a recommended method of locking the damper blade in place.

3.18.2 Back-Draft Dampers

Backdraft dampers shall be provided where indicated on the drawings. Figure 3-25 illustrates an acceptable method of constructing a back-draft damper from PVC materials.

3.18.3 Fire Dampers

Fire dampers shall be installed only where shown on the project drawings. Life safety engineers strongly recommend that all systems conveying fumes that are harmful to human life be routed in such a manner as to avoid using fire dampers. directly to the outside without passing through fire partitions, directly into a 2-hour shaft, due to the possibility of inadvertent closing of the fire damper. Where the fire protection methods specified include the use of fire dampers, the type or complete construction requirements of all fire dampers shall be set forth in the project drawings or specifications.

PVC has a relatively low melting point and therefore cannot be used to fabricate fire dampers. Dampers constructed of selected grades of stainless steel but fabricated in accordance with the configurations and arrangement of dampers tested and rated by nationally recognized test agencies have been found to be suitable for many applications.

When fire dampers are installed, a gasketed access panel in accordance with Paragraph 3.13 shall be provided in the duct adjacent to each damper. Operating devices for the fire dampers should be suitably protected from corrosive environments.

3.19 ACCESS OPENING AND END CAPS

Access openings shall be provided in the duct work at the locations specified by the project drawings (See Chapter 4, Guide Specifications). All access openings shall be rigidly framed and fitted with airtight covers which can be simply and speedily removed and installed. Cover plate and end cap thickness shall be a minimum of 1/4 in. (6 mm), and shall be reinforced across the shortest dimension as necessary to comply with the maximum spacing and rigidity requirements specified in Table 3-7 through 3-10 for 1/4 in. (6 mm) thick ducts with widths equal to the shortest cover plate dimension (See Figure 3-26). Attaching hardware should be spaced not more than 6 in. (152 mm) center to center. Hinged access doors should not be used on PVC ductwork because of the difficulty of sealing and the probability of overstressing the hinge attachments. Figure 3-26 illustrates acceptable access door and capped duct construction.

3.20 DRAINS

Drains shall be installed at the locations indicated on the project drawings. The drains shall be full-sized half couplings, not less than 1 in. (25 mm) IPS and suitable for receiving standard pipe connections unless otherwise specified. The fittings shall be continuously welded and trimmed flush with the interior surface of the duct. Reinforcement plates shall be provided in the ductwork wherever necessary to insure rigid connection of drains.

3.21 VENTILATOR HEADS AND LOUVERS

Ventilator heads and louvers shall be installed where indicated on the design drawings. Figures 3-27 and 3-28 illustrate acceptable construction technique for these items.

3.22 AUXILIARY EQUIPMENT

Fans, scrubbers, filters, eliminators, sound traps, and other such auxiliary equipment shall be incorporated into the system in the manner specified in the project drawings and specifications.

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FIGURE 3-1 COMPOSITE OF TYPICAL FEATURES FOR ROUND AND RECTANGULAR PVC DUCT

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FIGURE 3-2 LOCATION OF REINFORCEMENT FOR TURNS AND TRANSITIONS



FIGURE 3-3 ATTACHMENT OF PVC REINFORCEMENT BY GAS/FILLER ROD WELDING

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FIGURE 3-4 METHODS OF ATTACHMENT OF STEEL REINFORCEMENT TO PVC DUCT

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FIGURE 3-5 REINFORCEMENT ARRANGEMENT FOR RECTANGULAR DUCT



FIGURE 3-6 WELDING METHODS



3.39



FIGURE 3-7 FORMED AND WELDED CORNER CONSTRUCTION



FIGURE 3-8 CONFIGURATION OF 5 SEGMENT ELBOW

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FIGURE 3-9 TYPICAL INTERNAL PIPE REINFORCEMENT SCHEME



FIGURE 3-10 FORMED FLANGE DETAILS

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FIGURE 3-11A SQUARE THROAT ELBOW - RECTANGULAR DUCT



FIGURE 3-11B 90° ELBOW WITH WELDED CORNER CONSTRUCTION - RECTANGULAR DUCT