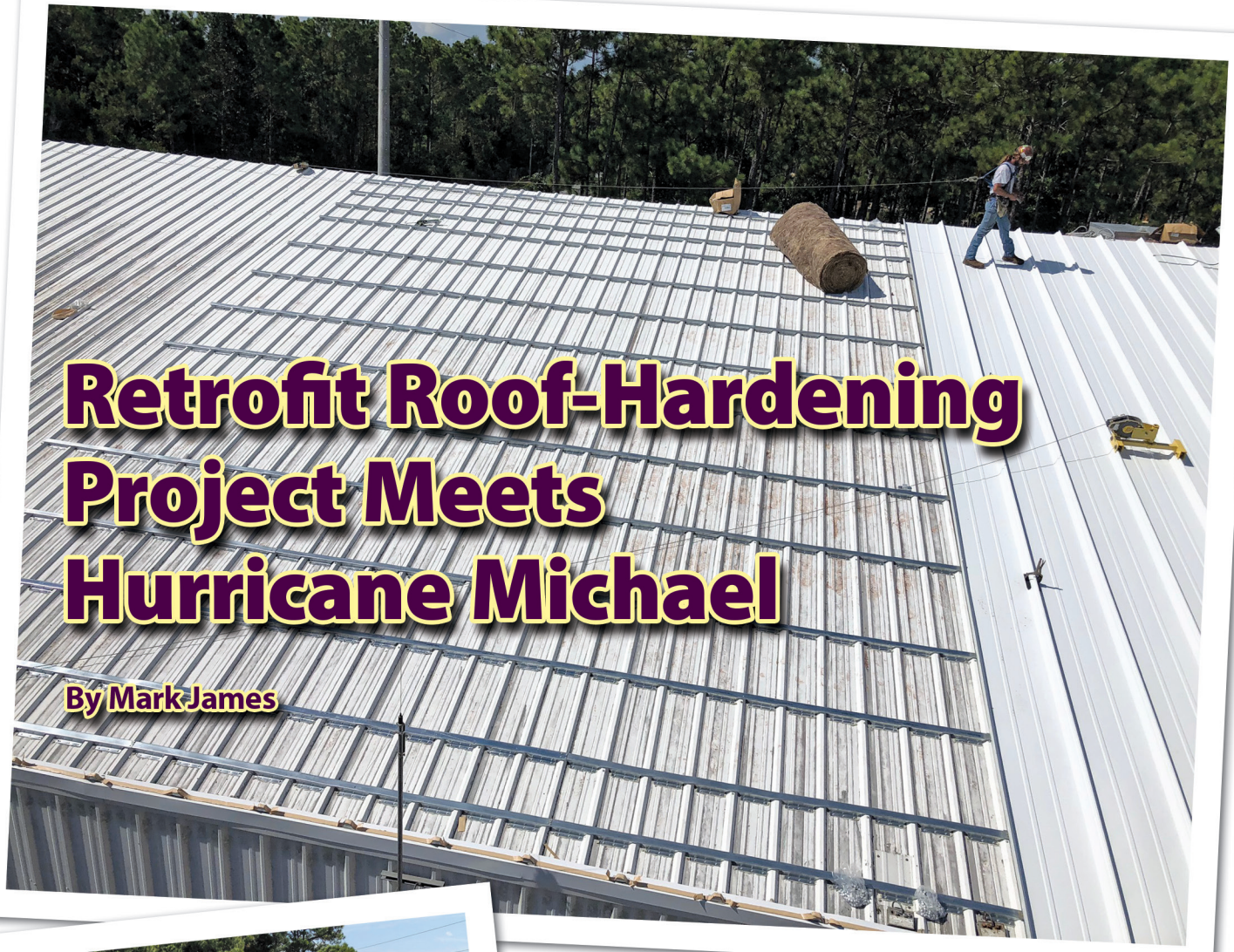
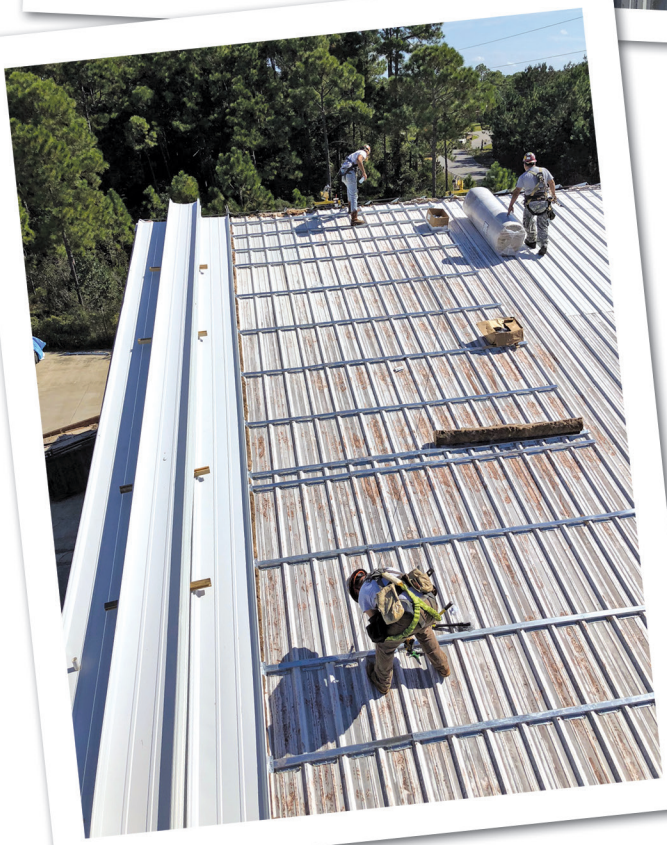


Retrofit Roof-Hardening Project Meets Hurricane Michael

By Mark James



The United States government is no stranger to hardening its roof designs for existing buildings needing a roof replacement. This is especially true for metal roofs on military bases along the Gulf and Atlantic coastlines. As a result, existing metal building roof retrofits are now being upgraded to Category V and greater hurricane-force wind loads. The term hardening is used throughout the coastal states to explain structural changes to existing building roof and walls in order to meet greater wind loads now adopted by building code authorities.

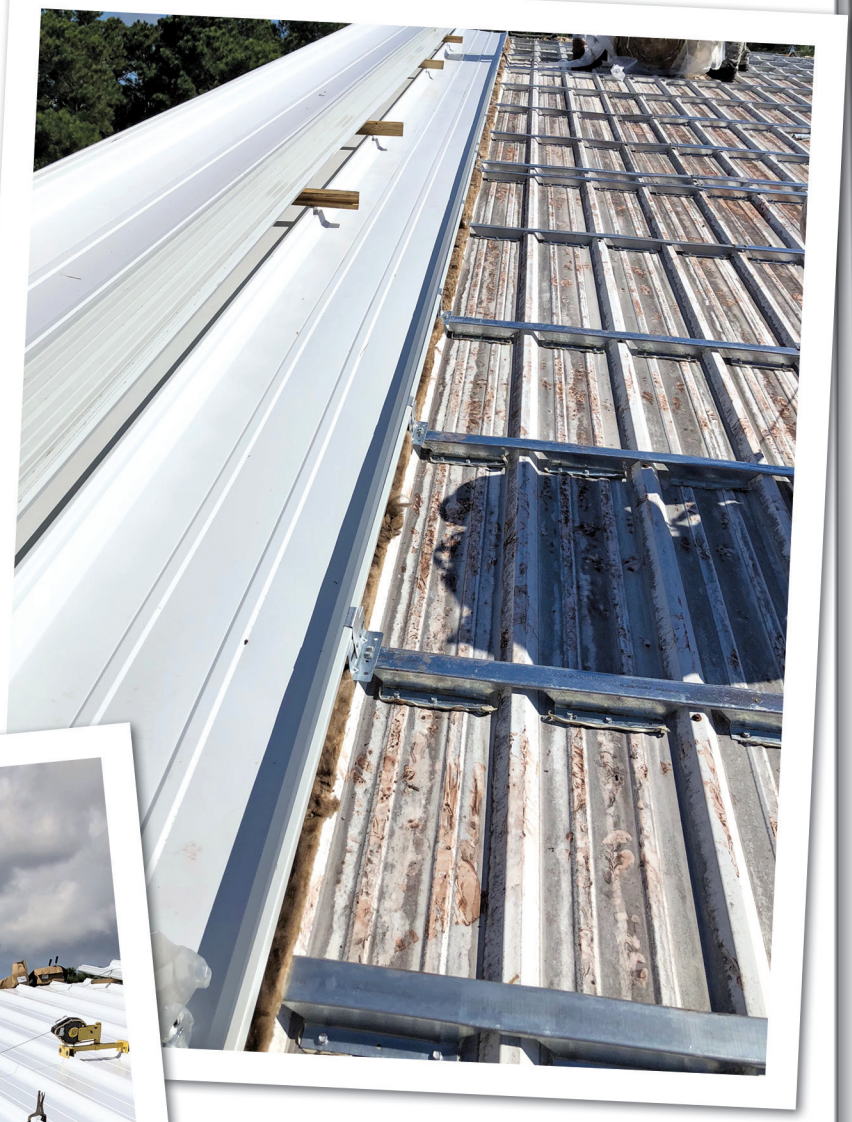
Royster Contracting, LLC of Fort Walton Beach, Florida, has completed several metal-over-metal retrofit projects. Royster's most recent retrofit project was for the U.S. Air Force on a 7800-sq.-ft. metal building located at Hurlburt Field Air Force Base, Florida. The existing metal roof needed replacement, but in lieu of removing the roof, the base facility construction department selected a metal-over-metal retrofit roof design where a new metal roof is installed over new structural sub-framing that attaches directly to the existing roof's support system. Of course, this is all done without removing the old metal roof. Hurlburt Field is very familiar with retrofit metal roofing projects stretching back more than 25 years.

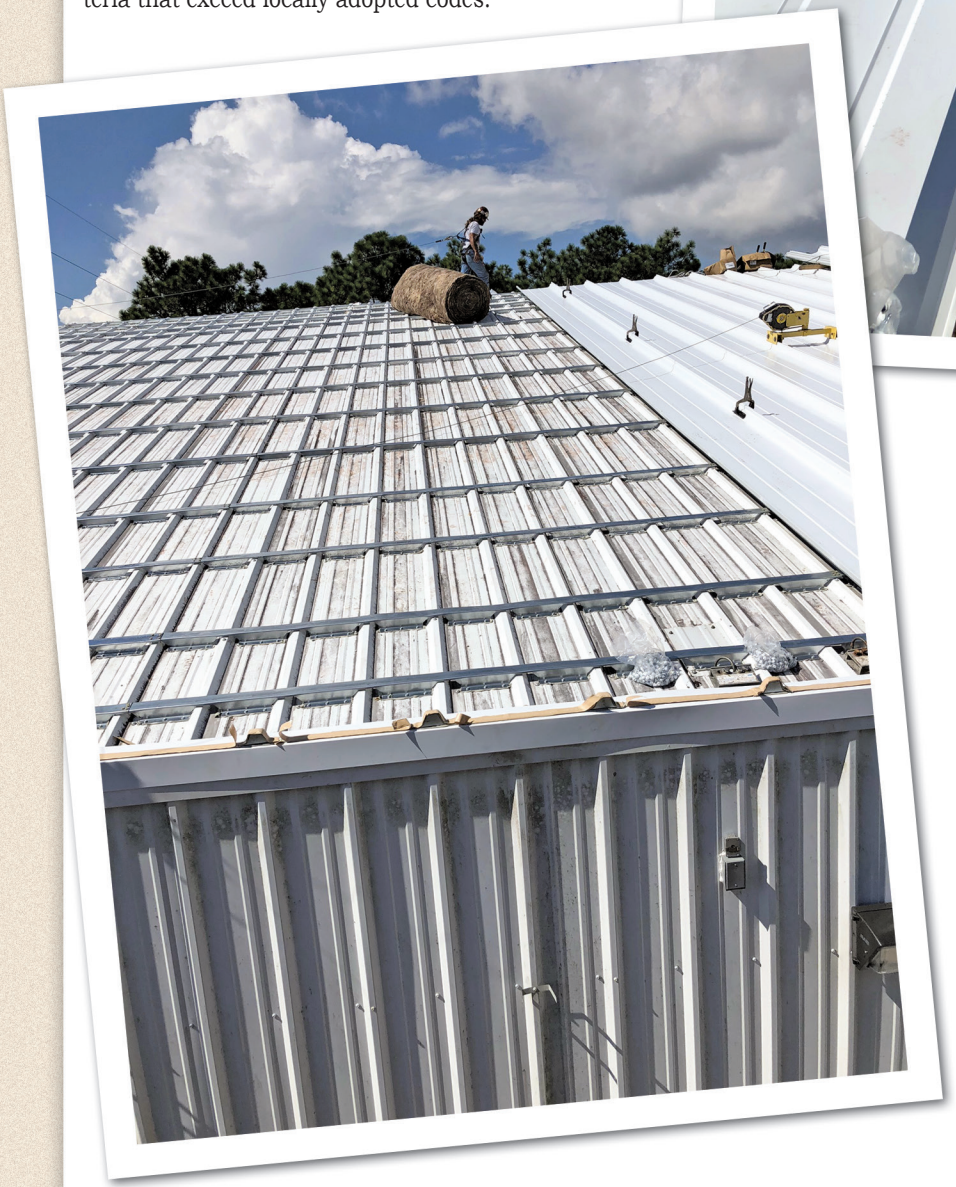
The construction department knew that it was possible to engineer the new metal roof and its retrofit sub-framing system to be in

accordance with current wind uplift design for the area while doing this. In this case, the system was designed to meet a Category V hurricane of 157-mph wind speeds.

Royster chose Roof Hugger, LLC sub-framing products of Lutz, Florida. The sub-framing system consisted of 2700 linear feet of 16-gauge factory-notched structural members in a zee shape, manufactured to fit over the existing 12-in.-on-center purlin-bearing rib (PBR) roof. The new metal roof was a 24-in.-wide trapezoidal standing-seam roof in 24 gauge.

In addition to the new retrofit roof assembly, the base construction department chose to include 3 in. of unfaced fiberglass insulation between the existing roof and the bottom of the new metal roof. Hardening of building roofs is very common on commercial metal-over-metal retrofit roofs in the coastal states. As such, many older buildings that were engineered for a 90- to 100-mph wind speed must now be upgraded to minimum code requirements that are currently at 120 mph inland and 130 mph for coastal areas. Some parts of Florida and Texas have requirements of 155 mph or greater. U.S. government facilities typically specify criteria that exceed locally adopted codes.





With the recent catastrophic Hurricane Michael damage at nearby Tyndall Air Force Base and elsewhere on the Florida Panhandle, this project just 82 miles away suffered no damage, even with Michael's documented peak wind speed of 155 mph.

Mark James

Mark James has served in the metal construction industry since 1971 in structural steel to pre-engineered metal buildings and roofing. Since 1993, he has developed an expertise in light-gauge steel retrofit framing systems over existing buildings using metal roofing. He is now semi-retired and living in Hot Springs Village, Arkansas.