**6. ENGINEERING SYSTEMS REQUIREMENTS**

**B30 ROOFING**

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SYSTEMS REQUIREMENTS  
ROOFING TEMPLATE 06/23  
  
Instructions for using this template: There are template files for each UNIFORMAT Level 2 Group Elements. This template is for Group Element D30-ROOFING. Text such as this is hidden text that will not print when the hidden text box in "Print/Options" is unchecked.  
  
The Architectural Team Member must edit this template for the requirements of the project. The SYSTEMS REQUIREMENTS are intended to define items that are required throughout the facility or on a system wide basis that is common to several rooms. Room-specific requirements are defined in the Part 3 Chapter 5 ROOM REQUIREMENTS section. Coordinate with the lead programmer for ROOM REQUIREMENTS. Editing is required where brackets [ ] appear. Delete all building elements that are not required for the project. If additional elements or sub-elements are required for the project that do not appear in the template, refer to the NIST UNIFORMAT II publication for additional building element numbers and descriptions. The Uniformat II Work Breakdown Structure can be found at www.wbdg.org/ndbm/**

**Coordinate with the PERFORMANCE TECHNICAL SPECIFICATION SECTION B30 to ensure that performance requirements are provided for all of the Building Elements listed here and that paragraph numbering matches.  
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NOTE: Consider each roofing component relative to UFC 3-110-03, *Roofing*, Part 2 UFGS Section 01 33 29, *Sustainability Requirements and Reporting* and UFC 1-200-02, *High Performance and Sustainable Building Requirements*.  
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**B30 GENERAL SYSTEM DESCRIPTION**

Provide watertight roof systems compatible with facility function, construction, and service conditions. Provide complete roof system design and construction services for the entire new facility roof system, including all ancillary and incidental work necessary for a complete, new, watertight roof system installation.

Submittal Requirements: Components of a minimum roof submittal include the roof plan, method of drainage, standard details and details unique to the project, wind load calculations and requirements.

Provide a Pre-Design Roofing Conference (if required in RFP Part 4) and Pre-Roofing Conference to assure roof design and construction is properly coordinated before construction begins.

Built-in gutter systems where drainage passes through an interior space or is concealed in the exterior cavity wall shall be prohibited.

Refer to Unified Facilities Criteria (UFC) 3-110-03, *Roofing*, UFC 3-101-01, *Architecture*, and UFC 1-200-02 *High Performance and Sustainable Building Requirements* for additional roofing requirements.

**B3010 ROOF COVERINGS**

**B301001 STEEP SLOPE ROOFING SYSTEMS**

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**NOTE: Marine Corps Headquarters has approved this BEQ DB RFP requirement for metal roofing and intends the specifications to remain as specified. Authoring/modifications by the RFP writer/designer shall be limited to such things as selections of bracketed items, inserting information to complete existing RFP paragraphs and eliminating requirements that do not apply to the project location. RFP writer/designer shall be careful that edits do not alter the intent of previously approved RFP requirements. Thus, requirement below can only be modified if a waiver of the requirement is granted by Marine Corps Headquarters.**

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Steep slope roofing systems are required. Steep slope roofing systems that are acceptable include standing seam metal only.

The roof system shall be designed and attached to resist wind uplift pressures calculated in accordance with ASCE 7. Uplift resistance shall be validated by applicable Factory Mutual (FM), Underwriters Laboratories (UL) or ASTM uplift resistance test procedures. Steel panels shall be zinc-coated steel conforming to ASTM A 653/A 653M, G90 coating; aluminum-zinc alloy coated steel conforming to ASTM A 792/A 792M, AZ 55 coating; or aluminum-coated steel.

[Specular Gloss of Finished roof surfaces shall have a specular gloss value of 30 plus or minus at 60 degrees when measured in accordance with ASTM D 523.

**B301002 LOW SLOPE ROOFING SYSTEMS**

Low-slope roofing systems are not permitted.

**B301003 ROOF INSULATION AND FILL**

Provide roof insulation values no less than in accordance with UFC 1-200-02, *High Performance and Sustainable Building Requirements* and UFC 3-101-01, *Architecture*.

For fastening roof insulation on low-slope membrane roofs, place fasteners to withstand and obtain an uplift pressure of [60] [75] [90] [105] [120] [135] [\_\_\_]pounds per square foot (with a safety factor of 2) ([1.44] [2.15] [5.8] [\_\_] kPa) in the field of the roof and FM Loss Prevention Data Sheets (LPDS) 1-49 for perimeter component and flashing attachment.

**B301004 FLASHINGS AND TRIM**

Flashing and sheet metal work includes scuppers, splash pans, and sheet metal roofing. Flashings must be [copper, sheet and strip - ASTM B 370, cold-rolled temper] [Lead-Coated Copper Sheet - ASTM B 101] [Lead Sheet - Minimum weight .19 kPa (4 pounds per square foot)] [Steel Sheet, Zinc-Coated (Galvanized) - ASTM A 653/ A 653M, minimum of 0.70 mm (24 gauge), and a minimum zinc coat weighting of 275 g/sm (90 ounces per square foot).] [Galvanized steel items must have a baked-on, factory applied finish of polyvinylidene fluoride or an equivalent fluorocarbon coating] [Steel Sheet, Aluminum Zinc-coated - ASTM A792/A792M, minimum of 0.70 mm (24 gauge)] [Stainless Steel - ASTM A 167, Type 302 or 304, minimum of 0.64 mm (24 gauge)] [Aluminum Alloy Sheet and Plate - ASTM B 209] [Pre-Finished Aluminum. Finish must be baked-on factory applied color coating of polyvinylidene fluoride (PVF2) or other equivalent fluorocarbon coating with a minimum thickness of 0.8 to 1.3 mils].

**B301005 GUTTERS AND DOWNSPOUTS**

Provide gutters and downspouts compatible with roofing material and finish. Concealed (interior) gutters and downspouts are prohibited.

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NOTE: Provide roof hatches where required by OSHA, and/or as access to roof when roof mounted equipment is used or other routine roof maintenance is required Provide skylights or other glazed roof openings only to supplement interior lighting levels. (generally in steep slope or vertical applications), and otherwise, are discouraged from use. Proper detailing is critical, and must be scrutinized closely to minimize the likelihood of future leaks at these locations. Provide guards or rails where required by OSHA or the building code.  
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**B301006 ROOF OPENINGS AND SUPPORTS**

Provide [insulated roof hatch] [and] [skylights] [\_\_\_\_ glazed roof openings] [and] [rails or guards].

**B301090 OTHER ROOFING**

[Provide lightning protection, without penetrating the roof membrane or flashing components.]

[Reuse existing roof drains with new, compatible flashing materials, a new drain clamping ring and new bolts for anchorage.] [Provide new roof drains and accessories.]

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NOTE: When project includes "green" or "vegetative" roof, provide design-build team with complete criteria here and in PTS B30. If you don't have successful previous criteria, consult vegetative roofing specs located on the Whole Building Design Guide's "**[**Federal Green Construction Guide for Specifiers**](http://www.wbdg.org/ccb/browse_cat.php?c=250) **".  
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[Provide an [intensive][extensive]vegetative roof in accordance with UFC 3-110-03, *Roofing*, Chapter 2 Vegetative Roofing Systems. [\_\_\_\_\_\_percent of the entire roof must be a vegetative roof][Locate vegetative roof \_\_\_\_\_\_\_\_\_\_].]

--End of Section--