



MEMORANDUM

TO: Commercial and Residential Stakeholders
FROM: Carl Wren, P.E., FSFPE, Assistant Director and Building Official
SUBJECT: Openings in LVL Beams
DATE: January 3, 2017

The City of Austin Development Service Department would like to notify local design professionals of requirements regarding openings in Laminated Veneer Lumber (LVL) beams. It is frequently desired to cut openings in beams to allow for routing of mechanical ducts and electrical wiring while maintaining a tall ceiling height. APA (The Engineered Wood Association) has published a technical bulletin which outlines size and location limitations for holes in LVL beams. These limitations account for potential stress concentrations which can develop when LVL products are notched or drilled.¹ The two figures on the following page are excerpts from the technical document published by APA and show permissible hole sizes and locations for LVL beams under uniform loads.

The Development Services Department has recently been involved in several projects which involved excessively large holes in LVL beams – holes that far exceeded the limitations set forth in the aforementioned APA document. In some cases, opening details were provided in the construction documents. In other cases, the beams were field modified. This memorandum serves as notice that, from this point forward, any holes exceeding the APA limitations for opening size, opening location, or loading conditions (whether reviewed during the plan review stage or observed during field inspections) will be subject to a structural review, associated fees, and additional review time.

A structural review will be performed to ensure that the modification of the beam has been analyzed for strength, serviceability, and potential stress concentrations/crack propagation. Calculations may be requested and additional reinforcing around the openings may be required.

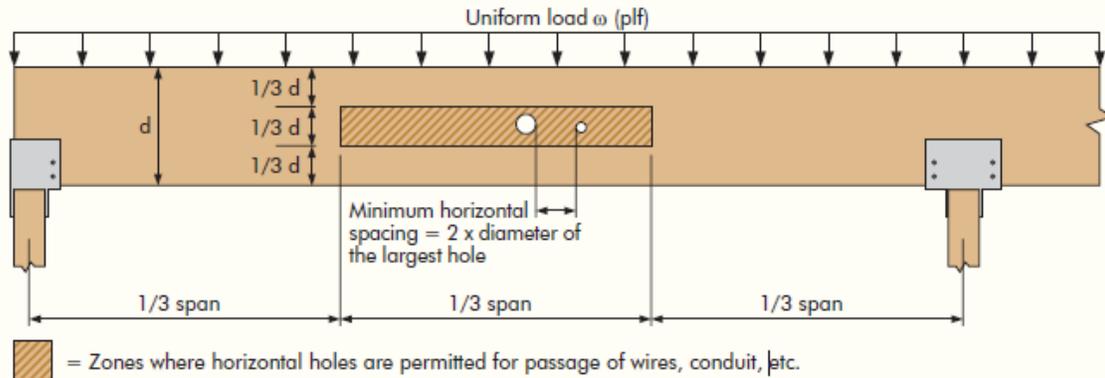
Thank you in advance for your patience as we continue to provide our customers with a more complete and thorough pre-construction review and subsequent inspections process.

¹ APA. (June 2010). *Field Notching and Drilling of Laminated Veneer Lumber. Technical Note* (Form No. EWS G535A). Retrieved from <https://www.apawood.org/>



FIGURE 2

PERMISSIBLE HORIZONTAL ROUND HOLE LOCATIONS FOR LVL BEAMS UNDER UNIFORM LOADS

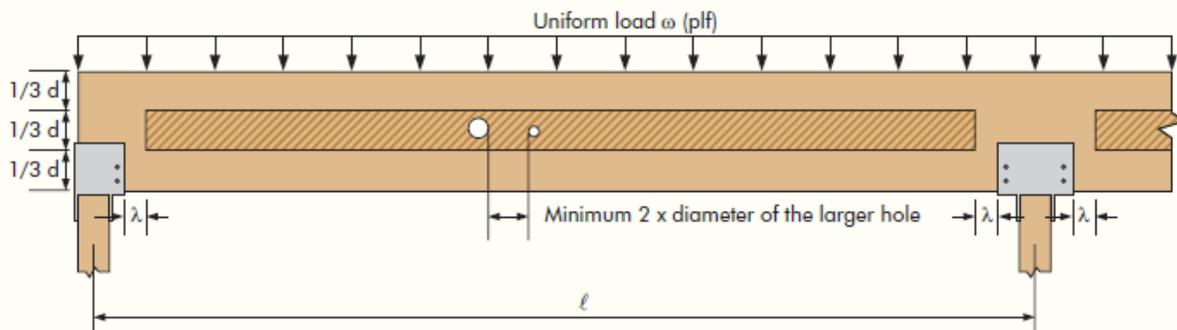


For beam depth of 3-1/2, 5-1/2, and 7-1/4 inches, the maximum hole diameter is 3/4, 1-1/8, and 1-1/2 inches, respectively. For deeper beams, the maximum hole diameter is 2 inches. The maximum number of holes for each span is limited to 3. Holes should not be cut in cantilevers.

Figure 2 from APA Form No. EWS G535A

FIGURE 3

ZONES WHERE 1-INCH OR SMALLER DIAMETER HORIZONTAL HOLES ARE PERMITTED IN A UNIFORMLY LOADED BEAM ($d \geq 7-1/4$ inches)



a) the maximum number of holes for each span shall not exceed 3 and b) the hole must not be cut in cantilevers.
 $\lambda = 6$ inches minimum when $\ell/d \geq 11$, or $\ell/6$ minimum when $\ell/d < 11$.

Figure 3 from APA Form No. EWS G535A