 150+ into the opening flush with the surface of the substrate, or as detailed within the applicable listed system, at the required depth for the assembly and rating that is required. Tool within 5 minutes. Clean all tools immediately after use with water.
Limitations	Do not apply 3M™ Fire Barrier Sealant FD 150+ when surrounding temperature is less than 40°F (4°C) and in conditions when seals may be exposed to rain or water spray within 18 hours of application. Do not apply 3M™ Fire Barrier Sealant FD 150+ 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 FD 150+ to wet or frost-coated surfaces or 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 is expected when installed in accordance with the applicable UL, Intertek or other third-party listed system. Once installed, if any section of the 3M™ Fire Barrier Sealant FD 150+ is damaged, the following procedure will apply: remove and reinstall 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 FD 150+ is available from 3M Authorized Fire Protection Products Distributors and Dealers. 3M™ Fire Barrier Sealant FD 150+ is available in 10.1 fl. oz. cartridges, 20.0 oz. sausages, 28.0 fl. oz. cartridges and 4.5 gallon pails. For additional technical and purchasing information regarding this and other 3M Fire Protection Products, please call: 1-800-328-1687 or visit www.3m.com/firestop.

9. Safe Handling Information

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

Important Notice to User:

Technical Information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

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Building and Commercial Services Division

3M Center, Building 223-2N-21
St. Paul, MN 55144-1000 USA
1-800-328-1687
www.3m.com/firestop



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Safety Data Sheet

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Document Group: 27-3508-2
Issue Date: 08/19/14

Version Number: 4.00
Supersedes Date: 05/24/13

SECTION 1: Identification

1.1. Product identifier

3M(TM) Fire Barrier Sealant FD 150+, Red

Product Identification Numbers

98-0400-5598-4, 98-0400-5599-2, 98-0400-5600-8, 98-0400-5601-6

1.2. Recommended use and restrictions on use

Recommended use

Fire Protection, Caulk used as a passive fire protection.

1.3. Supplier's details

MANUFACTURER: 3M
DIVISION: Industrial Adhesives and Tapes Division
ADDRESS: 3M Center, St. Paul, MN 55144-1000, USA
Telephone: 1-888-3M HELPS (1-888-364-3577)

1.4. Emergency telephone number

1-800-364-3577 or (651) 737-6501 (24 hours)

SECTION 2: Hazard identification

2.1. Hazard classification

Skin Corrosion/Irritation: Category 2.

Skin Sensitizer: Category 1A.

Carcinogenicity: Category 1A.

Specific Target Organ Toxicity (single exposure): Category 1.

2.2. Label elements

Signal word

Danger

Symbols

Exclamation mark | Health Hazard |

Pictograms



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Hazard Statements

Causes skin irritation.
May cause an allergic skin reaction.
May cause cancer.

Causes damage to organs:

cardiovascular system |
nervous system |
kidney/urinary tract |
respiratory system |

Precautionary Statements

General:

Keep out of reach of children.
If medical advice is needed, have product container or label at hand.

Prevention:

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe vapors.
Wear protective gloves.
Do not eat, drink or smoke when using this product.
Wash thoroughly after handling.
Contaminated work clothing must not be allowed out of the workplace.

Response:

IF ON SKIN: Wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.
IF exposed: Call a POISON CENTER or doctor/physician.
IF exposed or concerned: Get medical advice/attention.
Specific treatment (see Notes to Physician on this label).

Storage:

Store locked up.

Disposal:

Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

Notes to Physician:

This product contains ethylene glycol. Effects of oral ethylene glycol poisoning can be divided into three stages which generally occur over a time-course of hours to days following ingestion: Stage 1 (neurological effects), stage 2 (cardiopulmonary effects) and stage 3 (renal effects). If ethylene glycol poisoning is confirmed, intravenous (IV) administration of ethanol should be considered. Additional pharmacologic and supportive care should be based on the treating physician's judgement.

2.3. Hazards not otherwise classified

None.

10% of the mixture consists of ingredients of unknown acute oral toxicity.

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3M(TM) Fire Barrier Sealant FD 150+, Red 08/19/14

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31% of the mixture consists of ingredients of unknown acute dermal toxicity.

41% of the mixture consists of ingredients of unknown acute inhalation toxicity.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
Calcium Carbonate	1317-65-3	40 - 70 Trade Secret *
Polymer NJTS Reg. No. 04499600-7187	Trade Secret*	10 - 30 Trade Secret *
Acrylic Emulsion	70677-00-8	5 - 10 Trade Secret *
Water	7732-18-5	5 - 10 Trade Secret *
Mineral Spirits	64742-88-7	5 - 10 Trade Secret *
Iron Oxide	1309-37-1	1 - 5 Trade Secret *
Ethylene Glycol	107-21-1	1 - 5 Trade Secret *
Plasticizer	27138-31-4	1 - 5 Trade Secret *
Ethyl hydroxyethyl cellulose	9004-58-4	0.5 - 1.5 Trade Secret *
Quartz Silica	14808-60-7	0.1 - 1 Trade Secret *
5-Chloro-2-Methyl-4-Isothiazoline-3-one	26172-55-4	< 0.1 Trade Secret *
2-Methyl-4-Isothiazoline-3-one	2682-20-4	< 0.1 Trade Secret *

NJTS or NJTSRN: New Jersey Trade Secret Registry Number.

*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

SECTION 4: First aid measures**4.1. Description of first aid measures****Inhalation:**

Remove person to fresh air. If you feel unwell, get medical attention.

Skin Contact:

Immediately wash with soap and water. Remove contaminated clothing and wash before reuse. If signs/symptoms develop, get medical attention.

Eye Contact:

Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

If Swallowed:

Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

See Section 11.1. Information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required

This product contains ethylene glycol. Effects of oral ethylene glycol poisoning can be divided into three stages which generally occur over a time-course of hours to days following ingestion: Stage 1 (neurological effects), stage 2 (cardiopulmonary effects) and stage 3 (renal effects). If ethylene glycol poisoning is confirmed, intravenous (IV) administration of ethanol should be considered. Additional pharmacologic and supportive care should be based on the treating physician's judgement.

SECTION 5: Fire-fighting measures

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5.1. Suitable extinguishing media

Use a fire fighting agent suitable for the surrounding fire.

5.2. Special hazards arising from the substance or mixture

None inherent in this product.

5.3. Special protective actions for fire-fighters

No special protective actions for fire-fighters are anticipated.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Ventilate the area with fresh air. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue. Seal the container. Dispose of collected material as soon as possible.

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

Keep out of reach of children. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.) Use personal protective equipment (gloves, respirators, etc.) as required.

7.2. Conditions for safe storage including any incompatibilities

Store away from oxidizing agents.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****Occupational exposure limits**

Ingredient	C.A.S. No.	Agency	Limit type	Additional Comments
Ethylene Glycol	107-21-1	ACGIH	CEIL(as aerosol):100 mg/m3	A4: Not class. as human carcin
Ethylene Glycol	107-21-1	CMRG	CEIL(as vapor and aerosol):100 mg/m3	
Iron Oxide	1309-37-1	OSHA	TWA(as fume):10 mg/m3	
Iron Oxide	1309-37-1	ACGIH	TWA(respirable fraction):5 mg/m3	A4: Not class. as human carcin
Calcium Carbonate	1317-65-3	OSHA	TWA(as total dust):15 mg/m3;TWA(respirable fraction):5 mg/m3	
Quartz Silica	14808-60-7	OSHA	TWA concentration(as total dust):0.3 mg/m3;TWA concentration(respirable):0.1	

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			mg/m3(2.4 millions of particles/cu. ft.)	BY:
Quartz Silica	14808-60-7	ACGIH	TWA(respirable fraction):0.025 mg/m3	A2: Suspected human carcin.
5-Chloro-2-Methyl-4-Isothiazoline-3-one	26172-55-4	CMRG	TWA:0.076 mg/m3;STEL:0.23 mg/m3	Sensitizer
2-Methyl-4-Isothiazoline-3-one	2682-20-4	CMRG	TWA:1.5 mg/m3;STEL:4.5 mg/m3	Sensitizer
Mineral Spirits	64742-88-7	CMRG	TWA:100 ppm	

ACGIH : American Conference of Governmental Industrial Hygienists

AIHA : American Industrial Hygiene Association

CMRG : Chemical Manufacturer's Recommended Guidelines

OSHA : United States Department of Labor - Occupational Safety and Health Administration

TWA: Time-Weighted-Average

STEL: Short Term Exposure Limit

CEIL: Ceiling

8.2. Exposure controls

8.2.1. Engineering controls

Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:

Safety Glasses with side shields

Skin/hand protection

Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.

Gloves made from the following material(s) are recommended: Polymer laminate

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:

Half facepiece or full facepiece air-purifying respirator suitable for organic vapors

For questions about suitability for a specific application, consult with your respirator manufacturer.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

General Physical Form:

Solid

Specific Physical Form:

Paste

Odor, Color, Grade:

Red paste with low odor

Odor threshold

No Data Available

Melting point

No Data Available

Flash Point

No flash point

Flammability (solid, gas)	Not Classified
Flammable Limits(LEL)	<i>Not Applicable</i>
Flammable Limits(UEL)	<i>Not Applicable</i>
Specific Gravity	1.45 [Ref Std: WATER=1]
Solubility- non-water	<i>No Data Available</i>
Autoignition temperature	<i>Not Applicable</i>
Decomposition temperature	<i>No Data Available</i>
Volatile Organic Compounds	< 15 % weight
VOC Less H2O & Exempt Solvents	< 250 g/l

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SECTION 10: Stability and reactivity

10.1. Reactivity

This material is considered to be non reactive under normal use conditions.

10.2. Chemical stability

Stable.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

Strong oxidizing agents

10.6. Hazardous decomposition products

<u>Substance</u>	<u>Condition</u>
Carbon monoxide	Not Specified
Carbon dioxide	Not Specified

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:

Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

May cause target organ effects after inhalation.

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Skin Contact:

Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, dryness, cracking, blistering, and pain.

Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Eye Contact:

Contact with the eyes during product use is not expected to result in significant irritation.

Ingestion:

Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

May cause target organ effects after ingestion.

Target Organ Effects:**Single exposure may cause:**

Cardiac Effects: Signs/symptoms may include irregular heartbeat (arrhythmia), changes in heart rate, damage to heart muscle, heart attack, and may be fatal.

Neurological Effects: Signs/symptoms may include personality changes, lack of coordination, sensory loss, tingling or numbness of the extremities, weakness, tremors, and/or changes in blood pressure and heart rate.

Respiratory Effects: Signs/symptoms may include cough, shortness of breath, chest tightness, wheezing, increased heart rate, bluish colored skin (cyanosis), sputum production, changes in lung function tests, and/or respiratory failure.

Kidney/Bladder Effects: Signs/symptoms may include changes in urine production, abdominal or lower back pain, increased protein in urine, increased blood urea nitrogen (BUN), blood in urine, and painful urination.

Carcinogenicity:

Contains a chemical or chemicals which can cause cancer.

Ingredient	C.A.S. No.	Class Description	Regulation
SILICA, CRYSTAL AIRRESP	14808-60-7	Known human carcinogen	National Toxicology Program Carcinogens
Quartz Silica	14808-60-7	Grp. 1: Carcinogenic to humans	International Agency for Research on Cancer

Toxicological Data

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE > 5,000 mg/kg
Overall product	Inhalation-Vapor(4 hr)		No data available; calculated ATE > 50 mg/l
Overall product	Ingestion		No data available; calculated ATE > 5,000 mg/kg
Calcium Carbonate	Dermal	Rat	LD50 > 2,000 mg/kg
Calcium Carbonate	Inhalation-Dust/Mist (4 hours)	Rat	LC50 3.0 mg/l
Calcium Carbonate	Ingestion	Rat	LD50 6,450 mg/kg
Polymer NJTS Reg. No. 04499600-7187	Ingestion	Rat	LD50 > 2,000 mg/kg
Mineral Spirits	Inhalation-Vapor		LC50 estimated to be 20 - 50 mg/l
Mineral Spirits	Dermal	Rabbit	LD50 > 3,000 mg/kg
Mineral Spirits	Ingestion	Rat	LD50 > 5,000 mg/kg
Plasticizer	Dermal	Rat	LD50 > 2,000 mg/kg
Plasticizer	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 200 mg/l
Plasticizer	Ingestion	Rat	LD50 3,295 mg/kg

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Iron Oxide	Dermal	Not available	LD50 3,100 mg/kg
Iron Oxide	Ingestion	Not available	LD50 3,700 mg/kg
Ethylene Glycol	Ingestion	Human	LD50 1,600 mg/kg
Ethylene Glycol	Inhalation-Dust/Mist (4 hours)	Other	LC50 estimated to be 5 - 12.5 mg/l
Ethylene Glycol	Dermal	Rabbit	9,530 mg/kg
Ethyl hydroxyethyl cellulose	Ingestion	Rat	LD50 > 10,000 mg/kg
Quartz Silica	Dermal		LD50 estimated to be > 5,000 mg/kg
Quartz Silica	Ingestion		LD50 estimated to be > 5,000 mg/kg
2-Methyl-4-Isothiazoline-3-one	Dermal	Rabbit	LD50 87 mg/kg
5-Chloro-2-Methyl-4-Isothiazoline-3-one	Dermal	Rabbit	LD50 87 mg/kg
2-Methyl-4-Isothiazoline-3-one	Inhalation-Dust/Mist (4 hours)	Rat	LC50 0.33 mg/l
2-Methyl-4-Isothiazoline-3-one	Ingestion	Rat	LD50 40 mg/kg
5-Chloro-2-Methyl-4-Isothiazoline-3-one	Inhalation-Dust/Mist (4 hours)	Rat	LC50 0.33 mg/l
5-Chloro-2-Methyl-4-Isothiazoline-3-one	Ingestion	Rat	LD50 40 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Calcium Carbonate	Rabbit	No significant irritation
Polymer NJTS Reg. No. 04499600-7187	Rabbit	Minimal irritation
Mineral Spirits	Rabbit	Irritant
Plasticizer	Rabbit	No significant irritation
Iron Oxide	Rabbit	No significant irritation
Ethylene Glycol	Rabbit	Minimal irritation
Ethyl hydroxyethyl cellulose		Minimal irritation
Quartz Silica		No significant irritation
2-Methyl-4-Isothiazoline-3-one	Rabbit	Corrosive
5-Chloro-2-Methyl-4-Isothiazoline-3-one	Rabbit	Corrosive

Serious Eye Damage/Irritation

Name	Species	Value
Calcium Carbonate	Rabbit	No significant irritation
Polymer NJTS Reg. No. 04499600-7187		Mild irritant
Mineral Spirits	Rabbit	No significant irritation
Plasticizer	Rabbit	No significant irritation
Iron Oxide	Rabbit	No significant irritation
Ethylene Glycol	Rabbit	Mild irritant
Ethyl hydroxyethyl cellulose		Mild irritant
2-Methyl-4-Isothiazoline-3-one	Rabbit	Corrosive
5-Chloro-2-Methyl-4-Isothiazoline-3-one	Rabbit	Corrosive

Skin Sensitization

Name	Species	Value
Mineral Spirits	Guinea pig	Not sensitizing
Plasticizer	Guinea pig	Not sensitizing
Iron Oxide	Human	Some positive data exist, but the data are not sufficient for classification
Ethylene Glycol	Human	Some positive data exist, but the data are not sufficient for classification
2-Methyl-4-Isothiazoline-3-one	Human and animal	Sensitizing
5-Chloro-2-Methyl-4-Isothiazoline-3-one	Human and animal	Sensitizing

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Photosensitization

Name	Species	Value
2-Methyl-4-Isothiazoline-3-one	Human and animal	Not sensitizing
5-Chloro-2-Methyl-4-Isothiazoline-3-one	Human and animal	Not sensitizing

Respiratory Sensitization

Name	Species	Value
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Germ Cell Mutagenicity

Name	Route	Value
Mineral Spirits	In vivo	Not mutagenic
Mineral Spirits	In Vitro	Some positive data exist, but the data are not sufficient for classification
Plasticizer	In Vitro	Not mutagenic
Iron Oxide	In Vitro	Not mutagenic
Ethylene Glycol	In Vitro	Not mutagenic
Ethylene Glycol	In vivo	Not mutagenic
Quartz Silica	In Vitro	Some positive data exist, but the data are not sufficient for classification
Quartz Silica	In vivo	Some positive data exist, but the data are not sufficient for classification
2-Methyl-4-Isothiazoline-3-one	In vivo	Not mutagenic
2-Methyl-4-Isothiazoline-3-one	In Vitro	Some positive data exist, but the data are not sufficient for classification
5-Chloro-2-Methyl-4-Isothiazoline-3-one	In vivo	Not mutagenic
5-Chloro-2-Methyl-4-Isothiazoline-3-one	In Vitro	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Mineral Spirits	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Mineral Spirits	Inhalation	Human and animal	Some positive data exist, but the data are not sufficient for classification
Iron Oxide	Inhalation	Human	Some positive data exist, but the data are not sufficient for classification
Ethylene Glycol	Ingestion	Multiple animal species	Not carcinogenic
Quartz Silica	Inhalation	Human and animal	Carcinogenic
2-Methyl-4-Isothiazoline-3-one	Dermal	Mouse	Not carcinogenic
2-Methyl-4-Isothiazoline-3-one	Ingestion	Rat	Not carcinogenic
5-Chloro-2-Methyl-4-Isothiazoline-3-one	Dermal	Mouse	Not carcinogenic
5-Chloro-2-Methyl-4-Isothiazoline-3-one	Ingestion	Rat	Not carcinogenic

Reproductive Toxicity**Reproductive and/or Developmental Effects**

Name	Route	Value	Species	Test Result	Exposure Duration
Calcium Carbonate	Ingestion	Not toxic to development	Rat	NOAEL 625 mg/kg/day	premating & during gestation
Mineral Spirits	Inhalation	Not toxic to development	Rat	NOAEL 2.4 mg/l	during organogenesis

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Plasticizer	Ingestion	Not toxic to female reproduction	Rat	NOAEL 500 mg/kg/day	2 generation
Plasticizer	Ingestion	Not toxic to male reproduction	Rat	NOAEL 400 mg/kg/day	2 generation
Plasticizer	Ingestion	Some positive developmental data exist, but the data are not sufficient for classification	Rat	NOAEL 1,000 mg/kg/day	during gestation
Ethylene Glycol	Ingestion	Not toxic to female reproduction	Multiple animal species	NOAEL 1,000 mg/kg/day	2 years
Ethylene Glycol	Ingestion	Not toxic to male reproduction	Multiple animal species	NOAEL 1,000 mg/kg/day	2 years
Ethylene Glycol	Dermal	Some positive developmental data exist, but the data are not sufficient for classification	Mouse	NOAEL 3,549 mg/kg/day	during organogenesis
Ethylene Glycol	Ingestion	Some positive developmental data exist, but the data are not sufficient for classification	Mouse	LOAEL 750 mg/kg/day	during organogenesis
Ethylene Glycol	Inhalation	Some positive developmental data exist, but the data are not sufficient for classification	Mouse	NOAEL 1,000 mg/kg/day	during organogenesis
2-Methyl-4-Isothiazoline-3-one	Ingestion	Not toxic to female reproduction	Rat	NOAEL 10 mg/kg/day	2 generation
2-Methyl-4-Isothiazoline-3-one	Ingestion	Not toxic to male reproduction	Rat	NOAEL 10 mg/kg/day	2 generation
2-Methyl-4-Isothiazoline-3-one	Ingestion	Not toxic to development	Rat	NOAEL 15 mg/kg/day	during organogenesis
5-Chloro-2-Methyl-4-Isothiazoline-3-one	Ingestion	Not toxic to female reproduction	Rat	NOAEL 10 mg/kg/day	2 generation
5-Chloro-2-Methyl-4-Isothiazoline-3-one	Ingestion	Not toxic to male reproduction	Rat	NOAEL 10 mg/kg/day	2 generation
5-Chloro-2-Methyl-4-Isothiazoline-3-one	Ingestion	Not toxic to development	Rat	NOAEL 15 mg/kg/day	during organogenesis

Target Organ(s)**Specific Target Organ Toxicity - single exposure**

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Calcium Carbonate	Inhalation	respiratory system	All data are negative	Rat	NOAEL 0.812 mg/l	90 minutes
Mineral Spirits	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human and animal	NOAEL Not available	
Mineral Spirits	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	
Mineral Spirits	Inhalation	nervous system	Some positive data exist, but the data are not sufficient for classification	Dog	NOAEL 6.5 mg/l	4 hours
Ethylene Glycol	Ingestion	heart nervous system kidney and/or bladder respiratory system	Causes damage to organs	Human	NOAEL Not available	poisoning and/or abuse
Ethylene Glycol	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	poisoning and/or abuse
Ethylene Glycol	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	poisoning and/or abuse
2-Methyl-4-Isothiazoline-3-one	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
5-Chloro-2-Methyl-4-	Inhalation	respiratory irritation	Some positive data exist, but the	similar	NOAEL Not	

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Isothiazoline-3-one			data are not sufficient for classification	health hazards	available	
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Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Calcium Carbonate	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	occupational exposure
Mineral Spirits	Inhalation	nervous system	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 4.6 mg/l	6 months
Mineral Spirits	Inhalation	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 1.9 mg/l	13 weeks
Mineral Spirits	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Multiple animal species	NOAEL 0.6 mg/l	90 days
Mineral Spirits	Inhalation	bone, teeth, nails, and/or hair blood liver muscles	All data are negative	Rat	NOAEL 5.6 mg/l	12 weeks
Mineral Spirits	Inhalation	heart	All data are negative	Multiple animal species	NOAEL 1.3 mg/l	90 days
Plasticizer	Ingestion	hematopoietic system liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 2,500 mg/kg/day	90 days
Iron Oxide	Inhalation	pulmonary fibrosis pneumoconiosis	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	occupational exposure
Ethylene Glycol	Ingestion	kidney and/or bladder vascular system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 200 mg/kg/day	2 years
Ethylene Glycol	Ingestion	heart hematopoietic system liver immune system muscles	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1,000 mg/kg/day	2 years
Ethylene Glycol	Ingestion	respiratory system	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 12,000 mg/kg/day	2 years
Ethylene Glycol	Ingestion	skin endocrine system bone, teeth, nails, and/or hair nervous system eyes	All data are negative	Multiple animal species	NOAEL 1,000 mg/kg/day	2 years
Quartz Silica	Inhalation	silicosis	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	occupational exposure

Aspiration Hazard

Name	Value
Mineral Spirits	Aspiration hazard

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information**Ecotoxicological information**

Test Organism	Test Type	Result
Water flea, Daphnia magna	48 hours Effect Level 50%	96.5 mg/l

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Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

Chemical fate information

Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

SECTION 13: Disposal considerations**13.1. Disposal methods**

Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. As a disposal alternative, utilize an acceptable permitted waste disposal facility. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

EPA Hazardous Waste Number (RCRA): Not regulated

SECTION 14: Transport Information

For Transport Information, please visit <http://3M.com/Transportinfo> or call 1-800-364-3577 or 651-737-6501.

SECTION 15: Regulatory information**15.1. US Federal Regulations**

Contact 3M for more information.

311/312 Hazard Categories:

Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - Yes Delayed Hazard - Yes

Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

<u>Ingredient</u>	<u>C.A.S. No</u>	<u>% by Wt</u>
Ethylene Glycol	107-21-1	1 - 5

15.2. State Regulations

Contact 3M for more information.

California Proposition 65

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>Classification</u>
SILICA, CRYSTALLINE (AIRBORNE PARTICLES OF RESPIRABLE SIZE)	None	Carcinogen

WARNING: This product contains a chemical known to the State of California to cause cancer.

15.3. Chemical Inventories

The components of this product are in compliance with the new substance notification requirements of CEPA.

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The components of this product are in compliance with the chemical notification requirements of TSCA.

Contact 3M for more information.

15.4. International Regulations

Contact 3M for more information.

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: Other information

NFPA Hazard Classification

Health: 2 Flammability: 0 Instability: 0 Special Hazards: None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

HMIS Hazard Classification

Health: 2 Flammability: 0 Physical Hazard: 0 Personal Protection: X - See PPE section.

Hazardous Material Identification System (HMIS® III) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS® III ratings are to be used with a fully implemented HMIS® III program. HMIS® is a registered mark of the American Coatings Association (ACA).

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