

## 12/16

### Ministry of the Environment Decree

#### concerning national choices for loads on silos and tanks, when applying standard SFS-EN 1991-4

By decision of the Ministry of the Environment, the following is laid down under Section 117a of the Land Use and Building Act (132/1999), as it stands in Act 958/2012:

#### Section 1

##### *Scope*

This Decree is applied in the selection of loads on silos and tanks and is used in conjunction with the latest version of standard SFS-EN 1991-4.

#### Section 2

##### *Annex A to the standard: Basis of design – supplementary paragraphs to EN 1990 for silos and tanks*

Annex A provides supplementary guidance applicable to actions on silos concerning partial factors and on combinations of actions on silos:

1) The combination factors given in Annex A, Tables A.1, A.2, A.3, A.4 and A.5 are not applicable. The combination factors shall be selected in accordance with Annex A and Annex B and shall comply with the Ministry of the Environment Decree concerning national choices for the basis of structural design, when applying standard SFS-EN 1990;

2) for actions on silos, in accordance with clause A.2.1(1) of the standard, the value of the partial safety factor is  $\gamma_F=1,5$ . With regard to other actions in the design of silos, the Ministry of the Environment Decree concerning national choices for the basis of structural design, when applying standard SFS-EN 1990, shall be complied with; and

3) in design situations and action combinations for Action Assessment Classes 2 and 3 for actions on silos, in accordance with clause A.4 of the standard, the value of the combination factor  $\psi_0$  shall be 1.0, the value of the frequent combination factor  $\psi_1$  shall be 0.9, and the value of the quasi-permanent combination factor  $\psi_2$  shall be 0.8.

#### Section 3

##### *Annex B to the standard: Actions, partial factors and combinations of actions on tanks*

Annex B provides supplementary guidance applicable to actions on tanks concerning partial factors and on combinations of actions on tanks:

- 1) the party engaging the building project shall specify the accidental actions to be considered, in accordance with clause B.2.14 of the standard;
- 2) during operation, the value of the partial factor for the liquid induced loads and the actions on the tank due to weight  $\gamma F$  is 1.35, in accordance with clause B.3(2) of the standard. The values in Annex A, clause A.2.1(2), are not applied; or
- 3) for the liquid induced loads and the actions on the tank due to weight, the value of the combination factor  $\psi_0$  shall be 1.0, the value of the frequent combination factor  $\psi_1$  shall be 0.9, and the value of the quasi-permanent combination factor  $\psi_2$  shall be 0.8.

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This Decree enters into force on 1 January 2017.

This Decree shall apply to projects initiated after the Decree enters into force.

This Decree repeals the National Annex to standard SFS-EN 1991-4 concerning the application of Eurocodes in building construction, issued by the Ministry of the Environment on 5 November 2010.

In Helsinki on 7 November 2016

The Minister of Agriculture and the Environment Kimmo Tiilikainen

Senior Engineer Jukka Bergman