

# RECOMMENDATIONS

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The investigation into the collapse of the grandstand roof at the AZ stadium has resulted in safety lessons for both the construction phase of buildings and the phase of use.

The Safety Board has in the past already identified shortfalls in guaranteeing structural safety in the construction phase (designing and building).<sup>1</sup> In the recent report following the collapse of the parking building in Eindhoven, among others the Safety Board pointed out risks of failing to recognize the consequences of design choices and of the poorly organized distribution of responsibilities between parties, whereby no single party oversees the entire picture. The Safety Board also called for attention for the risks of failing to respond in time to indications of shortcomings and of the decline in municipal supervision of building work. These factors also played a role in the collapse at the AZ stadium. For that reason, the Safety Board once again emphasizes the importance of following up on previous recommendations for improving safety in the construction sector.

Unlike in the majority of previously investigated occurrences, the collapse at the AZ stadium did not occur during construction but took place while the building was in use. Therefore, with its recommendations, the Safety Board now specifically focusses on managing safety risks in the phase of use.

The Dutch Safety Board issues the following recommendations.

*To the Minister of the Interior and Kingdom Relations:*

1. Introduce a statutory requirement for public access buildings in consequence class 3<sup>2</sup> according to which the owners must carry out periodic investigations into the structural safety of the building and take any measures necessary to improve the structural safety.
  - Have this periodic investigation undertaken by an independent certified expert.
  - Ensure that the scope and frequency of the investigation are proportional to the potential seriousness in terms of risk to humans.
  - Grant a role to municipal authorities in ensuring compliance with this statutory obligation.

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<sup>1</sup> Constructing structural safety. Lessons from the collapse of the parking building in Eindhoven Airport, October 2018; Roof collapse during extension work at the stadium of FC Twente in Enschede, July 2012; Collapse of concrete floor B-Tower Rotterdam, April 2012 and Safety problems with falling facade slabs, November 2006.

<sup>2</sup> Consequence class 3 (NEN-EN 1990): high consequences for loss of human life (several dozen) and/or economic or social or environmental consequences are very great. Examples of such buildings are stadiums, exhibition galleries, concert halls, high-rise buildings higher than seventy metres and large public buildings.

- Specify that with each change of ownership, building owners must pass on the complete building file including reports of inspections, assessments and possible corrective measures, to the new owner.
  - Include experience acquired abroad with guidelines for sporting accommodations (United Kingdom) and the periodic assessment of constructions (Germany).
2. In advance of the statutory obligation - issue a guideline to owners of buildings in consequence class 3 for the periodic assessment of structural safety, with an indication of the scope and frequency of the investigation.
- As an example for this guideline, make use of the *Protocol for Assessing Structural Safety of Professional Football Stadiums*.

To the parties in the *TOPOverleg Veiligheid (Bouwend Nederland, the Forum for Commissioning Parties in the construction sector, VNconstructeurs, Governance Code Safety in Construction, Koninklijke NLIingenieurs)*:

3. Ensure that the lessons learned from the collapse of the grandstand roof at the AZ stadium are included in your recently launched action plan aimed at structurally improving safety in the construction sector. In particular, focus attention on:
- Quality control for the construction of and maintenance on the structures of buildings used by large numbers of people (NEN-EN 1990 consequence class 3);
  - Issuing, upon handover of a building to the owners, a carefully compiled and complete building file, including instructions and points for attention for use, periodic inspection and preventive maintenance;<sup>3</sup>
  - A system for recording and analysing occurrences relating to structural safety with the aim of learning lessons from those occurrences. It is essential that the resultant lessons for construction and use be actively distributed among parties in the construction sector and among building owners.<sup>4</sup> Consider joining international initiatives such as CROSS International.<sup>5</sup>

To the KNVB:

4. In advance of the statutory obligation as outlined in recommendation 1, encourage all licence holders to comply within the shortest possible timeframe with the *Protocol for Assessing Structural Safety in Professional Football Stadiums*.

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<sup>3</sup> This ties in with a recommendation from the investigation *Safety problems with falling facade slabs* from 2006.

<sup>4</sup> As above.

<sup>5</sup> Confidential Reporting on Structural Safety; [www.structural-safety.org/international](http://www.structural-safety.org/international).