Instructions: (For multiple certifications use the highest fee) **Fees $25 or $20 or $15**

1. Print these pages.
2. Circle the correct answers and transfer them to the answer sheet.
3. Page down to the last page for the verification forms and mailing instructions.
4. Use the included definitions (starting on page 13) as your reference materials.

Course: 17123 FIRESTOP DEFINITION QUIZ

This course is valid for these credentials:

Credential Description	Cred Code	Credit Hours	
Registered/Beginner Electrician	BE	3.0	$25
Commercial Electrical Inspector	CEI	3.0	$25
Industrial Journeyman Electrician	IJE	3.0	$25
Journeyman Electrician	JE	3.0	$25
Master Electrician	ME	3.0	$25
Residential Journeyman Electrician	RJE	3.0	$25
Residential Master Electrician	RME	3.0	$25
UDC-Electrical Inspector	UEI	3.0	$25
Commercial Building Inspector	CBI	3.0	$25
Commercial Plumbing Inspector	CPI	1.5	$20
UDC Plumbing Inspector	UPI	1.5	$20
UDC Construction Inspector	UCI	3.0	$25
UDC HVAC Inspector	UHI	3.0	$25
Dwelling Contractor Qualifier	DCQ	3.0	$25
Automatic Fire Sprinkler Contractor	AFSC	3.0	$25
Automatic Fire Sprinkler Contractor Maintenance	AFSCM	3.0	$25
Automatic Fire Sprinkler Tester	AFSST	3.0	$25
Journeyman Automatic Fire Sprinkler Fitter	JAFSF	3.0	$25
Elevator Mechanic	ELM	1.0	$15
Elevator Inspector	EI	1.0	$15
Elevator Mechanic-Restricted	ELMR	1.0	$15
Lift Mechanic	LM	3.0	$25
Master Plumber	MP	1.5	$20
Journeyman Plumber	JP	1.5	$20
Journeyman Plumber Restricted Appliance	JPRA	1.5	$20
Master Plumber Restricted Appliance	MPRA	1.5	$20

Firestop Definition Quiz

1. An assembly that has not been tested, or assigned an hourly rating in accordance with ASTM E-119 defines:
   a. NON-RATED SYSTEM
   b. L RATING
   c. F RATING
   d. W RATING
   e. T RATING

2. Amount of air leakage through a penetration, measured in cubic feet per minute. The test is administered at ambient and 400'F for validity due to variances in performance of firestop systems at different temperatures defines:

a. NON-RATED SYSTEM
b. L RATING
c. F RATING
d. W RATING
e. T RATING

3. A rating usually expressed in hours indicating a specific length of time that a fire-resistive barrier can withstand fire before being consumed or before permitting the passage of flame through an opening in the assembly defines:

a. NON-RATED SYSTEM
b. L RATING
c. F RATING
d. W RATING
e. T RATING

4. An optional rating for through penetrations Firestop systems. Determines the effectiveness of a firestop system to restrict the flow of water. Class 1-rated firestops have been shown to resist up to 3 feet of water column for 72 hours defines:

a. NON-RATED SYSTEM
b. L RATING
c. F RATING
d. W RATING
e. T RATING

5. A rating usually expressed in hours indicating the length of time that the temperature on the non-fire side of a fire-rated assembly does not exceed 325F above ambient temperature defines:

a. NON-RATED SYSTEM
b. L RATING
c. F RATING
d. W RATING
e. T RATING

6. ____ is an abbreviation for Underwriters laboratories, Inc., a not for profit independent organization testing for public safety defines:

a. UL
b. UL 1479
c. UL 2079
d. UL FIRE RESISTANCE DIRECTORY
e. UL Mark

7. "Fire Tests of Through-Penetration Firestops" (equivalent to ASTME E-814) defines:

a. UL
b. UL 1479
c. UL 2079
d. UL FIRE RESISTANCE DIRECTORY
e. UL MARK

8. "Tests for Fire Resistance of Building Joint Systems" defines:

a. UL
b. UL 1479
c. UL 2079
d. UL FIRE RESISTANCE DIRECTORY
e. UL MARK

9. UL publication which contains descriptions and ratings of firestop systems defines:

a. UL
b. UL 1479
c. UL 2079

d. UL FIRE RESISTANCE DIRECTORY
e. UL MARK

10. An Underwriters' Laboratories certification mark that indicated compliance with both Canadian and U.S. requirements defines:
a. UL
b. UL 1479
c. UL 2079
d. UL Fire Resistance Directory
e. UL MARK

11. Construction in which the structural members are noncombustible (formerly referred to as fire resistive) defines:
a. TYPE I CONSTRUCTION
b. TYPE II CONSTRUCTION
c. TYPE III CONSTRUCTION
d. TYPE IV CONSTRUCTION

12. Construction in which the structural elements are entirely of noncombustible or limited combustible materials permitted by the code and protected to have some degree of fire resistance (formerly referred to as noncombustible) defines:
a. TYPE I CONSTRUCTION
b. TYPE II CONSTRUCTION
c. TYPE III CONSTRUCTION
d. TYPE IV CONSTRUCTION

13. Construction in which all or part of the interior structural elements may be of combustible materials or any other material permitted by the particular building code being applied (formerly referred to as exterior protected combustible or ordinary construction) defines:
a. TYPE I CONSTRUCTION
b. TYPE II CONSTRUCTION
c. TYPE III CONSTRUCTION
d. TYPE IV CONSTRUCTION

14. Construction in which structural members i.e. columns, beams arches, floors, and roofs are basically of unprotected wood (solid or laminated) with large cross-sectional areas (formerly referred to as heavy timber) defines:
a. TYPE I CONSTRUCTION
b. TYPE II CONSTRUCTION
c. TYPE III CONSTRUCTION
d. TYPE IV CONSTRUCTION

15. Construction in which the structural members are entirely of wood or any other material permitted by the code being applied (formerly referred to as wood frame) defines:
a. TYPE V CONSTRUCTION
b. TYPE V(A) CONSTRUCTION
c. Shop Drawings
d. Building Codes

16. Construction**:** Construction in which the structural members are entirely of wood or any other material permitted by the code being applied and most building elements are 1 hour fire-resistance rated (formerly referred to as wood frame) defines:
a. TYPE V CONSTRUCTION
b. TYPE V(A) CONSTRUCTION
c. SHOP DRAWINGS
d. BUILDING CODES

17. Construction drawings generated by contractors, subcontractors, or suppliers to communicate what they plan to furnish on a project to meet the terms of their contract. They differ from contract drawings in that contract drawings are generated by the design firm and provided to the contractors and suppliers define:
a. TYPE V CONSTRUCTION
b. TYPE V(A) CONSTRUCTION

c. SHOP DRAWINGS
d. BUILDING CODES

18. Model building codes are adopted by each municipality from the major code organizations. The major code authorities are BOCA (Building Officials and Code Administrators) primarily in the Midwest, ICBO (International Council of Building Code Officials) in the West and Indiana, and SBCCI (Southern Building Code Congress, International) in the South. The local municipality or state can choose which major building code is adopted, or can adapt its own defines:

a. TYPE V CONSTRUCTION
b. TYPE V(A) CONSTRUCTION
c. SHOP DRAWINGS
d. BUILDING CODES

19. Fire test method, "Fire Tests of Building Construction and Materials," conducted to evaluate the ability of a fire-resistive floor or wall assembly to perform its barrier function, resisting the passage of heat, flames, hot gases, and smoke in a fire situation defines:

a. ASTM 119
b. ASTM E 814
c. ASTM E 84
d. APPROVED METHODS

20. "Fire Tests of Through Penetration Firestops" or _____ is the complementary test to ASTM E 119 that evaluates penetrations through a tested, fire-resistive (ASTM E 119 tested) wall or floor assembly. The test involves a standard time-temperature curve, a hose stream test and assigns ratings based on "T" (temperature rise) and "F" (flame occurrence through the firestop/penetration). The objective of specifying this type of system is to return the floor or wall to the compartment's original fire rating. An "L" (air leakage) rating can also be assigned. Air leakage simulates smoke movement through a penetration, measured in cubic feet per minute for authorities having jurisdiction to make judgments.

a. ASTM 119
b. ASTM E 814
c. ASTM E 84
d. APPROVED METHODS

21. "Surface Burning Characteristics of Building Materials" or _____ usually refers to the flame spread or smoke developed characteristics of a product (i.e. wallpaper, coatings, carpet, etc.). NOTE: ASTM E 84 is not the same as ASTM E 814, "Fire Tests of Through Penetration Firestops".

a. ASTM 119
b. ASTM E 814
c. ASTM E 84
d. APPROVED METHODS

22. A term used to refer to the through-penetration firestop systems that have been tested and meet test criteria of ASTM E 814 by an independent, recognized laboratory. Additionally, an authority having jurisdiction may also make specific product evaluation and determine compliance with appropriate standards. Products alone are not tested systems/approved firestop methods unless tested to ASTM E 814 and classified for use in the specific application defines:

a. ASTM 119
b. ASTM E 814
c. ASTM E 84
d. APPROVED METHODS

23. Piping system which is atmospherically vented by design to prevent backflow or vacuum. *Examples*: DWV piping (drain, waste or vent) defines:

a. VENTED (OPEN) PIPING SYSTEM
b. Z-CLIPS
c. THROUGH PENETRATION
d. THROUGH PENETRATION FIRESTOP SYSTEM

24. Z-shaped clips that support a firestop wrap strip material in a firestop system, sometimes without mineral wool forming defines:

a. VENTED (OPEN) PIPING SYSTEM

b. Z-CLIPS
c. THROUGH PENETRATION
d. THROUGH PENETRATION FIRESTOP SYSTEM

25. Penetrating items passing entirely through both protective membranes of bearing walls required to have a fire-resistance rating and wall requiring protected openings defines:
a. VENTED (OPEN) PIPING SYSTEM
b. Z-CLIPS
c. THROUGH PENETRATION
d. THROUGH PENETRATION FIRESTOP SYSTEM

26. "A specific field-erected construction consisting of an assemblage of materials to prevent the spread of fire through openings made in floors or walls to accommodate through penetrating items," (i.e. pipes, electrical conduits, blanks, etc.) using ASTM E 814 (Test Standard UL 1479) as the test method defines:
a. VENTED (OPEN) PIPING SYSTEM
b. Z-CLIPS
c. THROUGH PENETRATION
d. THROUGH PENETRATION FIRESTOP SYSTEM

27. The result of a factory and/or field method of joining or connecting two or more lengths of a fire-resistive joint system into a continuous entity defines:
a. SPLICE
b. SELF-CLOSING
c. SHAFT
d. SLEEVES
e. SHAFT ENCLOSURE

28. As applied to a fire door or other opening, means equipped with an approved device that will ensure closing after having been opened defines:
a. SPLICE
b. SELF-CLOSING
c. SHAFT
d. SLEEVES
e. SHAFT ENCLOSURE

29. An enclosed space extending through one or more stories of a building, connecting vertical openings in successive floors, or floors and roof defines:
a. SPLICE
b. SELF-CLOSING
c. SHAFT
d. SLEEVES
e. SHAFT ENCLOSURE

30. _____ as required must be part of the tested system or approved for use by the manufacturer of the firestop system.
a. SPLICE
b. SELF-CLOSING
c. SHAFT
d. SLEEVES
e. SHAFT ENCLOSURE

31. The walls or construction forming the boundaries of a shaft defines:
a. SPLICE
b. SELF-CLOSING
c. SHAFT
d. SLEEVES
e. SHAFT ENCLOSURE

32. A continuous membrane, either vertical or horizontal, such as a wall, floor or ceiling assembly, which is designed and constructed to restrict the movement of smoke. A smoke barrier has no less than a one (1) hour rating. All openings must be protected defines:
a. SMOKE BARRIER

b. SMOKE COMMENDATION
c. HORIZONTAL ASSEMBLY
d. SMOKE COMPARTMENT
e. SMOKE DAMPER

33. A space within a building enclosed by smoke barriers on all sides, including the top and bottom defines:
a. SMOKE BARRIER
b. SMOKE COMPARTMENT
c. HORIZONTAL ASSEMBLY
d. SMOKE COMMENDATION
e. SMOKE DAMPER

34. A fire-resistance-rated floor or roof assembly of materials designed to restrict the spread of fire in which continuity is maintained.
a. SMOKE BARRIER
b. SMOKE COMMENDATION
c. HORIZONTAL ASSEMBLY
d. SMOKE COMPARTMENT
e. SMOKE DAMPER

35. A _____ is a space within a building enclosed by smoke barriers on all sides, top and bottom.
a. SMOKE BARRIER
b. SMOKE COMMENDATION
c. HORIZONTAL ASSEMBLY
d. SMOKE COMPARTMENT
e. SMOKE DAMPER

36. A listed device installed in ducts and air transfer openings designed to resist the passage of air and smoke. The device is installed to operate automatically, controlled by a smoke detection system and, where required, is capable of being positioned manually from a remote command station defines:
a. SMOKE BARRIER
b. SMOKE COMMENDATION
c. HORIZONTAL ASSEMBLY
d. SMOKE COMPARTMENT
e. SMOKE DAMPER

37. A water emulsion of a synthetic rubber material that is manufactured into a sealant defines:
a. LATEX
b. NFPA
c. ACITIVE FIRE PROTECTION
d. ABLATIVE CHAR
e. FILL

38. National Fire Protection Association, based in Quincy, Mass., author of “The Life Safety Code” defines:
a. LATEX
b. NFPA
c. ACITIVE FIRE PROTECTION
d. ABLATIVE CHAR
e. FILL

39. A system or device that is designed to alert occupants, aid in extinguishment, or limit the spread of fire (e.g. sprinkler system or alarm system) defines:
a. LATEX
b. NFPA
c. ACITIVE FIRE PROTECTION
d. ABLATIVE CHAR
e. FILL

40. Some firestop materials form a “char” with thermal insulation characteristics, which helps fill voids when exposed to heat defines:
a. LATEX
b. NFPA

c. ACITIVE FIRE PROTECTION
d. ABLATIVE CHAR
e. FILL

41. Void or Cavity Material A firestop material (e.g. sealant, putty, mastic, etc.) defines:
a. LATEX
b. NFPA
c. ACITIVE FIRE PROTECTION
d. ABLATIVE CHAR
e. FILL

42. The aggregate floor area enclosed and bounded by building separation walls, fire barrier walls, exterior walls or fire-resistance rated horizontal assemblies of a building defines:
a. FIRE AREA
b. FIRE BARRIER
c. FIRE BARRIER WALL
d. FIREBLOCKING
e. FIRE COMPARTMENT

43. A continuous membrane, either vertical or horizontal, such as a wall or floor assembly that is designed and constructed with a specified fire resistance rating to limit the spread of fire and restrict the movement of smoke defines:
a. FIRE AREA
b. FIRE BARRIER
c. FIRE BARRIER WALL
d. FIREBLOCKING
e. Fire Compartment

44. A fire- resistance rated assembly of materials having protected openings which is designed to restrict the spread of fire defines:
a. FIRE AREA
b. FIRE BARRIER
c. FIRE BARRIER WALL
d. FIREBLOCKING
e. FIRE COMPARTMENT

45. Building materials installed to resist the free passage of flame and gasses to other areas of the building through small concealed spaces defines:
a. FIRE AREA
b. FIRE BARRIER
c. FIRE BARRIER WALL
d. FIREBLOCKING
e. FIRE COMPARTMENT

46. A space within a building that is enclosed by fire barriers on all sides, including top and bottom defines:
a. FIRE AREA
b. FIRE BARRIER
c. FIRE BARRIER WALL
d. FIREBLOCKING
e. FIRE COMPARTMENT

47. A curtain made of fireproof material that can be lowered to separate the auditorium and stage in a theatre to prevent the spread of a fire defines:
a. FIRE CURTAIN
b. FIRE DAMPER
c. FIRE DOOR ASSEMBLY
d. FIRE DOOR

48. A device, installed in an air distribution system, designed to close automatically upon detection of heat, to interrupt migratory airflow, and to restrict the passage of flame. A combination fire and smoke damper meets the requirement of both defines:
a. FIRE CURTAIN

b. FIRE DAMPER
c. FIRE DOOR ASSEMBLY
d. FIRE DOOR

49. Any combination of a fire door, frame, hardware, and other accessories that together provide a specific degree of fire protection to the opening defines:
a. FIRE CURTAIN
b. FIRE DAMPER
c. FIRE DOOR ASSEMBLY
d. FIRE DOOR

50. The door component of a fire door assembly defines:
a. FIRE CURTAIN
b. FIRE DAMPER
c. FIRE DOOR ASSEMBLY
d. FIRE DOOR

51. That property of materials or their assemblies which prevents or retards the passage of excessive heat, hot gases or flames under conditions of use defines:
a. FIRE RESISTANCE
b. FIRE RESISTANCE RATING
c. FIRE RESISTIVE JOINT SYSTEM
d. FIRE WALL

52. The period of time a building or building component maintains the ability to confine a fire or continues to perform a given structural function or both, as determined by tests prescribed in Section 703 defines:
a. FIRE RESISTANCE
b. FIRE RESISTANCE RATING
c. FIRE RESISTIVE JOINT SYSTEM
d. FIRE WALL

53. An assemblage of specific materials or products that are designed, tested and fire rated in accordance with ASTM E 119 to resist, for a prescribed period of time, the spread of fire through joints made in or between fire rated assemblies defines:
a. FIRE RESISTANCE
b. FIRE RESISTANCE RATING
c. FIRE RESISTIVE JOINT SYSTEM
d. FIRE WALL

54 A fire resistance rated wall having protected openings that restricts the spread of fire, and extends continuously from the foundation to or through the roof with sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall defines:
a. FIRE RESISTANCE
b. FIRE RESISTANCE RATING
c. FIRE RESISTIVE JOINT SYSTEM
d. FIRE WALL

55. A window constructed and glazed to give protection against the passage of fire defines:
a. FIRE WINDOW
b. FIRE SEPARATION DISTANCE
c. POINT OF CONTACT
d. FIRESTOP SYSTEM

56. The distance in feet measured from the building face to the closest interior lot line, to the centerline of a street, alley or public way, or to an imaginary line between two buildings on the property defines:
a. FIRE WINDOW
b. FIRE SEPARATION DISTANCE
c. POINT OF CONTACT
d. FIRESTOP SYSTEM

57. When listed US system drawing allows penetrating item to "touch" edge of opening defines:
a. FIRE WINDOW
b. FIRE SEPARATION DISTANCE

c. POINT OF CONTACT
d. FIRESTOP SYSTEM

58. A specific construction consisting of a fire-rated wall or floor assembly, a penetrating item or items passing through an opening in the assembly, and the materials designed to help prevent the spread of fire through the openings defines:
a. FIRE WINDOW
b. FIRE SEPARATION DISTANCE
c. POINT OF CONTACT
d. FIRESTOP SYSTEM

59. Materials used under or beside a firestop system to either hold the system in place during application, improve fire resistance, or both. Mineral wool, ceramic fiber and other materials are used. Consult the manufacturer's specific tested system data for type, thickness and density of material allowed defines:
a. FORMING MATERIALS
b. BUILDING SEPARATION WALL
c. DRAFTSTOPPING
d. COMBUSTABLE
e. ANNULAR SPACE

60. A fire-resistance rated wall, having protected openings, which restricts the spread of fire and extends continuously from the foundation to or through the roof defines:
a. FORMING MATERIALS
b. BUILDING SEPARATION WALL
c. DRAFTSTOPPING
d. COMBUSTABLE
e. ANNULAR SPACE

61. Building materials installed to prevent the movement of air, smoke, gases and flame to other areas of the building through large concealed passages, such as attic spaces and floor assemblies with suspended ceilings or open web trusses defines:
a. FORMING MATERIALS
b. BUILDING SEPARATION WALL
c. DRAFTSTOPPING
d. COMBUSTABLE
e. ANNULAR SPACE

62. Capable of undergoing combustion defines:
a. FORMING MATERIALS
b. BUILDING SEPARATION WALL
c. DRAFTSTOPPING
d. COMBUSTABLE
e. ANNULAR SPACE

63. The region, measured in a straight line, between penetrants or between the outer most portion of the penetrants and the inside periphery of a circular opening, or the sides of a rectangular opening defines:
a. FORMING MATERIALS
b. BUILDING SEPARATION WALL
c. DRAFTSTOPPING
d. COMBUSTABLE
e. ANNULAR SPACE

64. A characteristic of a material that is flexible and permits movement defines:
a. ELASTOMERIC
b. ENDOTHERMIC
c. EXOTHERMIC REACTION
d. INTUMESCENCE

65. A characteristic of a material that blocks heat by chemical absorption and moisture release for fire resistance defines:
a. ELASTOMERIC
b. ENDOTHERMIC

c. EXOTHERMIC REACTION
d. INTUMESCENCE

66. The production of energy during a chemical reaction, thus feeling warm to the touch defines:
a. ELASTOMERIC
b. ENDOTHERMIC
c. EXOTHERMIC REACTION
d. INTUMESCENCE

67. A characteristic of certain fire barrier products that, when exposed to heat, expands to fill a void in the penetration caused by the deformation or combustion of the through penetrating item. When exposed to heat, intumescent materials expand at various rates to form a hard char to seal voids and provide hourly rated protection defines:
a. ELASTOMERIC
b. ENDOTHERMIC
c. EXOTHERMIC REACTION
d. INTUMESCENCE

68. This portion of ASTM E-814 (UL 1479) is done to represent the structural integrity of the firestop system after it is exposed to heat defines:
a. HOSE STREAM TEST
b. JOINT
c. JOINT SYSTEM
d. PERCENT FILL
e. BACKING MATERIAL

69. The linear opening in or between adjacent fire-resistance rated assemblies that is designed to allow independent movement of the building, in any plane, caused by thermal, seismic, wind loading or any other loading defines:
a. HOSE STREAM TEST
b. JOINT
c. JOINT SYSTEM
d. PERCENT FILL
e. BACKING MATERIAL

70. A joint system is a specific construction consisting of adjacent wall and/or floor assemblies and the materials designed to help prevent the spread of fire through a linear opening between the wall and/or floor assemblies defines:
a. HOSE STREAM TEST
b. JOINT
c. JOINT SYSTEM
d. PERCENT FILL
e. BACKING MATERIAL

71. The cross-sectional area of an opening that is occupied by a penetrating item(s) defines:
a. HOSE STREAM TEST
b. JOINT
c. JOINT SYSTEM
d. PERCENT FILL
e. BACKING MATERIAL

72. (Forming Material, Packing Material) Material used in Firestop systems (e.g. mineral wool, backer rod, CF 128 foam) to set the depth and provide support for the fill, void or cavity material defines:
a. HOSE STREAM TEST
b. JOINT
c. JOINT SYSTEM
d. PERCENT FILL
e. BACKING MATERIAL

73. An opening made through one side (wall, floor or ceiling membrane) of an assembly defines:
a. MEMBRANE PENETRATION
b. MEMBRANE PENETRATION FIRESTOP

c. NONCOMBUSTIBLE
d. PENETRATION FIRESTOP

74. A material, device or construction installed to resist, for a prescribed time period, the passage of flame, heat, and hot gases through openings in a protective membrane in order to accommodate cables, cable trays, conduit, tubing, or pipes defines:
a. MEMBRANE PENETRATION
b. MEMBRANE PENETRATION FIRESTOP
c. NONCOMBUSTIBLE
d. PENETRATION FIRESTOP

75. A material that, in the form in which it is used and under the conditions anticipated, will not aid combustion or add appreciable heat to an ambient fire defines:
a. MEMBRANE PENETRATION
b. MEMBRANE PENETRATION FIRESTOP
c. NONCOMBUSTIBLE
d. PENETRATION FIRESTOP

76. A though-penetration firestop or a membrane penetration firestop defines:
a. MEMBRANE PENETRATION
b. MEMBRANE PENETRATION FIRESTOP
c. NONCOMBUSTIBLE
d. PENETRATION FIRESTOP

77. Firestop systems that need to be fastened to walls and floors will specify a fastener pullout strength minimum value. Additionally, there are requirements for the type of fastener, usually carbon or stainless-steel. Lead, aluminum and others may melt and not function properly in fire conditions defines:
a. PULLOUT STRENGTH
b. RESTRICTING COLLAR
c. PENETRANT
d. MINERAL FIBER
e. MINERAL WOOL

78. A metal device supplied by the firestop system manufacturer to mount firestop from the outside or underside of a penetration defines:
a. PULLOUT STRENGTH
b. RESTRICTING COLLAR
c. PENETRANT
d. MINERAL FIBER
e. MINERAL WOOL

79. (Penetrating Item): Any item passing completely through a wall or floor, such as pipes, conduits, cables, etc. defines:
a. PULLOUT STRENGTH
b. RESTRICTING COLLAR
c. PENETRANT
d. MINERAL FIBER
e. MINERAL WOOL

80. Insulation composed principally of fibers manufactured from rock, slag or glass, with or without binders defines:
a. PULLOUT STRENGTH
b. RESTRICTING COLLAR
c. PENETRANT
d. MINERAL FIBER
e. MINERAL WOOL

81. Synthetic vitreous fiber insulation made by melting predominately igneous rock or furnace slag, and other inorganic materials, and then physically forming the melt into fibers defines:
a. PULLOUT STRENGTH
b. RESTRICTING COLLAR
c. PENETRANT

d. MINERAL FIBER
e. MINERAL WOOL

82. To meet actual field conditions, manufacturers may need to make a rec- commendation based on available testing that seems to approximate the condition encountered. Testing laboratories should verify judgments by manufacturers for validity. Some jurisdictions only allow judgments if there is no tested system available for the condition defines:
a. ENGINEERING JUDGMENTS
b. AUTHORITY HAVING JURISDICTION
c. ASSEMBLY RATING
d. BUILDING ELEMENT

83. The final authority who writes the "Certificate of Occupancy 83. Permit" in a municipality. This can be the building code official/inspector or fire inspector. Since each municipality is different, the "authority having jurisdiction" may also be different from town to town. Check with local officials to verify who has final jurisdiction. Industrial facilities and hospitals may have other "jurisdictions" defines:
a. ENGINEERING JUDGMENTS
b. AUTHORITY HAVING JURISDICTION
c. ASSEMBLY RATING
d. BUILDING ELEMENT

84. The combination of the T and F rating. In a joint assembly, T equals F defines:
a. ENGINEERING JUDGMENTS
b. AUTHORITY HAVING JURISDICTION
c. ASSEMBLY RATING
d. BUILDING ELEMENT

85. A fundamental component of building construction, listed in Table 601, which may or may not be of fire-resistance-rated construction and is constructed of materials based on the building type of construction defines:
a. ENGINEERING JUDGMENTS
b. AUTHORITY HAVING JURISDICTION
c. ASSEMBLY RATING
d. BUILDING ELEMENT

86. A combination of a *fire door,* a frame, hardware and other accessories installed in a horizontal plane, which together provide a specific degree of fire protection to a through-opening in a fire-resistance-rated floor (see Section 712.8) Defines:
a. FLOOR FIRE DOOR ASSEMBLY
b. FIRE PARTITION
c. PASSIVE FIRE PROTECTION
d. CEILING RADIATION DAMPER
e. COMBINATION FIRE/SMOKE DAMPER

87. A vertical assembly of materials having protected openings designed to restrict the spread of fire defines:
a. FLOOR FIRE DOOR ASSEMBLY
b. FIRE PARTITION
c. PASSIVE FIRE PROTECTION
d. CEILING RADIATION DAMPER
e. COMBINATION FIRE/SMOKE DAMPER

88. A device or system designed to confine fire and smoke in zones (e.g. compartmentalization) defines:
a. FLOOR FIRE DOOR ASSEMBLY
b. FIRE PARTITION
c. PASSIVE FIRE PROTECTION
d. CEILING RADIATION DAMPER
e. COMBINATION FIRE/SMOKE DAMPER

89. A *listed device* installed in a ceiling membrane of a fire-resistance-rated floor/ceiling or roof/ceiling assembly to limit automatically the radiative heat transfer through an air inlet/outlet opening defines:
a. FLOOR FIRE DOOR ASSEMBLY
b. FIRE PARTITION
c. PASSIVE FIRE PROTECTION

d. CEILING RADIATION DAMPER
e. COMBINATION FIRE/SMOKE DAMPER

90. A *listed* device installed in ducts and air transfer openings designed to close automatically upon the detection of heat and resist the passage of flame and smoke. The device is installed to operate automatically, controlled by a smoke detection system, and where required, is capable of being positioned from a fire command center defines:

a. FLOOR FIRE DOOR ASSEMBLY
b. FIRE PARTITION
c. PASSIVE FIRE PROTECTION
d. CEILING RADIATION DAMPER
e. COMBINATION FIRE/SMOKE DAMPER

ACTIVE FIRE PROTECTION: A system or device that is designed to alert occupants, aid in extinguishment, or limit the spread of fire (e.g. sprinkler system or alarm system).
ABLATIVE CHAR: Some firestop materials form a “char” with thermal insulation characteristics, which helps fill voids when exposed to heat.
APPROVED METHODS: A term used to refer to the through-penetration firestop systems that have been tested and meet test criteria of ASTM E 814 by an independent, recognized laboratory. Additionally, an authority having jurisdiction may also make specific product evaluation and determine compliance with appropriate standards. Products alone are not tested systems/approved firestop methods unless tested to ASTM E 814 and classified for use in the specific application.
ANNULAR SPACE (Annulus): The region, measured in a straight line, between penetrants or between the outer most portion of the penetrants and the inside periphery of a circular opening, or the sides of a rectangular opening. Example: a pipe with an outside diameter of 4.5" centered in a 6" diameter hole has an annular space of (6 ËC 4.5) / 2 = 3/4".
ASSEMBLY RATING; The combination of the T and F rating. In a joint assembly, T equals F.
AUTHORITY HAVING JURISDICTION: The final authority who writes the "Certificate of Occupancy Permit” in a municipality. This can be the building code official/inspector or fire inspector. Since each municipality is different, the “authority having jurisdiction” may also be different from town to town. Check with local officials to verify who has final jurisdiction. Industrial facilities and hospitals may have other “jurisdictions.”
ASTM 119: Fire test method, “Fire Tests of Building Construction and Materials,” conducted to evaluate the ability of a fire-resistive floor or wall assembly to perform its barrier function, resisting the passage of heat, flames, hot gases, and smoke in a fire situation.
ASTM E 814: “Fire Tests of Through Penetration Firestops” or ASTM E 814 is the complementary test to ASTM E 119 that evaluates penetrations through a tested, fire-resistive (ASTM E 119 tested) wall or floor assembly. The test involves a standard time-temperature curve, a hose stream test and assigns ratings based on “T” (temperature rise) and “F” (flame occurrence through the firestop/penetration). The objective of specifying this type of system is to return the floor or wall to the compartment's original fire rating. An “L” (air leakage) rating can also be assigned. Air leakage simulates smoke movement through a penetration, measured in cubic feet per minute for authorities having jurisdiction to make judgments.
ASTM E 84: “Surface Burning Characteristics of Building Materials” or ASTM E 84 usually refers to the flame spread or smoke developed characteristics of a product (i.e. wallpaper, coatings, carpet, etc.). NOTE: ASTM E 84 is not the same as ASTM E 814, “Fire Tests of Through Penetration Firestops.”
BACKING MATERIAL: (Forming Material, Packing Material) Material used in Firestop systems (e.g. mineral wool, backer rod, CF 128 foam) to set the depth and provide support for the fill, void or cavity material.
BUILDING CODES: Model building codes are adopted by each municipality from the major code organizations. The major code authorities are BOCA (Building Officials and Code Administrators) primarily in the Midwest, ICBO (International Council of Building Code Officials) in the West and Indiana, and SBCCI (Southern Building Code Congress, International) in the South. The local municipality or state can choose which major building code is adopted, or can adapt its own.
BUILDING ELEMENT. A fundamental component of building construction, listed in Table 601, which mayor may not be of fire-resistance-rated construction and is constructed of materials based on the building type of construction.

BUILDING SEPARATION WALL: A fire-resistance rated wall, having protected openings, which restricts the spread of fire and extends continuously from the foundation to or through the roof.
DRAFTSTOPPING: Building materials installed to prevent the movement of air, smoke, gases and flame to other areas of the building through large concealed passages, such as attic spaces and floor assemblies with suspended ceilings or open web trusses.
CEILING RADIATION DAMPER. A *listed device* installed in a ceiling membrane of a fire-resistance-rated floor/ceiling or roof/ceiling assembly to limit automatically the radiative heat transfer through an air inlet/outlet opening
COMBINATION FIRE/SMOKE DAMPER. A *listed* device installed in ducts and air transfer openings designed to close automatically upon the detection of heat and resist the passage of flame and smoke. The device is installed to operate automatically, controlled by a smoke detection system, and where required, is capable of being positioned from a fire command center.
COMBUSTABLE: Capable of undergoing combustion.
ELASTOMERIC: A characteristic of a material that is flexible and permits movement.
ENDOTHERMIC: A characteristic of a material that blocks heat by chemical absorption and moisture release for fire resistance.
Exothermic Reaction: The production of energy during a chemical reaction, thus feeling warm to the touch.
ENGINEERING JUDGMENTS: To meet actual field conditions, manufacturers may need to make a recommendation based on available testing that seems to approximate the condition encountered. Testing laboratories should verify judgements by manufacturers for validity. Some jurisdictions only allow judgements if there is no tested system available for the condition.
FORMING MATERIALS: Materials used under or beside a firestop system to either hold the system in place during application, improve fire resistance, or both. Mineral wool, ceramic fiber and other materials are used. Consult the manufacturer's specific tested system data for type, thickness and density of material allowed.
F RATING: A rating usually expressed in hours indicating a specific length of time that a fire-resistive barrier can withstand fire before being consumed or before permitting the passage of flame through an opening in the assembly.
FILL: Void or Cavity Material A firestop material (e.g. sealant, putty, mastic, etc.).
FIRE AREA: The aggregate floor area enclosed and bounded by building separation walls, fire barrier walls, exterior walls or fire-resistance rated horizontal assemblies of a building.
FIRE BARRIER A continuous membrane, either vertical or horizontal, such as a wall or floor assembly that is designed and constructed with a specified fire resistance rating to limit the spread of fire and restrict the movement of smoke.
FIRE BARRIER WALL: A fire- resistance rated assembly of materials having protected openings which is designed to restrict the spread of fire.
FIREBLOCKING: Building materials installed to resist the free passage of flame and gasses to other areas of the building through small concealed spaces.
FIRE COMPARTMENT: A space within a building that is enclosed by fire barriers on all sides, including top and bottom.
FIRE CURTIAN: a curtain made of fireproof material that can be lowered to separate the auditorium and stage in a theatre to prevent the spread of a fire.
FIRE DAMPER: A device, installed in an air distribution system, designed to close automatically upon detection of heat, to interrupt migratory airflow, and to restrict the passage of flame. A combination fire and smoke damper meets the requirement of both.
FIRE DOOR ASSEMBLY: Any combination of a fire door, frame, hardware, and other accessories that together provide a specific degree of fire protection to the opening.
FIRE DOOR: The door component of a fire door assembly.
FIRE PARTITION A vertical assembly of materials having protected openings designed to restrict the spread of fire.
FIRE RESISTANCE: That property of materials or their assemblies which prevents or retards the passage of excessive heat, hot gases or flames under conditions of use.
FIRE RESISTANCE RATING: The period of time a building or building component maintains the ability to confine a fire or continues to perform a given structural function or both, as determined by tests prescribed in Section 703.

FIRE RESISTIVE JOINT SYSTEM: An assemblage of specific materials or products that are designed, tested and fire rated in accordance with ASTM E 119 to resist, for a prescribed period of time, the spread of fire through joints made in or between fire rated assemblies.
FIRE WALL: A fire resistance rated wall having protected openings that restricts the spread of fire, and extends continuously from the foundation to or through the roof with sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall.
FIRE WINDOW: A window constructed and glazed to give protection against the passage of fire.
FIRE SEPARATION DISTANCE: The distance in feet measured from the building face to the closest interior lot line, to the centerline of a street, alley or public way, or to an imaginary line between two buildings on the property.
FIRESTOP SYSTEM: A specific construction consisting of a fire-rated wall or floor assembly, a penetrating item or items passing through an opening in the assembly, and the materials designed to help prevent the spread of fire through the openings.
FLOOR FIRE DOOR ASSEMBLY. A combination of a *fire door*, a frame, hardware and other accessories installed in a horizontal plane, which together provide a specific degree of fire protection to a through-opening in a fire-resistance-rated floor (see Section 712.8).
Hose Stream Test: This portion of ASTM E-814 (UL 1479) is done to represent the structural integrity of the firestop system after it is exposed to heat.
HORIZONTAL ASSEMBLY. A fire-resistance-rated floor or roof assembly of materials designed to restrict the spread of fire in which continuity is maintained.
JOINT: The linear opening in or between adjacent fire-resistance rated assemblies that is designed to allow independent movement of the building, in any plane, caused by thermal, seismic, wind loading or any other loading.
JOINT SYSTEM: A joint system is a specific construction consisting of adjacent wall and/or floor assemblies and the materials designed to help prevent the spread of fire through a linear opening between the wall and/or floor assemblies.
INTUMESCENCE: A characteristic of certain fire barrier products that, when exposed to heat, expands to fill a void in the penetration caused by the deformation or combustion of the through penetrating item. When exposed to heat, intumescent materials expand at various rates to form a hard char to seal voids and provide hourly rated protection.
L RATING: Amount of air leakage through a penetration, measured in cubic feet per minute. The test is administered at ambient and 400'F for validity due to variances in per- formance of firestop systems at different temperatures.
LATEX: A water emulsion of a synthetic rubber material that is manufactured into a sealant.
NFPA: National Fire Protection Association, based in Quincy, Mass., author of "The Life Safety Code."
MEMBRANE PENETRATION: An opening made through one side (wall, floor or ceiling membrane) of an assembly.
MEMBRANE PENETRATION FIRESTOP: A material, device or construction installed to resist, for a prescribed time period, the passage of flame, heat, and hot gases through openings in a protective membrane in order to accommodate cables, cable trays, conduit, tubing, or pipes.
MINERAL FIBER. Insulation composed principally of fibers manufactured from rock, slag or glass, with or without binders.
MINERAL WOOL. Synthetic vitreous fiber insulation made by melting predominately igneous rock or furnace slag, and other inorganic materials, and then physically forming the melt into fibers.
NONCOMBUSTABLE: A material that, in the form in which it is used and under the conditions anticipated, will not aid combustion or add appreciable heat to an ambient fire.
NON-RATED SYSTEM: An assembly that has not been tested, or assigned an hourly rating in accordance with ASTM E-119.
PASSIVE FIRE PROTECTION: A device or system designed to confine fire and smoke in zones (e.g. compartmentalization).
PENETANT (Penetrating Item): Any item passing completely through a wall or floor, such as pipes, conduits, cables, etc.
PENETRATION FIRESTOP: A though-penetration firestop or a membrane penetration firestop.

PERECNT FILL: The cross-sectional area of an opening that is occupied by a penetrating item(s). Typically found in UL Systems containing cables Percent fill may be calculated with the following formulas:
POINT OF CONTACT (Penetrating Item): When listed US system drawing allows penetrating item to "touch" edge of opening.
PULLOUT STRENGTH: Firestop systems that need to be fastened to walls and floors will specify a fastener pullout strength minimum value. Additionally, there are requirements for the type of fastener, usually carbon or stainless-steel. Lead, aluminum and others may melt and not function properly in fire conditions.
RESTRICTING COLLAR: A metal device supplied by the firestop system manufacturer to mount firestop from the outside or underside of a penetration.
SHOP DRAWINGS: Construction drawings generated by contractors, subcontractors, or suppliers to communicate what they plan to furnish on a project to meet the terms of their contract. They differ from contract drawings in that contract drawings are generated by the design firm and provided to the contractors and suppliers. Shop drawings are often marked-up contract drawings, but the supplier or contractor can also generate them from scratch. Shop drawings are part of the submittals, which are prepared so that the contractor can gain approval to proceed. They are reviewed and approved by the appropriate design professional. Areas where shop drawings are used include structural steel, miscellaneous metals, pre-cast concrete, and in some cases, firestop.
SELF-CLOSING: As applied to a fire door or other opening, means equipped with an approved device that will ensure closing after having been opened.
SHAFT: An enclosed space extending through one or more stories of a building, connecting vertical openings in successive floors, or floors and roof.
SHAFT ENCLOSURE. The walls or construction forming the boundaries of a shaft.
SLEEVES: Sleeves, as required, must be part of the tested system or approved for use by the manufacturer of the firestop system.
SMOKE BARRIER: A continuous membrane, either vertical or horizontal, such as a wall, floor or ceiling assembly, which is designed and constructed to restrict the movement of smoke. A smoke barrier has no less than a one (1) hour rating. All openings must be protected.
SMOKE COMPARTMENT: A space within a building enclosed by smoke barriers on all sides, including the top and bottom.
SMOKE BARRIER: A smoke barrier consists of walls, partitions, floors and openings therein as will prevent the transmission of smoke or gases through the construction.
SMOKE COMPARTMENT: A smoke compartment is a space within a building enclosed by smoke barriers on all sides, top and bottom.
SMOKE DAMPER: A listed device installed in ducts and air transfer openings designed to resist the passage of air and smoke. The device is installed to operate automatically, controlled by a smoke detection system and, where required, is capable of being positioned manually from a remote command station.
SPLICE: The result of a factory and/or field method of joining or connecting two or more lengths of a fire-resistive joint system into a continuous entity.
T RATING: A rating usually expressed in hours indicating the length of time that the temperature on the non-fire side of a fire-rated assembly does not exceed 325F above ambient temperature.
Through Penetration: Penetrating items passing entirely through both protective membranes of bearing walls required to have a fire-resistance rating and wall requiring protected openings.
THROUGH PENETRATION FIRESTOP SYSTEM: "A specific field-erected construction consisting of an assemblage of materials to prevent the spread of fire through openings made in floors or walls to accommodate through penetrating items," (i.e. pipes, electrical conduits, blanks, etc.) using ASTM E 814 (Test Standard UL 1479) as the test method.
TYPE I CONSTRUCTION: Construction in which the structural members are noncombustible (formerly referred to as fire resistive).
TYPE II CONSTRUCTION: Construction in which the structural elements are entirely of noncombustible or limited combustible materials permitted by the code and protected to have some degree of fire resistance (formerly referred to as noncombustible).
TYPE III CONSTRUCTION: Construction in which all or part of the interior structural elements may be of combustible materials or any other material permitted by the particular building code being applied (formerly referred to as exterior protected combustible or ordinary construction).

TYPE IV CONSTRUCTION: Construction in which structural members i.e. columns, beams arches, floors, and roofs are basically of unprotected wood (solid or laminated) with large cross-sectional areas (formerly referred to as heavy timber).
TYPE V CONSTRUCTION: Construction in which the structural members are entirely of wood or any other material permitted by the code being applied (formerly referred to as wood frame).
TYPE V(A) CONSTRUCTION: Construction in which the structural members are entirely of wood or any other material permitted by the code being applied and most building elements are 1 hour fire-resistance rated (formerly referred to as wood frame).
UL: UL is an abbreviation for Underwriters laboratories, Inc., a not for profit independent organization testing for public safety.
UL 1479: "Fire Tests of Through-Penetration Firestops" (equivalent to ASTME E-814).
UL 2079:"Tests for Fire Resistance of Building Joint Systems."
UL FIRE RESISTIVE DIRECTORY: UL publication which contains descriptions and ratings of firestop systems.
UL Mark: An Underwriters' Laboratories certification mark that indicated compliance with both Canadian and U.S. requirements.
VENTED (OPEN) PIPING SYSTEM: Piping system which is atmospherically vented by design to prevent backflow or vacuum. *Examples*: DWV piping (drain, waste or vent).
W RATING: An optional rating for through penetrations Firestop systems. Determines the effectiveness of a firestop system to restrict the flow of water. Class 1-rated firestops have been shown to resist up to 3 feet of water column for 72 hours.
Z-CLIPS: Z-shaped clips that support a firestop wrap strip material in a firestop system, sometimes without mineral wool forming.

Firestop Definition Quiz Answer Sheet

1	a	b	c	d	e	31	a	b	c	d	e	61	a	b	c	d	e
2	a	b	c	d	e	32	a	b	c	d	e	62	a	b	c	d	e
3	a	b	c	d	e	33	a	b	c	d	e	63	a	b	c	d	e
4	a	b	c	d	e	34	a	b	c	d	e	64	a	b	c	d	e
5	a	b	c	d	e	35	a	b	c	d	e	65	a	b	c	d	e
6	a	b	c	d	e	36	a	b	c	d	e	66	a	b	c	d	e
7	a	b	c	d	e	37	a	b	c	d	e	67	a	b	c	d	e
8	a	b	c	d	e	38	a	b	c	d	e	68	a	b	c	d	e
9	a	b	c	d	e	39	a	b	c	d	e	69	a	b	c	d	e
10	a	b	c	d	e	40	a	b	c	d	e	70	a	b	c	d	e
11	a	b	c	d	e	41	a	b	c	d	e	71	a	b	c	d	e
12	a	b	c	d	e	42	a	b	c	d	e	72	a	b	c	d	e
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16	a	b	c	d	e	46	a	b	c	d	e	76	a	b	c	d	e
17	a	b	c	d	e	47	a	b	c	d	e	77	a	b	c	d	e
18	a	b	c	d	e	48	a	b	c	d	e	78	a	b	c	d	e
19	a	b	c	d	e	49	a	b	c	d	e	79	a	b	c	d	e
20	a	b	c	d	e	50	a	b	c	d	e	80	a	b	c	d	e
21	a	b	c	d	e	51	a	b	c	d	e	81	a	b	c	d	e
22	a	b	c	d	e	52	a	b	c	d	e	82	a	b	c	d	e
23	a	b	c	d	e	53	a	b	c	d	e	83	a	b	c	d	e
24	a	b	c	d	e	54	a	b	c	d	e	84	a	b	c	d	e
25	a	b	c	d	e	55	a	b	c	d	e	85	a	b	c	d	e
26	a	b	c	d	e	56	a	b	c	d	e	86	a	b	c	d	e
27	a	b	c	d	e	57	a	b	c	d	e	87	a	b	c	d	e
28	a	b	c	d	e	58	a	b	c	d	e	88	a	b	c	d	e
29	a	b	c	d	e	59	a	b	c	d	e	89	a	b	c	d	e
30	a	b	c	d	e	60	a	b	c	d	e	90	a	b	c	d	e

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