A Case of Utilizing Results

Technical datum original plan concerned ceiling fall and escalator fall

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(Key word)　Building datum for ceiling and escalator

1.　Damages in The Great East Japan Earthquake

In The Great East Japan Earthquake, the ceiling fell out in many buildings, such as a gymnasium and a music hall, and damage arose on a scale of there being nothing once. Moreover, two or more damage in which the escalators that are installed in the shopping center fell occurred. About these measures, it is not clearly shown as a technical standard based on the Building Standard Law now.

Based on the Technical Original Plan concerning the anti-ceiling falling off measure and Technical Datum Original Plan concerning anti-escalator fall measure, National Institute for Land and Infrastructure Management prepared the Technical Datum Original Plan. That was published as a public comment 1) and 2) from　July 31, 2012.

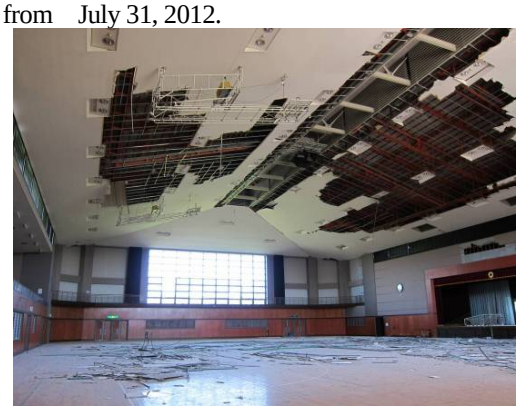

Photo: An example of the ceiling falling off damage in a gymnasium

2. Technical Datum Original Plan

(1) Technical Datum Original Plan concerning an anti-ceiling falling off measure

Making a suspended ceiling for the target, we set a ceiling of larger than 200m~2 located at higher than 6m.We presented the datum that consists of the specifications' datum that setting concrete specifications, datum according to a calculation by spectrum method, and case that performed high structure calculation along with　a structural skeleton. .

(2) Anti-escalator fall measure

In order to establish enough "bearing width"　we presented datum that require the "Bearing width" must more than 1/40 of hoisting height (lift)

3. Future plan

Proceeding an opinion recruiting until September 15, the Building Structure Datum Committee (Chairperson - Tetsuo Kubo, Honorary professor in Tokyo University) which established in National Institute for Land and Infrastructure Management is going to deliberate because of the submitted opinion.

In future, we will establish a Technical Datum based on Building Standard Act on the basis of the technical datum original plan that contains information gathered after going over the required legal process.

	Current state	Example by Technical Datum Original Plan
Junction hardware such as a clip, a hanger	Hook type that has risk of slip or come off at earthquake.	Junction by screws, etc.
Placement of hang bolts, braces	Various by design	Tightly arrange Hang bolt / m~2 Reinforced brace 1 pair / 15 ㎡
Earthquake force for design(Horizontal direction)	1G approx. in reality	Maximum 2.2G

Figure: Comparison of Technical Datum Original Plan and current state concerning anti-ceiling falling off measure

Reference

1)　Opinion recruiting about "Tentative plan of anti-ceiling falling off measure in a building"

2)　Opinion recruiting about ""Tentative plan of anti--prevention of falls measure of an escalator" http://www.nilim.go.jp/lab/bcg/kisya/journal/kisya20120731_1.pdf