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*. Floor may also be constructed of any min 6 in. (152 mm) thick hollow-core Precast Concrete Units*. Max diam of opening is 26 in. (660 mm). Max diam of opening in floors constructed of hollow-core precast concrete units is 7 in. (178 mm). See Concrete Block (CAZT) and Precast Concrete Units (CFTV) category in the Fire Resistance Directory for names of manufacturers.

1A. **Steel Sleeve (Optional)** - Nom 26 in. (660 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe or No. 26 ga (0.022 in. or 0.56 mm thick) sheet steel sleeve with square anchor flange spot welded to the sleeve at approx mid-height. Sleeve cast or grouted in place flush with floor or wall surfaces. Steel pipe sleeve may project a max 2 in. (51 mm) beyond the floor or wall surfaces.

2. **Steel Duct** - Nom 24 in. (610 mm) diam (or smaller) spiral-wound or snap-lock steel duct. Steel gauge of duct shall conform with SMACNA requirements. One steel duct to be installed either concentrically or eccentrically within the firestop system. The annular space between the steel duct and the periphery of the opening shall be min 0 in. (point contact) to a max of 2 in. (51 mm). Steel duct to be rigidly supported on both sides of floor or wall assembly. The T Rating is 1/4 Hr for max 12 in. (305 mm) diam steel ducts. Otherwise, the T Rating is 0 Hr.
2A. **Coated Ducts** - As an alternate to Item 2, nom 24 in. (610 mm) diam (or smaller) steel duct coated with BW11 coating material. Duct sections shall be assembled using bolted flanges or SMACNA approved Transverse Joint Reinforcements. One duct to be installed either concentrically or eccentrically within the firestop system. The annular space between the duct and the periphery of the opening shall be min 0 in. (point contact) to a max of 2 in. (51 mm). Duct to be rigidly supported on both sides of floor or wall assembly. The T Rating is 1/4 Hr for max 12 in. (305 mm) diam ducts. Otherwise, the T Rating is 0 Hr.

**FIRESPRAY INTERNATIONAL LTD** - FLAMEBAR BW11 fire rated ductwork

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 to accommodate the required thickness of fill material.

B. **Fill, Void or Cavity Material** - Sealant - Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall assembly or hollow-core precast concrete floor. Min 3/8 in. (10 mm) diam bead of fill material applied at the point contact location between the steel duct and the concrete floor or wall on the top surface of the floor or both surfaces of the wall or hollow-core precast concrete floor.

**SPECIFIED TECHNOLOGIES INC** - SpecSeal Series SSS Sealant, SpecSeal LCI Sealant, Pensil 300 Sealant or SpecSeal Series SIL300 Sealant for floors or walls and Pensil 300S/L Sealant or SpecSeal Series SIL300SL Sealant for floors only.

W Rating applies only when Pensil 300 Sealant, SpecSeal Series SIL300, Pensil 300 S/L or SpecSeal Series SIL300SL Sealants are used.

F Rating is 2 Hr when Pensil 300 Silicone Sealant or Pensil 300SL Silicone Sealant is used. F Rating is 3 Hr when all other sealants are used.

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