

TECH TALK

TT-35

February 2007



Wood vs. Metal Floor Diffusers

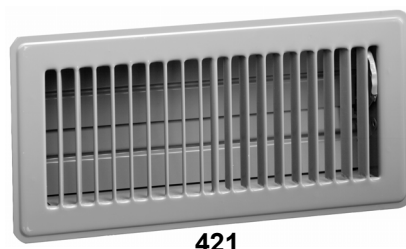
by Dave Feters and Mark Walraven

When considering the use of wood floor diffusers instead of the traditional metal kind, one should consider how they perform, as well as how they look.

Wood floor diffusers can be an aesthetically pleasing addition to a home. Solid wood or wood-faced floor diffusers look nice, can be stained to match wood floors, and recessed flush with a wooden floor surface (R403).



However, when considering the use of wood floor diffusers instead of the traditional steel diffusers, one should also account for



changes in product performance. All Hart & Cooley floor diffusers (including wood) meet the International Mechanical Code for strength. Since wood is not as strong as steel, more wood must be used in the diffuser to meet the strength requirements.

Consequently, wood diffusers generally have different performance characteristics than steel diffusers. Performance, for the purpose of this *Tech Talk*, refers to the effective area and throw pattern of the diffuser. For example, the R400 (the wood equivalent to the steel Hart & Cooley 421) has only 60% of the effective area of the 421. One must consider the impact that lower effective area (lower cfm delivery) will have on

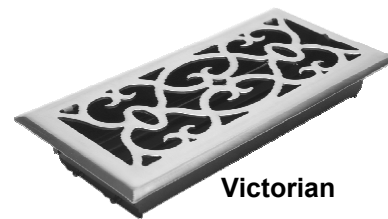


room comfort before selecting the diffuser. A larger size wood diffuser or additional floor diffusers may be necessary to maintain the same cfm delivery as a traditional steel diffuser.

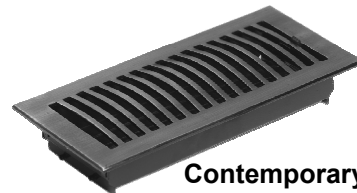
An additional consideration is the diffuser's throw pattern. A diffuser's throw pattern affects room air mixing, and different diffusers have different fin angles and throw patterns. Most wood diffusers have parallel fins that deflect the air in two directions. Whereas the 421 and 411 fins are more vertical in the center, and they slope progressively as the fins approach the outside edges. This fan-shaped pattern helps diffuse (disperse and mix) the air better than the parallel fins of the wood register.

Other decorative floor diffuser products have designs, such as a Victorian scroll pattern and a Contemporary "parallel blade" pattern. As the fin pattern changes, so does the throw pattern. So, be sure to match the correct decorative product to the application and environment.

Engineering data for Hart & Cooley decorative registers can be found at our web site at www.hartandcooley.com.



Victorian



Contemporary