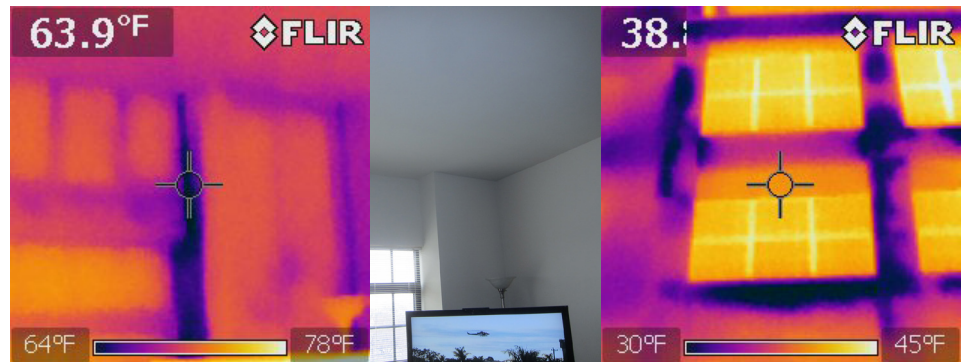




## Concrete Warehouse-Loft Conversion

Philadelphia, PA  
2013

Investigation: Endemic water leakage to interior



BSC investigated a circa 1940 concrete cast in place warehouse that was converted to residential lofts in 2005. There have been persistent water intrusion issues at the exterior walls; BSC was asked to determine the cause of some still-unsolved leaks. One issue was determined to be not water leakage, but interstitial (within the cavity) condensation. This problem manifested as water leakage at the window head return; opening the cavity showed pooling water, coming from the floor above. The floor above was finished with an insulated steel stud wall offset from the concrete wall by 8 inches, creating a cavity between the framing and masonry. Interior air leaked into the cavity, condensed, and ran out of the window head below. Other persistent leaks occurred at the top of the exterior wall on the uppermost floor. Disassembly revealed the pattern of water staining coming through at the roof-wall connection. The plans showed that the roof structure is sloped; the suspected issue was that rain leakage through roof deficiencies drain to the lowest part of the slab-insulation interface, and then leak to the interior. Water spray testing was used to eliminate rain penetration issues as a leakage source at some details. BSC provided remediation recommendations, including wall retrofit options, parapet, and window details.