1 For remodeling projects

1.1 For remodeling projects when only a portion of an existing duct system is being replaced then the new duct insulation (internal or external) should match the existing.

2 External Insulation Locations

2.1 All large air ducts (in general all ductwork up to the VAV box or similar room control device) are considered permanent and would be hard to replace if the internal insulation began to degrade, thus the need for external insulation.

2.2 All inaccessible ductwork, where replacing the insulation or ductwork would be difficult, will have external insulation.

2.3 All VAV reheat coils, or all duct mounted coils will have external duct wrap that overlaps internally insulated duct by 2”.

2.4 OA ducts and plenums should have external insulation.

2.5 All ductwork exposed to humidity (e.g. close to humidifiers) should be externally insulated.

3 External Insulation Surface Finish

3.1 External insulation in locations where not seen by the public, the external insulation should be a fiberglass wrap with foil facing surface. These areas include mechanical rooms, unfinished areas, and areas above ceilings.

3.2 External insulation where it can be seen by the public should be rigid fiberglass with a paintable exterior surface that is painted to match the room.

3.3 External insulation exposed to the weather should be cloth-wrapped and have an external aluminum covering.

4 Internal Insulation Locations

4.1 Insulate small accessible ducts that can be easily replaced

4.2 Insulate SA and return ducts on small systems

4.3 Insulate SA ducts from the VAV box (or similar room control device) to the diffuser

Note: After the VAV box the ductwork is smaller and more easily replaced if the internal insulation liner breaks down and the insulation provides acoustical dampening.

4.4 If the system has no VAV box then insulate SA ducts after the room penetration to the diffuser

4.5 Insulate transfer ducts to reduce sound transmission and increase acoustical separation

4.6 Insulate RA ducts from the grille to the room penetration or continuing to the main trunk duct

5 Internal insulation pinning

5.1 Insulation on rectangular duct over 24” (both interior and exterior) should be pinned to the sheet metal at 12” on center.

Note: Though often done as a value engineering initiative, increasing the pinning distance more than 12” has been shown to cause premature failure with the insulation separating from the duct.

6 Round and oval ducts

6.1 Round and oval ducts in exposed areas must be double wall so the outer surface can be painted.