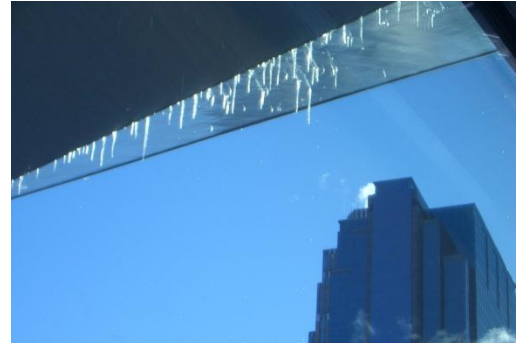
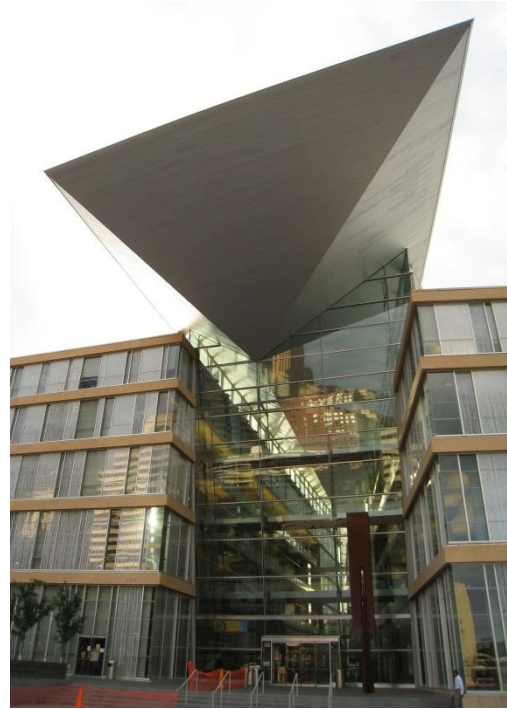




PROJECT PROFILE

# Minneapolis Central Library

Icicle Formation Investigation | Minneapolis, MN



**CLIENT**

Hennepin County

**BACKGROUND**

The Minneapolis Central Library is a five-story, 350,000-square-foot, glass-enclosed building containing geometrically designed shapes that fuse urban culture motifs with design elements reflecting Minnesota’s natural features. Completed in 2006, the building was designed by Pelli Clarke Pelli Architects. The structure boasts a beautiful canopy roof with metal downward sloping “wings” clad with standing seam metal panels that projects over the south and east entrances of the building. Equally impressive is the 18,500-square-foot “green” roof, which contains low-growing, sun- and drought-resistant ground cover.

Hennepin County Property Services of the State of Minnesota contacted WJE after large icicles reportedly fell from the cantilevered metal roofs onto the entrance plazas. The client sought to identify the cause(s) of the icicle formation and to receive recommendations concerning the repair design proposed by the design architect.



**SOLUTION**

WJE completed field work and water testing to evaluate the water tightness of the existing gutter assembly. WJE’s water testing isolated suspect details including cracked soldered gutter seams and joints not designed to withstand a submerged condition during ice damming or standing water. Water leakage testing induced leakage at multiple test locations within minutes and produced water seepage in quantities and at locations in accordance with the reported icicle formation.



The proposed repair design focused on the built-in gutters constructed along the south edge of the wing roofs. The proposed repair included building up the outboard edge of the gutters to prevent the snow and ice from reaching the roof edge where it would melt, run over the edge, and refreeze on the soffit.

