

6 June 1996

1117 The High Road
Austin, TX 78703

Mr. David Patricks
3005 West 29th, Suite 130
Waco, TX 77663

Dear Mr. Patricks:

I received your June 6th letter requesting consultation and am providing my recommendation in the following.

First, let me review my understanding of your inquiry. The question you raise revolves around whether the heating registers should be located in a low sidewall, or in the ceiling, and, if ceiling registers are used, which type--step-down or stamped-faced--will deliver the best results. Additionally, the problem concerns whether there is any benefit to having heating registers near the floor, whether moving heated air "down" in ducts negatively affects blower performance, and whether adequate injection that can be achieved on the low speed of a two-stage furnace.

My recommendations are as follows:

- I can find nothing in either Carrier, Trane, or ASHRAE design manuals that indicates drop as being a factor in duct design any different from normal static losses. If you have different information on this, I would like to have references to it.
- I cannot see any advantage to low sidewall application. The problem is injection and pattern. I do see an advantage to low sidewall return; *Carrier Design Manual--Air Distribution* is a good reference on both items.
- I recommend step-down diffusers with OBD because they have pattern and volume control that is superior to stamped-faced diffusers.
- I am opposed to low sidewall diffusers or floor diffusers in the application you describe. The increased static losses that result from trying to get the ducts down through the walls will only increase installation cost and reduce efficiency.

If there is anyone in your organization who is uncomfortable with these recommendations, let me know. I'd be very interested in reviewing any actual documented test results. Let me know if you have any further questions or if I can be of any further assistance.

Sincerely,



Jane A. McMurrey, P.E.
HVAC Consultants, Inc.

JAM/dmc
Encl.: invoice for consulting services

Heading--the date and the sender's address.

Inside address--name and address of the recipient of the letter.

Salutation

Body text of the letter: singlespaced text with doublespacing between paragraphs; no paragraph indentation.

Use of special formatting within the letter--use bulleted or numbered lists, even headings and graphics.

Complimentary close

Signature block

End notations