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UH FLOOD PROTECTION STANDARD:
DESIGN FIRST FLOORS OF NEW BUILDINGS AND CRITICAL INFRASTRUCTURE AT ELEVATIONS EQUAL TO THE NEAREST 500-YEAR FLOOD PLAIN ELEVATION PLUS 3 FEET

Memorandum

DATE: March 25, 2021

TO: Jim Taylor, AIA, University Architect, University of Houston

FROM: Daniel Falkenstine, PE, Walter P Moore

The University of Houston Main campus is located within the Federal Emergency Management Agency Flood Insurance Rate Map (FIRM) key map 48201C0880M. The current map is dated January 6, 2017 which utilizes the 2001 adjusted elevation datum. According to this map, the campus is within the Zone 'X' Unshaded area. Unshaded is defined as areas to be outside the 0.2% (500-year) annual chance floodplain. The National Oceanic and Atmospheric Administration (NOAA) released revised Atlas 14 rainfall data in 2018 that captured the Tropical Storm Harvey rainfall data and showed a substantially increased estimated rainfall within the greater Houston area. FEMA is currently in the process of updating their flood maps based on the new rainfall intensities. It is anticipated that maps will be issued within the next two years showing revised floodplain information.

The current 500-year base flood elevation ranges from 37.4' to 35.8' across the campus. Based on known survey data on recent projects throughout the UH main campus, the existing ground elevations throughout the campus approximate the 500-year flood elevations. This indicates that while the campus is not mapped within the delineated flood plain, if the maps were accurate, much of the campus would be shown to be within the current 500-year flood plain. Once the maps are redrawn, the campus will most assuredly be within the 500-year, and potentially the 100-year flood plain.

In our current interim condition before the maps are redrawn, both the City of Houston and Harris County require any new or substantially redeveloped structures considered as a critical facility (which all occupied University buildings are defined as critical) to have a minimum protection elevation of the 500-year flood elevation plus 3 feet. Any equipment serving these facilities such as emergency generators, transformers, or other critical infrastructure are also to be flood protected to this same elevation. The intent of this regulation is to provide a standard which should be at or above what the standard will be when the FIRM maps are revised. The previous standard for critical facilities was to be flood protected to 1 foot above the 500-year flood plain.

In order to anticipate the revised maps in the near future, it is recommended by Walter P Moore to design to the current local jurisdiction's standard of flood protection elevation (500-year flood elevation plus 3 feet) as if the campus were within the delineated flood plain. This should make the current construction compatible with both what will soon be the local design standard governing the campus and with future construction and insurance requirements.

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