

MECHANICAL CODE DISCUSSION

Return Air



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AS WITH OTHER CODE DISCUSSIONS, this subject was chosen due to several recent questions received from contractors and code officials. IRC M1602 and IMC 601.5, both titled Return Air include the following summarized requirements and comments:

1. Openings shall not be located within 10' in any direction of an open combustion chamber or draft hood. *This is a life safety issue as drawing return near an open combustion appliance may impact the combustion process and/or reverse the vent, drawing products of combustion into the structure. This is not an issue with correctly installed direct vent appliances.*
2. Return air shall not be taken from a hazardous or insanitary location or a refrigerant room as defined by the code. (Refrigerant rooms with quantities exceeding those defined in Chapter 11 IMC). *Obviously, the issue here is circulating dangerous fumes and gases through occupied space.*
3. The amount of return taken from a room or space shall not be greater than the supply delivered to the same room or space. *This requirement and the next item are*

similar, requiring a defined path from supply outlets back to a return inlet. Failure to maintain balanced pressures within a building results



in excessive infiltration leakage in and out of the building thermal envelope.

4. Return and transfer openings shall be sized per ACCA Manual D, the manufacturer's instructions, or the design of a registered design professional. *Manual D gives direction with a door cut chart, which identifies the required height of the opening below a door needed to provide specific CFM flows. This was covered in a previous discussion.*
5. Return shall not be taken from a closet, bathroom, toilet room, kitchen, garage, mechanical room, boiler room, furnace room, or unconditioned attic. *With the large*

open style kitchens, great rooms, and dining rooms common today, there may not be a defined line separating the kitchen from the other rooms. In these cases, a return must maintain a 10' clearance from cooking appliances. Additionally, returns are allowed in garages only for systems dedicated to the garage, never of the system serving the occupied space. A similar exception is allowed for indoor swimming pools.

6. Return from one dwelling unit shall not be discharged into another dwelling unit. *We would never consider using a common HVAC system in a new apartment building; however, too often we see single family dwellings with a basement apartment, sharing a single HVAC system. Please consider the possible spread of bacteria and viruses when return is drawn from one dwelling, then discharges into another.*
7. Return air shall not be taken from an unconditioned crawlspace or attic. *Either of these will result in significant energy waste.*

Please continue to reach out to me with your comments or questions. Stay healthy and be safe. Merry Christmas and a Happy New Year. —Brent