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FLOOD RESISTANT DESIGN AND CONSTRUCTION IN SEISMIC ZONE

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As we know, Iran has high seismicity due to its location in the Alpine-Himalayan (Alpide) fault path. Of course, as we know, mountains are the result of millions of years of tectonic plates created by the pressure of these plates. On the other hand, the thalweg between the mountains cause rainwater to accumulate and thereby create larger currents of water, eventually creating much larger volumes and flooding. Thus cities that are on the slopes or near the mountains are in addition to higher seismic hazards such as floods.

Also in several cities of Iran such as northern and western cities, due to coexistence of Alborz and Zagros mountains and Caspian Sea, and also the places that are near the river and coastal places, there is high risk of earthquake and flood Hazards. Especially the destructive effects of recent Iran's floods (like the following images) on structures have caused more attention by designers to the impact of flooding on designs.

Another important issue is the locating. A suitable locating means that in addition to choosing the correct place for construction, soil type is also important. As well as being important for building, to reduce the impact of an earthquake, this is also important for flooding and should be considered. As important as the direct construction of the building is to reduce the impact of the earthquake, this is also important for flooding and should be considered.

In order to identify and recognition the problems caused by flood hazards in flood-prone areas, studies and decisions and standards for new designs or improvement and retrofitting of ancient and existing and historic structures are needed. To do this, we need to identify areas where floods are likely to occur, risk assessment for two types of coastal and non-coastal areas that coastal areas include A zone, V zone and X zone that based on the probability 1% and 0.2% of annual flooding. Also

non-coastal areas include: Alluvial Fan Areas, Flash Flood Areas, Mudslide Areas, Erosion-Prone Areas, High Velocity Flow Areas, Areas subject to Wave Action, Ice Jam and Debris Areas.

After identifying these areas and classifying buildings according to structural and foundation strength and lateral load-resistant systems and other factors, the design and management strategies are appropriate.

Design and construction of structures located in flood hazard areas shall consider all flood-related loads and conditions, including the following: hydrostatic loads, hydrodynamic loads, wave action; debris impact; rapid rise and rapid drawdown of floodwaters; prolonged inundation; alluvial fan flooding; wave-induced and flood-related erosion and local scour; deposition of sediments; ice flows and ice jams; and mudslides. Combining these loads with earthquake load combinations are the most important thing that designers should consider.

As we design the structure so that our interest points can be detailed and plasticized by the earthquake, we must also forecast points in the building to be in the path of a flood scenario. One of the suitable solutions that can be used to prevent damages and destruction to all kind of structures is to help with the dry flood proofing and wet whenever dry flood proofing is proposed for any areas below the required elevation specified that these methods will describe in the main essay.

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