

PRESS RELEASE

UPDATE ON THE COLLAPSE OF ROOF OF SCHOOL HALL UNDER CONSTRUCTION AT COMPASSVALE STREET

1. The roof of the uncompleted school hall of the proposed Compassvale Primary School at Compassvale Street collapsed suddenly on the morning of Tuesday, 15 Jun 99 at about 8.45am. The incident injured 7 workers.
2. The Building and Construction Authority (BCA) immediately formed a Task Force consisting of senior engineers led by the Director of the Building Engineering Division to investigate and determine the probable causes of the collapse.
3. Preliminary conclusion of the Task Force points towards design error as a cause of the collapse. The design did not take into account the lateral forces induced by the "V-shape" steel roof trusses on the column supports. The lateral forces had probably caused the columns to buckle and the collapse of the roof trusses. While there could be other possible contributory causes of collapse, the Task Force believes that the design error on its own would probably be enough to cause the collapse at this stage of the construction.
4. We cannot at this stage release further details of the investigations as these are ongoing and may result in the prosecution of individuals. The release of more details now may prejudice any future legal proceedings that BCA has to undertake against the party or parties found responsible for the collapse at Compassvale Primary School.
5. As a precautionary measure, BCA engineers have since the incident been reviewing the design of other schools in which the same professional engineers

were involved. The checks include on-the-ground inspection of the buildings for physical signs of defects. We are glad to say that no design fault or physical defect has been discovered to cast doubt on the structural integrity of any of the existing schools that were designed or checked by the two professional engineers. In other words, all the existing schools are safe for continued occupation and there is no cause for staff, students or parents to be concerned.

6. Our building control system is effective and is on par with the best practices around the world. The recent incident is an isolated incident involving a building still in the process of construction and is not of the same nature as the Hotel New World incident. However, we cannot be complacent and will be reviewing the system to ensure that such isolated incidents do not recur.

Background note on the current building control system

7. The current system of building control has several layers of checks and controls. It requires the structural plans and calculations to be prepared and certified by a Professional Engineer who is registered with the Professional Engineers Board. In addition, the structural design of the key structural elements of the building has to be independently checked by an Accredited Checker who is also a Professional Engineer. An Accredited Checker has to possess a certain level of experience in designing building structures. The BCA carries out random checks on a limited number of submissions to ensure the effectiveness of the system.

8. The legal provision for an Accredited Checker to countercheck the structural design prepared by a Professional Engineer is a stringent requirement. In effect it creates a 100% redundancy. While this cannot totally eliminate the risks of flagrant errors and omissions in design, it will and has greatly reduced such risks. The mandatory requirement for independent checking which was introduced in 1989 following the collapse of Hotel New World has enhanced the safety of our buildings in Singapore. Before that, there was no requirement for the authority or for an independent checker to check the structural design.

9. The BCA will in addition to these two levels of scrutiny by the PE and AC carry out checks on these buildings plans on a selective basis to ensure that PEs and ACs carry out their responsibilities.

10. Apart from provisions to check the structural design, there are other requirements for ensuring the quality of the structural works. For example, the structural works have to be done under proper supervision. For major projects (above \$15m in value), a full-time resident engineer must be engaged by the building owner to supervise the work of the contractor. For the smaller projects, a clerk-of-works is required. The Professional Engineer has to inspect and approve the structural works as and when necessary. Various tests relating to the structural works have also to be carried out under his supervision during the construction stage.

11. Furthermore, BCA engineers will conduct spot checks of the construction works relating to the key structural elements and inspect the test reports and other documents kept at the site. Upon completion of the works, the Professional Engineer and the contractor have to certify that the structural works have been built in accordance with the approved plans and the building control regulations.

12. After a building is completed and occupied, the BCA will ensure that an inspection of the structure is carried out by a Professional Engineer, every 10 years for residential buildings (except conventional houses which are exempted) and 5 years for other types of buildings. The results of these inspections show that the buildings in Singapore are structurally safe.

13. The current system of controls to ensure the structural safety of buildings in Singapore is sufficiently stringent. As the system relies, to a large extent, on the Professional Engineers, contractors and other industry players to discharge their duties and responsibilities properly, the BCA cannot and will not tolerate careless acts or omissions. It will act against any party who flouts the building control requirements and put the safety of the public in jeopardy.