Newsletter 57

Confidential Reporting on Structural Safety (CROSS)

We highlight a report from the latest CROSS newsletter on disproportionate collapse assessment.

885: Disproportionate collapse assessment of large panel system (LPS) buildings

Report

In the wake of the Grenfell Tower fire, there has been increased interest in the safety of residents of high-rise residential buildings, particularly from within the social housing sector, says a reporter. The fire safety of cladding has, with good reason, been the major focus of this interest.

However, not long after the Grenfell Tower fire, renewed concerns were raised regarding the risks of disproportionate collapse of large panel system (LPS) buildings. A gas explosion at the Ronan Point tower block in 1968 caused the disproportionate collapse of a substantial portion of the structure, with associated loss of life. This led to the structural retrofit of many LPS buildings in the UK, many of which remain in use today. On 5 September 2017, the Ministry of Housing, Communities and Local Government issued letters to local authorities and housing associations regarding LPS buildings, noting (in part) that:

'Whether or not a gas supply is installed, it is important with all large panel system buildings that their structural history is known, and that their condition and continued structural integrity are understood and monitored.'

The reporter says that a number of local authorities and housing associations subsequently commissioned chartered structural engineers to undertake assessments of LPS buildings under their control, and to provide the necessary assurances. The reporter has become aware of multiple examples of such assessments being undertaken and has had sight of some disproportionate collapse assessment reports issued by chartered structural engineers to their clients.

On this basis, the reporter has become concerned by the approach being taken by some of these engineers to assess the risk of disproportionate collapse due to fire in LPS buildings – they essentially ignore such risks by invoking one of two justifications:

1) that risks associated with disproportionate collapse due to fire need not be carefully considered by chartered structural engineers because a chartered fire engineer is also engaged by the client, and that assessing risks associated with disproportionate collapse due to fire should be assessed (independently) by the chartered fire engineer
2) that the chartered structural engineers are able to assess the risks associated with disproportionate collapse due to fire as 'low' based purely on their professional experience (without any examples or evidence given) and the fact that similar justifications have previously been accepted by approving authorities.

In the reporter's view, for the first case, the reasoning is flawed, as it is unrealistic to expect chartered fire engineers to have the requisite detailed understanding of structural design and structural mechanics to undertake the necessary assessments. The reporter feels that this work very clearly falls within the professional remit of the chartered structural engineer, and that it is unacceptable, unethical and unprofessional to pass such important work off to individuals who cannot (in most cases) reasonably be expected to be competent to do it.

In the second case, the reporter believes that vague justifications based on 'experience' without any supporting technical evidence clearly do not meet the expected professional standard for chartered structural engineers to use reasonable skill and care in performing their professional duties. The reporter would expect some (even minimal) technical justifications to be given and backed up with calculations or analysis. Otherwise, they question the justification for accepting a fee for this work.

The reporter adds that simply because an unsupported technical justification has previously been accepted by approving authorities is no justification for taking the same approach again. Obtaining approvals based on precedent without evidential basis is unbecoming of a chartered structural engineer, and should, in the reporter's opinion, be strongly condemned.

The reporter speculates that chartered structural engineers may be using either of the above two justifications because performing a defensible systematic risk assessment of disproportionate collapse due to fire in an LPS building is likely to be extremely difficult, and that many structural engineers do not have the required competence to do so. Structural engineers may also wish to shed the resulting liability.

In either case, the reporter considers it unethical and unprofessional to take this LPS assessment work on in the first place, and particularly to attempt to shed liability for this onto a chartered fire engineer.

The reporter's expectation in such cases would be that the chartered structural engineer works alongside a chartered fire engineer to assess the risks of fire initiation, growth and spread, and to then use this information to undertake a systematic assessment of the structural risks associated with disproportionate collapse due to a range of credible design fire scenarios.

CROSS Panel comments

To read the CROSS Panel's response to this report, view the newsletter at **bit.ly/CROSS_NL_57**.

Full newsletter

Newsletter 57 also contains the following reports:

- 866: Portal frame design and fabrication
- 832: Timber frame wall tie design
- 870: Principal designers' obligations for temporary works
- 645: Response to report 614 on missing columns from drawings
- 617: Structures at risk from scour and erosion
- 854: Suspended ceiling partial collapse

Read the newsletter in full at bit.ly/CROSS_NL_57.

WHAT IS CROSS?

Confidential Reporting on Structural Safety (CROSS) is a confidential reporting scheme established to capture and share lessons learned from structural safety issues which might not otherwise have had public recognition, with the aim of preventing future failures.

Analysis of the reported safety issues can provide insight into how the safety concerns or events occurred and spur the development of measures to improve safety.

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