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Guidelines for Air Conditioning

AIR CONDITIONING ADDS UNWANTED NOISE. IT IS CRITICAL THAT THE HVAC SYSTEMS BE QUIET.

Contractors are responsible to implement as many of these guidelines where applicable and propose to the owner(s) any additional methods to achieve a quieter air system.

1. Locate machinery as far away from rooms as possible.
2. Use the most energy efficient units affordable. The greater the SER the quieter they tend to be.
3. Do not oversize units. Minimize air velocity as much as possible. Bigger is not better.
4. Mechanical isolation of compressors is a necessity. Split systems are recommended. If a self contained single unit is mounted onto the roof it must sit on mechanical vibration isolators. Separate units for each room are preferred.
5. Plenums must be as large as possible and lined with a minimum of two-inch six-pound density fiberglass duct board. Every room is a home run back to the plenum. Do not tie across sound isolating walls.
6. Use as large a duct as possible. Go up at least one size. Example: 12" enlarges to 14".
7. Use as much length in the duct as possible with added twists and circles. A straight section of ductwork, three to five diameters long, precedes the duct termination.
8. Vent boxes must be at least one size larger than the duct. Example: 8" duct terminates in a 10" box. Same size box to duct will increase noise. Line inside of boxes with 1" fiberglass liner. Completely wrap exterior of boxes with fiberglass.
9. Return air from near center of rooms. Avoid supplies directly at work areas. Separate grills as far as possible if they are fed by the same duct.
10. WHERE APPLICABLE, AUDIO EQUIPMENT ROOMS. There may be a separate area that contains electronic equipment (computers, amplifiers, power supplies etc.) These areas typically require a minimum air exchange 8 –10 times more than normal. Noise is not a consideration here. Accommodations must be made so the air exchange is never off. Active exhaust that pulls air out of this area should be considered. Additionally, consideration must be given if this room is serviced by a shared system and the heater is on. Usually it is better to have a single dedicated unit.