



## Technical Memorandum

December 5, 2017

### RE: HydraShell MAX Application Instructions

**INSTALLATION - GENERAL** Fastening methods and materials should conform to best building practices and local jobsite conditions. Verify final application to be compliant with the requirements of applicable building codes. Verify compatibility according to geographical region, structure type and roof specification with applicable building codes and/or by review of a building professional.

**Install** HydraShell MAX print side up, horizontal (parallel) to the eave, with minimum 3" horizontal laps and 6" vertical laps. Overlaps shall run with the flow of water in a shingling fashion. Minimum finished roof slope recommended is 2:12. For roof slopes greater than 2:12 and less than 4:12, laps shall be increased to 22 inches.

Marco Industries HydraShell Max Underlayment is specifically designed and manufactured for Steel Roofing applications with adequate slope and has been tested in accordance with applicable standards and codes.

HydraShell Max can be used under all types of finished roofing materials including steel roofing and is suitable for roof pitches to 1/2:12.

On roof slopes below 2:12 and greater than 1/2:12, the installer should consider potential environmental factors such as wind driven rain, water flow from adjacent or opposing surfaces, pooling caused by impeded water flow and capillary action potential when determining the slope that will best support the roof surface function.

In jurisdictions where the use of HydraShell MAX in valley applications is permitted by local building codes Marco Industries recommends that HydraShell MAX be applied as valley liner in accordance with applicable building codes and industry standards/guidelines. Woven or closed-cut valleys are not recommended.

**24-HOUR EXPOSURE** For short-term exposure (less than 24 hours before the primary roof installation is completed) without exposure to precipitation or high wind (any signs of underlayment uplifting), corrosive-resistant roofing nails with a minimum head diameter of 3/8 inches may be used to nominally attach the underlayment only as necessary to prevent distortion around fasteners in high traffic areas. The final roof covering will permanently affix the underlayment in place. Fasteners shall not be under or over driven.

**EXTENDED EXPOSURE** (Up to 90 Days) Fasteners shall be installed at every other printed fastening mark for standard application and at every location for high wind application with either corrosive-resistant roofing nails with a minimum head diameter of 3/8 inches or plastic capped roofing nails or staples with a minimum plastic cap diameter of 1 inch. Fasteners shall be 90° to the roof deck and shall not be under or over driven.



**FOR ALL ROOF SLOPES GREATER THAN 8:12 (67%)** Fasteners shall be installed at the printed fastening marks labeled with plastic capped roofing nails or staples with a minimum plastic cap diameter of 1-inch. Fasteners shall be 90° to the roof deck and shall not be under or over driven. Applications that are not immediately covered (within 24 hours) by the primary roof covering or are subject to basic wind speeds (fastest mile) in excess of 90 mph (Uniform Building Code) or basic wind speeds (3-second gust) in excess of 110 miles per shall be fastened at the printed fastening marks with plastic capped roofing nails or staples with a minimum plastic cap diameter of 1 inch. Fasteners shall be 90° to the roof deck and shall not be under or over driven. Additionally, it is recommended that pressure sensitive seam tape, caulk or sealant material be applied between laps before fastening to prevent moisture ingress in areas of high wind. In all applications, extend HydraShell MAX one-inch past gable/rake edge, turn down over edge, fasten approximately 4-inches on center and cover with code-compliant flashing prior to the installation of the final roof covering.

**REPAIRS** Repair damage to the underlayment with caulk or sealant material maintaining a water-tight seal around the damaged area and proper overlaps to run with the flow of water in a shingling fashion. Ensure any incorrectly applied fasteners are caulked and/or sealed to prevent possible moisture ingress.

**PRECAUTIONS** HydraShell MAX can be exposed to ultraviolet conditions for up to 90 days. Severe weather and/or local jobsite conditions may require a shorter exposure period. Please contact Marco Industries for further information. HydraShell MAX is not designed to function as the primary roof covering and is intended to function as a secondary water shedding layer under code-compliant exterior roof claddings. Verify final application to be compliant with applicable building codes.

A 30-YEAR LIMITED WARRANTY APPLIES TO HydraShell MAX. NO OTHER WARRANTY, EXPRESS OR IMPLIED, IS GIVEN AS TO THE MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE OR OTHERWISE FOR APPLICATIONS OUTSIDE THE SCOPE OF THESE INSTALLATION GUIDELINES AND THE PUBLISHED 30-YEAR LIMITED WARRANTY.