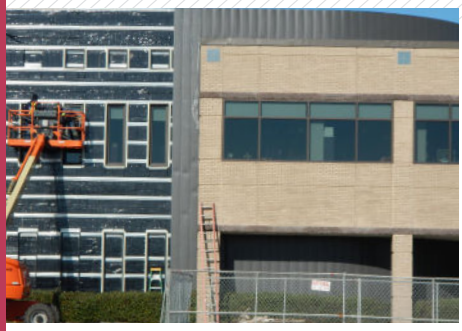
HARDENING

BEYOND ROOFS AND WALLS
MASTERING THE BUILDING ENVELOPE



Hardening a building is a process for the building envelope system, which includes the roof system, air and water barriers, window and door frame attachments, cladding systems and window glazing, that reduces impact and weather damage.

Depending on the geographical location and wind zones (or seismic zones), codes will dictate enhanced roof attachment for roof top equipment, gas, electrical and water pipes to prevent any damage from high winds, flying debris, or hail. In areas prone to forest fires, UL fire rated systems help reduce fire spreads from burning embers.

PREPARING BUILDINGS NOW TO PREVENT DAMAGE LATER

The waterproofing within the exterior walls dictate the use of an air barrier for above ground applications and water barriers for below grade. Current codes require a complete system that seals out air and water vapor that includes flexible flashings around all window and door frames, at changes in floors and at the roof wall connections and base of wall connections. Proper detailing of these penetrations as well as all other penetrations such as electrical/communication conduits, water pipes and louvers for mechanical systems are critical to provide the control of water and water vapor into the building. The exterior walls systems also include the requirement to have a continuous exterior insulation from base of wall extended to the roof edge.

Proper detailing and specifications of securing window and door frames to the structure provides additional security from impact damage from high winds and high-speed projectiles.

HARDENING TODAY REDUCES FUTURE EXPENSES

Proper attachment of cladding systems, windows and doors protect the building interiors from further storm damage from wind, fire, earthquakes and flooding thus reducing from costly repairs and lack of use from uninhabitable buildings. Impact resistant glass can add additional cost, but can be minimized to harden entry exit points or to just exterior glass, or films adhered to the interior of the glass can further reduce cost over more expensive glazing.

Proper application of air and water barriers prevent everyday infiltration of air and water vapor eliminating growth of mold and enhancing the ability of HVAC systems to better control humidity and temperature at reduced cost from reducing size of units and better control of outside air in balancing the HVAC systems.

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