Base Isolation Applications in Turkey

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Tuesday, June 26
Introduction

In 2013 Ministry of Health announced a memorandum according to which, in high seismic zones, the use of seismic isolators in hospitals with a patient capacity greater than 150 become compulsory.

The new policy with the memorandum of ministry has made Turkey one of the biggest market for seismic isolation in the last four years.

In addition to hospitals some data centers of telecommunication companies and financial companies are started to be constructed with seismic isolators.

There are also airports and very few schools and residential buildings which are seismically isolated.
Seismically Isolated Hospitals

* Republic of Turkey Ministry of Public Works and Settlement, 1996 Taken from Özman et al. (1997).

Disaster and Emergency Management Presidency
Earthquake Department
Ankara-TURKEY
<table>
<thead>
<tr>
<th>City</th>
<th>Project Name</th>
<th>Patient Capacity</th>
<th>Status</th>
<th># of isolators</th>
<th>Types of isolator</th>
<th>Displacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>İstanbul</td>
<td>İkitelli City Hospital</td>
<td>2,682</td>
<td>Ongoing</td>
<td>2040</td>
<td>T-FPS</td>
<td>863 mm (34&quot;)</td>
</tr>
<tr>
<td>Adana</td>
<td>City Hospital</td>
<td>1,550</td>
<td>Ongoing</td>
<td>1552</td>
<td>T-FPS</td>
<td>340 mm (13.4&quot;)</td>
</tr>
<tr>
<td>Elazığ</td>
<td>City Hospital</td>
<td>1,040</td>
<td>Ongoing</td>
<td>878</td>
<td>T-FPS</td>
<td>446 mm (17.5&quot;)</td>
</tr>
<tr>
<td>Manisa</td>
<td>City Hospital</td>
<td>560</td>
<td>Completed</td>
<td>734</td>
<td>LRB</td>
<td>300 mm (11.8&quot;)</td>
</tr>
<tr>
<td>İzmir</td>
<td>Bayraklı City Hospital</td>
<td>2,060</td>
<td>Ongoing</td>
<td>1221</td>
<td>D-FPS</td>
<td>350 mm (13.8&quot;)</td>
</tr>
<tr>
<td>Isparta</td>
<td>City Hospital</td>
<td>755</td>
<td>In operation</td>
<td>903</td>
<td>D-FPS</td>
<td>270 mm (10.6&quot;)</td>
</tr>
<tr>
<td>Kocaeli</td>
<td>City Hospital</td>
<td>1,180</td>
<td>Ongoing</td>
<td>1065</td>
<td>D-FPS</td>
<td>590 mm (23.2&quot;)</td>
</tr>
<tr>
<td>Bursa</td>
<td>City Hospital</td>
<td>1,355</td>
<td>Ongoing</td>
<td>859</td>
<td>LRB</td>
<td>450 mm (17.7&quot;)</td>
</tr>
<tr>
<td>Eskişehir</td>
<td>City Hospital</td>
<td>1,081</td>
<td>Completed</td>
<td>973</td>
<td>D-FPS</td>
<td>430 mm (16.9&quot;)</td>
</tr>
<tr>
<td>Tekirdağ</td>
<td>City Hospital</td>
<td>480</td>
<td>Ongoing</td>
<td>641</td>
<td>D-FPS</td>
<td>400 mm (15.7&quot;)</td>
</tr>
<tr>
<td>Kütahya</td>
<td>City Hospital</td>
<td>600</td>
<td>Ongoing</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Site Specific Spectrum

Site-Specific Geomean MCE Spectra from 5 Hospitals

- İzmir
- Kocaeli
- Manisa
- Eskişehir
- Isparta
Conclusions

Structural analyses is generally conducted at two different levels of earthquakes; namely DBE and MCE. At DBE level the super-structure is designed and at MCE level the seismic isolation is designed.

The floor excitations are controlled by supplemental braces if in exceedance of 0.2g at DBE level.

Seismic isolation knowledge is in growing up stage and the project stakeholders are gaining experience in implementing seismic isolation technology.

In similar scale projects, different applications regarding seismic isolation design considerations are encountered.

With the growing experience and knowledge in seismic isolation in Turkey, the project-specific and site-specific applications are expected to be improved.
Come see my Poster!

**Today Poster Session:**

- **Time:** 5:15 – 7:00 pm
- **Room:** Pasadena (Exhibit Hall)
- **Poster location:** 134