



# GENERAL ORDER

## GENERAL ORDER 330.11

### Structural Collapse Rescue Incidents

#### Emergency Services Bureau

Issue Date: 1/5/2009

Revision Date: 7/8/2014

#### 1 APPLICABILITY

2 All Personnel

#### 3 POLICY

4 The Howard County Department of Fire and Rescue Services (Department) shall set forth guidelines that  
5 assist the Incident Commander in assessing the hazard, identifying the level of operational capability, and  
6 establishing operational criteria when responding to structural collapse rescue incidents. The  
7 achievement of these objectives will help prevent and reduce the severity of accidents, injuries, and  
8 exposures to both Department members and the citizens served by the organization. The well-being of  
9 members or citizens shall not be risked for any activity that is not essential to the immediate protection  
10 of life. No Department member shall conduct, or participate in, an activity for which he/she is not trained  
11 and/or properly equipped to handle.

#### 12 DEFINITIONS

- 13 ➤ **Hazardous Environment** - any atmosphere that can expose personnel to the risk of death,  
14 incapacitation, injury, acute illness, or impairment of ability to self-rescue.
- 15
- 16 ➤ **Immediately Dangerous to Life or Health (IDLH)** - any condition that poses an immediate or  
17 delayed threat to life, causes irreversible adverse health effects, or interferes with an individual's  
18 ability to escape unaided from a hazardous environment.
- 19
- 20 ➤ **Rapid Response Units 1 and 2** - may be staffed by Structural Collapse Technician trained members  
21 of the Special Operations team to assist with hazard and structural assessments during severe  
22 weather events. These units can respond in place of the Battalion Chief to assist the first due  
23 company on incidents of reported structural damage and collapse during storm events.
- 24
- 25 ➤ **Rescue area** - an area surrounding the incident site (e.g., collapsed structure or trench) whose size  
26 is proportional to the hazards that exist.
- 27
- 28 ➤ **Incident Commander (IC)** - is the individual responsible and accountable for managing the entire  
29 incident. There is one Incident Commander for an incident at any given time.
- 30
- 31 ➤ **Incident Safety Officer (ISO)** - is responsible for overall incident safety throughout the rescue  
32 operation, pursuant to General Order 300.07: Incident Command System. This individual shall

33 report directly to the Incident Commander. The individual assigned as ISO by the IC shall meet the  
34 requirements of NFPA 1521: Standards for Fire Department Safety Officer.

- 35
- 36 ➤ **Technical Safety Officer (TSO)** - a position assigned by the Incident Commander, is responsible for  
37 the safe conduct of all operations in the technical rescue group of the Incident Command System.  
38 This individual shall be a Special Operations team member or an individual who possesses  
39 knowledge, training, and experience pertinent to the type of technical rescue being conducted.  
40 The Technical Safety Officer shall report directly to the Incident Safety Officer.
- 41
- 42 ➤ **Awareness Level** – per NFPA 1670, this level of Structural Collapse Rescue training requires  
43 Department personnel to size-up existing and potential conditions; identify resources necessary to  
44 conduct safe and effective operations; implement site control and scene management; recognize  
45 general hazards including construction types and categories and expected behaviors of  
46 components and materials; identify the five types of collapse patterns and potential victim  
47 locations; recognize potential for secondary collapse; conduct visual and verbal searches while  
48 using approved methods for the specific type of collapse; recognize and implement the FEMA Task  
49 Force Search and Rescue Marking System, Building Marking System (structure/hazard evaluation),  
50 Victim Location Marking System and Structure Marking System (geographically).
- 51
- 52 ➤ **Operations Level** – per NFPA 1670, this level of Structural Collapse Rescue training requires  
53 Department personnel to perform all the techniques of the Awareness Level, plus be qualified at  
54 the Operations Level for rope rescue, confined space rescue, trench and excavation and vehicle  
55 and machinery rescue; capable of hazard recognition, equipment use, and techniques necessary  
56 to operate safely and effectively at structural collapse incidents involving the collapse or failure of  
57 light-frame ordinary construction and unreinforced and reinforced masonry construction.
- 58
- 59 ➤ **Technician Level** – per NFPA 1670, this level of Structural Collapse Rescue training requires  
60 Department personnel to perform all the techniques of the Operations Level, plus be qualified at  
61 the Technician Level for confined space, trench and excavation, rope rescue and vehicle and  
62 machinery rescue; be capable of recognizing hazards, using equipment, and operating at  
63 structural collapse incidents involving all types of construction.
- 64
- 65 ➤ **Specialist Level** – this is an individual who has technical expertise and practical knowledge with  
66 structural engineering experience. This person may augment on-scene activities by providing  
67 essential information in their specialized field.

## 68 PROCEDURES

### 69 GENERAL:

70 Each response to a Structural Collapse Rescue Incident shall be evaluated upon arrival by the Incident  
71 Commander to assess the risk to Department personnel.

72

73 The well-being of personnel and/or citizens shall not be risked for any activity that is not essential to the  
74 immediate protection of life.

75

76 The priority for rescue/safety shall be:

- 77 • Yourself
- 78 • Other responders

- The victim(s)

All operations at the scene of a Structural Collapse Rescue Incident shall be performed in a safe manner consistent with the identified level of operational capability. No Department member shall conduct, or participate in, an activity for which he/she is not trained, certified and/or properly equipped to handle.

When conducting a training exercise, body recovery, evidence search, incident involving animals, or other operations not essential to the immediate protection of life, the Incident Commander shall utilize the same procedures employed during an actual rescue operation but at a level of urgency commensurate with the risk/benefit analysis.

All Department career personnel shall be trained to the Awareness Level of Structural Collapse Rescue. This will be accomplished by providing career personnel with the current Maryland Fire & Rescue Institute (MFRI) Seminar – Structural Collapse Awareness (or equivalent) course.

- Training for volunteer personnel may be requested through the Howard County Volunteer Training Board.

Only Technician and Specialist trained and certified level personnel shall be allowed to participate in high risk situations.

It is the intent of this policy to follow recommendations contained within:

- NFPA 1670: Standard on Operations and Training for Technical Rescue Incidents
- NFPA 472: Standard for Professional Competence of Responders to Hazardous Materials/WMD Incidents
- Department General Order 300.02: Accountability
- Department General Order 300.04: Mayday
- Department General Order 300.07: Incident Command System
- Department General Order 300.11: Rapid Intervention Crew
- Department General Order 330.04: Technical Rescue Incidents
- Howard County Policy and Procedure 200.11: Confined Space Policy

#### **GUIDELINES FOR INITIAL OPERATIONS:**

The first due suppression unit and Battalion Chief will be dispatched on all reported vehicles into the structure, with no reported injuries or entrapment. The first arriving unit will complete a hazard risk assessment to determine the stability of the structure. In cases where imminent structure collapse poses a significant risk to the public, a full collapse rescue box should be requested to provide structural support and stabilization where possible, in order to prevent a catastrophic collapse that may result in injury or death to both Department members and the citizens served by the organization.

The first arriving officer shall establish command pursuant to General Order 300.07: Incident Command System.

The Incident Commander shall attempt to identify, locate and secure a witness as soon as possible; this will help in identifying the problem and locating the victim(s).

The Incident Commander, or designee, should access maps, pictometry, and all other available information, and have a witness sketch a map, as needed. Consider any building/site plans that may be available.

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Conduct on scene assessment, to include:

- Securing the scene, establish safety and exclusion zones, and announce the appropriate level of Personal Protective Equipment (PPE) for the operation.
- Determine access points/establish points of entry and accountability.
- Determine location and number of victims.
- Determine activities of victim(s) prior to incident.
- Determine mechanism of entrapment or nature of emergency.
- Assess time of day (project lighting needs) and environmental factors (weather).

The Incident Commander shall assess the risk to Department personnel and communicate the scene size-up and hot zone to response personnel.

- If the Incident Commander determines that the incident is beyond the capabilities of Department personnel currently on the scene, he/she shall immediately request Howard Communications to dispatch a full collapse rescue box. Upon arrival, the Special Operations team will assist with the rescue operations as directed by the Incident Commander.
- If the Incident Commander determines that the incident will be a rescue, then operations must be initiated as soon as possible with the proper equipment and qualified structural collapse trained personnel.
- If the Incident Commander determines that the incident will be a body recovery, then operations are to proceed in a manner that presents minimal risk to Department members.

Establish control zones in the hot/warm/cold format and prohibit entry of untrained personnel (and citizens) into the warm and hot zones. All observers, citizens, media representatives, and unprotected responders are to be kept far enough away from the incident as to not interfere with the ever expanding operation or responding units.

After evaluating the information received during the scene assessment and developing an effective incident action plan, review the resources on location and en route to determine if any additional resources are needed. Consider the following options:

- Additional medical units
- Activation of additional Special Operations companies or members
- A mutual aid Special Operations Hazmat/Collapse Team for a Rapid Intervention Crew
- A canteen for extended operations
- A bus for shelter during extreme weather conditions
- Police for scene security

Considerations shall be made for the possibility of the victim(s) requiring decontamination if the structural collapse incident involves a hazardous material.

**SCENE SAFETY:**

The Incident Commander shall assign an Incident Safety Officer (ISO) for the duration of the incident. The Incident Safety Officer's responsibilities shall be pursuant to Department General Order 330.04: Technical Rescue Incidents, Guidelines for Scene Safety at Technical Rescue Incidents.

- The ISO shall be responsible for identifying hazards and mitigating them if at all possible. Information regarding hazards that cannot be mitigated shall be communicated to the Incident Commander and to all personnel operating at the scene.

- 174 • Typical structural collapse hazards include, but are not limited to: limited means of access and  
175 egress, secondary collapse and entanglement hazards, atmospheric hazards, hazardous materials,  
176 etc.
- 177 • All personnel working in the hot zone, or supporting logistical functions in the warm zone, shall be  
178 properly dressed with appropriate PPE. This includes, but is not limited to: technical rescue  
179 helmet (or other approved hard-hat), steel toed/shanked work boots, long-sleeved pants and duty  
180 shirt (or Department issued coveralls), eye protection and work gloves. Hearing/respiratory (dust  
181 mask) protection should be readily accessible. *Appropriate PPE shall be worn as dictated by the IC  
182 and warranted by the incident.*  
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184 A Technical Safety Officer (TSO) shall be assigned to assist the ISO whenever technical resources are being  
185 utilized (i.e., the rescue operations are beyond Awareness Level techniques), this shall be pursuant to  
186 Department General Order 330.04: Technical Rescue Incidents.

- 187 • The TSO or ISO will closely monitor personnel working within the hot zone for signs of fatigue,  
188 dehydration or other environmental exposures.
- 189 • The IC shall establish a rehab area to provide the rescuers with medical assessment, nutrition and  
190 hydration during the extended rescue operation.  
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192 **GUIDELINES – AWARENESS LEVEL TRAINED PERSONNEL:**

193 Recognize and identify hazards specific to the Rescue Area. Hazards can include, but are not limited to,  
194 the following:

- 195 • Secondary collapse  
196 • Hazardous atmospheres and/or chemicals  
197 • Energized wires  
198

199 Members trained at the Awareness Level shall be used in the capacity defined in this order. This includes:

- 200 • Attempt to initiate contact and establish communications with victims  
201 • Perform non-entry retrieval of readily accessible victims  
202 • Work as directed and supervised by a Department Structural Collapse Rescue Technician  
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204 **GUIDELINES – TECHNICIAN LEVEL TRAINED PERSONNEL:**

205 Members trained at the Technician Level shall be used in the capacity defined in this order. This includes:

- 206 • Sizing up existing and potential hazardous conditions in the rescue area  
207 • Recognizing unique collapse or failure hazards  
208 • Constructing shoring systems to stabilize the structure  
209 • Conducting search operations intended to locate victims trapped inside and beneath collapse  
210 debris  
211 • Accessing victims trapped inside and beneath collapse debris  
212 • Performing extrication operations involving packaging, treating and removing victims within and  
213 beneath collapse debris  
214 • A continuous assessment of shoring systems will be conducted throughout all operations  
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216 **GUIDELINES – POST RESCUE OPERATIONS:**

217 Upon exiting the structure, the rescuers and the victim(s) shall be evaluated for the need to be  
218 decontaminated by the TSO.  
219

220 As soon as any victims are brought to safety and decontaminated, an assessment shall be completed by

221 Advanced Life Support personnel.

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223 Personnel involved in the rescue operations shall proceed to the rehab area for medical assessment,  
224 nutrition, hydration and/or environmental temperature control.

225

226 All shoring systems installed by Special Operations members should remain in place until the structure  
227 can be made safe by other means.

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229 **STRUCTURAL COLLAPSE RESCUE TRAINING AND DOCUMENTATION:**

230 Special Operations team personnel shall be expected to perform at the Technician Level and shall be  
231 trained and certified accordingly.

232

233 Annual performance evaluations (re-certifications) for Collapse Rescue Technicians shall be conducted on  
234 all Special Operations personnel and equipment, pursuant to the guidelines of NFPA 1670: Standard on  
235 Operations and Training for Technical Rescue Incidents.

236

237 Master documentation for all initial training, certifications and annual re-certification shall be maintained  
238 by the Bureau of Education and Training.

239

240 Documentation regarding training and certification for each member shall be available for inspection by  
241 that member and his/her authorized representatives.

242 **REFERENCES**

- 243 • Department General Order 300.02: Accountability
- 244 • Department General Order 300.04: Mayday
- 245 • Department General Order 300.07: Incident Command System
- 246 • Department General Order 300.11: Rapid Intervention Crew (RIC)
- 247 • Department General Order 330.04: Technical Rescue Incidents
- 248 • National Fire Protection Agency (NFPA) 1670: Standard on Operations for Technical Rescue  
249 Incidents
- 250 • National Fire Protection Agency (NFPA) 472: Standard for Professional Competence of Responders  
251 to Hazardous Materials Incidents
- 252 • Howard County Policy and Procedure 200.11: Confined Space Policy
- 253 • Special Operations Structural Collapse Tactical Operations Guides
- 254 • Applicable local, state and federal laws

255 **SUMMARY OF DOCUMENT CHANGES**

- 256 • Updated to include NIMS terminology and reference list. SMH 1832/GEW 3059
- 257 • Minor operational changes made to reflect current local alarm response to investigate a vehicle  
258 into the structure. SMH 1832/GEW 3059
- 259 • Added verbiage to include: to provide the structural support and stabilization of structures where  
260 the possibility of catastrophic collapse exists but there is no immediate life hazard, where the  
261 potential for collapse may result in injury or death to both Department members and the citizens  
262 served by the organization. SMH 1832/GEW 3059
- 263 • Added the definition of Rapid Response Teams. SMH 1832/GEW 3059

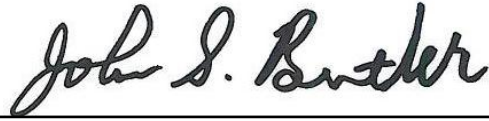
- 264
- Added all shoring systems installed by Special Operations members should remain in place until
- 265 the structure can be made safe by other means. SMH 1832/GEW 3059

266 **FORMS/ATTACHMENTS**

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268 **APPROVED**

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Deputy Chief John S. Butler  
Operations Command

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