



## PROJECT PROFILE

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PROJECT: University of Hawaii Biomedical Science Building Gets a New Roof

The world of metal-over-metal retrofit roofing is not always a glamorous business, but every once in a while a job comes along that makes it more interesting and satisfying to say the least. Architectural metal-over-metal retrofit is a small part of the overall retrofit market. Normally, you will find them on office buildings, hotels and high-end condominiums as well as schools and universities. The greater side of the market of course, is manufacturing and warehousing facilities that are historically low-slope buildings. In these cases, the retrofits are performed to replace a roof that has failed in its intended performance. These failures can include improper installation and thermal movement design or finish service life. On the other hand, architectural applications are commonly roofs with a slope of 3:12 or greater where the roof is being replaced for not only performance reasons but for aesthetic purposes as well.



In May of 2009, the University of Hawaii's Biomedical Sciences building in Honolulu underwent a \$1.1 million facelift and remodel. Included in the work, was a metal-over-metal retrofit utilizing approximately 18,000 square feet of new standing seam metal roof. The new roof was installed over the existing vertical rib metal roof using Roof Hugger's patented sub-purlins. This retrofit was performed because the old roof had reached its service life insofar as chalk and fade and aesthetic appearance. The new standing seam was selected in a "Beach Beige" color as supplied by Custom Metal Roofing, a division of HPM Building Supply of Kapolei, HI. The roofing was installed by Beachside Roofing, also of Kapolei, HI. The

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project's general contractor was Designer Built Systems, Inc. of Honolulu, HI and the architect was Richard Matsunaga AIA of Honolulu. The University's campus has a multitude of roofing membrane types, but for those that are visible standing seam metal is the roof of choice. Re-roofing in this manner allows work to be performed without interrupting the operations of the building and its inhabitants.

What made this job so challenging was the building's geometry and change in roof slope. Even though it was essentially a square building, its hipped geometry transitioned from a 3:12 roof slope to a 12:12 at the central area of the roof and then to a vertical central tower (see photos). Then, to satisfy local island wind loads, Custom Metal Roofing's 22 gauge "Shur-Lock" standing seam was selected with 12" on center rib spacing. Providing support for the new standing seam were special 2.75" tall Roof Huggers manufactured in G-90 16 gauge 50 KSI steel with panel rib notches spaced at 18" on center to match the existing metal roof's profile. Some 10,700 lineal feet of Roof Huggers were installed. The project was completed in just a few months after start of work.



It may surprise some people that the Hawaiian islands are not subject to such high wind speeds that are common in the coastal areas of the mainland United States. Specified design criteria at this time is UBC-1997 with a 80 MPH wind speed. For this type of wind speed, most standing seam metal roofs can be installed at 60" on center to be code compliant. However, for the Biomedical Sciences building roof, the Roof Huggers were installed at 24" on center, which would increase the new roof's wind uplift capacity to meet the pressures required to satisfy a minimum 100 MPH wind speed. The islands are currently in the process of adopting the International Building Code, which will increase the minimum wind speed to 100 MPH.

Metal-over-metal retrofit re-roofing is a vast market with thousands of successful installations representing millions of square feet. Nowadays, re-roofing technology can provide the building owner the ability to upgrade the building roof to current specified wind speeds as a result of recent building code changes. This is especially true in our coastal zones that now require a minimum of 120 MPH and upwards to 150 MPH for normal occupancy buildings and up to 250 MPH for community shelters. In addition, recent re-roofing applications are now employing integrated energy efficient assemblies where renewable solar systems are installed. These include not only photovoltaic solar electric products but solar thermal water heating and solar heated air recovery for heating the building. With last year's ARRA (Stimulus Plan) legislation, major tax benefits assist in funding these projects where the building owner can realize a return on investment in as little as three or four years.

While the University of Hawaii's Biomedical Sciences building was a metal-over-metal roof replacement only, the university was prudent in selecting the proper installation with benefits that will last well into the future.

This For more information on metal-over-metal retrofit re-roofing, contact Roof Hugger at 800-771-1711 or visit [www.roofhugger.com](http://www.roofhugger.com) .