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FEMA FIRM Special Hazard Flood Areas (SFHAs)

- 2009: Zone VE (Flooding with Waves), BFE 19 ft
- 2016: Zone X - Area of Minimal Flood Hazard
University Hall, UMass Boston

- FEMA BFE 19 ft + 7.5 ft Sea Level Rise

Ground Floor El. 29 ft

FEMA BFE 19 ft

+ 7.5 ft SLR = 26.5 ft
Resilient Design Strategies Implemented:

- Under-Slab Dry Floodproofing (gas & waterproofing membrane)
- Emergency generator and mechanicals in Penthouse
- Hurricane wind resistant structure and building envelope
Dorchester Bay, FEMA FIRM Flood Map

- SFHA Zone AE Surrounds the UMass Boston Campus
- Will UMass Boston become an “Island of Resilience”?

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FEMA FIRM Flood Map SFHAs

- Zone X - Area of Minimal Flood Hazard
- Charles River Maintained at El. 12-13 ft.
- MIT Main Group (1916) Basement El. 17 ft. ("BFE +4 ft")
Precipitation Flooding – 2070
INLAND FLOODING

100 year 24-hour storm
(11.7 inches over 24 hours)
Manhole flooding by MWH, Riverine flooding by VHB
“Base Flood Elevation Charles River” El. 13 ft
Flood Mitigation Strategies Implemented:

- Dry floodproofing (slurry walls & waterproofing)
- Electrical substations moved up from Basement to L5 and L6
- Emergency generator fuel oil pump elevated 6 feet in Basement
- Emergency generator and mechanicals in L6 Penthouse and on Roof
IYRS School of Technology & Trades
New Structure for Marine Systems and Composites Programs
Spring Wharf, Newport, RI
FEMA FIRM Flood Map

- 2013: SFHA Zone VE (BFE 13 ft)
- Foundation Scour Depth 4.5 ft
IYRS New Structure, Spring Wharf, Newport, RI

- FEMA FIRM Zone VE (flooding with wave action)
- Base Flood Elevation (BFE) 13 ft
- First floor El. 16.75’ (BFE +3.75’)
- Mechanical equipment on roof
- Backflow preventer on sewer connection
Resilient Design Features:

- First floor FEMA BFE +3.75'
- Flood and wind resistant structure and exterior envelope
Resilient Design Features:

• Mechanical equipment on roof
• Backflow preventer on sewer connection
• Flood and wind resistant structure and exterior envelope