

Engineering Recommendation on:
Machine Compartment Design In Cabinets
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All condensing units need, for the proper performance and effectiveness, a consistent ambient air to be available to the condenser. There seems to be many times when this simple requirement is overlooked by the design engineer who applies the condensing unit to his equipment.

The design engineers objective when applying a condensing unit must be to assure that the condenser will get a full flow of unheated, unrecirculated, clean air. To accomplish this the following points must be considered:

- 1.0 Adequate Grill Area (opening): the condenser must have a full flow of unrestricted air. If the cabinet into which it is designed presents a tunnel - like enclosure with air entering one end and leaving the other, each inlet and outlet grill, open area, not total grille size, must be equal to or greater than the condenser face area.
- 2.0 Unheated Air Required: It is imperative that the air to be supplied to the condenser by the fan is unheated. In the event there is any heat producing components, they should be designed away from the air inlet area so as to avoid introducing heat to the ambient air being delivered to the condenser.

Further, installation instructions should warn against any external heat producing situation in the proximity of the cabinet inlet air, including the cabinet or appliance which may be located adjacent.

- 3.0 Recirculation to be Avoided:

- 3.0.1. Internally:

In these cases when the machine compartment is designed such that a tunnel - like enclosure exists, care must be taken to assure that recirculation cannot occur. This can usually be accomplished by the use of properly placed bulkheads.

On the other hand, if the inlet and outlet air openings are near one another, (same side of the cabinet), it is quite important to assure the hot air being discharged cannot get into the inlet air stream. This can usually be accomplished by directing the discharge air up and / or away from the inlet grille.

3.0.2 Externally:

The design location of the air inlet and outlet openings should be such that they are not restricted or affected by virtue of nearby walls or other equipment. Further, the installation instructions should caution the user against placing the cabinet in any way or near any wall which would affect the flow pattern of the incoming or leaving air streams.

4.0 Clean Air and Condenser Surface is a Must: It is compulsory that the design be such that the condenser can be readily cleaned periodically, and the users instructions should demand that this be done. Obviously, the more accessible the dirt laden condenser surface and the more easily it can be cleaned, the higher the probability it will be done, repeatedly, properly, and periodically as required.

An ample and efficient filter should be designed into the air inlet in such a way that it can be readily removed for cleaning or replacement. This is especially mandatory when the ambient surroundings tend to be fat laden air, like as in commercial kitchens.

Tecumseh offers this treatise with the promise that it will reduce field failure problems. Hopefully, the interested readers will accept it and utilize it in the same vein.

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