

# Structural Collapse

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When internal load-bearing structural elements fail, a building will collapse into itself and exterior walls pulled into the falling structure. This scenario may be caused by construction activity, an earthquake or fire, and may result in a dense debris field with a small footprint. Alternatively, if an explosion or natural forces such as weather cause the structural failure, the building may collapse in an outward direction, resulting in a less dense and more scattered debris field.

Following a catastrophic failure of a structure for whatever reason, rescue workers and emergency responders may be required to enter the collapsed structure. The Ann Arbor Fire Department and Washtenaw County Technical Rescue Team have training and equipment to deal with structural collapse events.

## **Updated**

August 8, 2011

## **Source**

Washtenaw County Technical Rescue Team

## **More Information**

<http://www.wamaa.com/WCTRT/WCTRTframe.htm>

<http://www.oseh.umich.edu/pdf/ContractorSafetyRequirements.pdf>

## **Prevention / Mitigation / Preparedness - Structural Collapse**

Work with the University of Michigan OSEH (734) 647-1143 and DPSS (734) 763-1131 and request planning guidance as necessary

Establish a three deep system of personnel at the building and provide training on how to react during a damaged building situation.

Designate shelter-in-place areas

Educate staff, student and faculty on sheltering-in-place and evacuation procedures

Develop provisions for persons who may be outside your building when a structure collapse occurs and the efforts needed to get those persons into a safe location

Review the protective actions section of this EOP regarding persons with disabilities. Identify staff that will assist and discuss efforts needed to get those persons into a safe shelter area.

Determine how information on the event will be obtained and then delivered to building occupants.

Establish a floor marshal program and provide training.

Designated areas should be identified for employee assembly in order to ensure that all employees can be accounted for following evacuation.

## Response - Structural Collapse

If a roof, ceiling, or wall collapses, students, faculty and staff should immediately do the following:

- DROP, COVER, and HOLD
- Seek shelter under sturdy desks and tables
- Move away from windows or glass.

Evacuate the building as soon as it is safe to do so.

Call 911 from a campus telephone and do the following:

- Identify the name and exact location of the campus building
- State the emergency and any known injuries
- Describe response actions taken
- Remain on the telephone line to provide updates

Do not allow reentry to the building until declared safe by DPS.

Local emergency responders will go through various phases for a structural collapse. These may include:

- Arrival on scene
- Pre-rescue operations
- Rescue operations
- Selected debris removal
- Debris removal and termination

University personnel familiar with the campus buildings should provide technical support to emergency responders.

A trained structures specialist from urban search-and-rescue may be required on scene. This person would be responsible for:

- Evaluating the immediate structural condition of the area to be entered during rescue operations.
- Determining the appropriate type and amount of structural hazard mitigation in order to minimize risks on site to rescue personnel.

The safety officer is responsible for monitoring and assessing the safety aspects of the responders during the collapsed structure event.

Remain calm and listen to authorities (DPSS, OSEH, City of Ann Arbor Police and Fire, etc.)

Use extreme caution during and after a structure collapse to avoid any unnecessary accidents.

Activate your building floor marshal system to ensure all persons in the building are evacuated and in a safe location.

Take attendance if it can be done safely in order to identify and account for building occupants

Keep everyone assembled in an orderly manner.

Render first aid to those who need assistance

The facility manager, or their back up, should cautiously leave the building area and meet with the emergency first responders outside where an Incident Command post will be established.

## **Recovery - Structural Collapse**

Contact Plant Operations (734)647-2059 for immediate repair assistance

Be careful of downed power lines, gas line breaks, broken glass and sharp debris

Do not touch any downed wires or objects with downed lines due to electrical hazards present

If gas is detected, notify the (DPSS) Incident Commander and Plant Operations immediately. Do not light matches, lighters, etc. Make sure no one is smoking in the area.

Building reentry will not be possible until the scene is cleared by DPSS who will consult with OSEH

Contact the University Risk Management (734) 764-2200 so claims management and other insurance matters can be handled.