

# Division 12

## March 2024 - TRT Drill

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Host: Bensenville (Remote Itasca Location)

Date(S): March 11<sup>th</sup> (Red), 12<sup>th</sup> (Gold), 13<sup>th</sup> (Black)

Time: 0900-1200

Topic: Structural Collapse TECH rescue

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### **Description:**

The technical rescue team is using the acquired structure in Itasca to practice its abilities in handling critical situations involving building collapses. The team is practicing breaching techniques and demonstrating the application of structural tiebacks to ensure that it can effectively and safely navigate through complex rescue scenarios.

### Contact:

BC Adam Lager (Bensenville)  
Contact - (630) 701-5251

### Location:

1250 N. Arlington Heights Road  
Itasca, IL 60143

### OSMF JPR Objectives

Structural Collapse OPER and TECH – See the attached lesson plan.

**Apparatus Needed – Rescue 77, trailer 49, and associated TRT equipment.**

### Scheduling Notes:

- 1) TRT training is typically the second Monday, Tuesday, and Wednesday of each month or as modified to address potential or known conflicts in advanced.
- 2) The location for the training when indicated as TBD/ Regional permits multiple training sessions to occur on the same date and the same topic, however, at a location, which better accommodates TRT team members. Locations to be finalized one month prior to the training date.

DIVISION 12 TRT INSTRUCTOR GUIDE  
LESSON PLAN

<b>Lesson Title:</b> Collapse Rescue	
<b>Level of Instruction:</b> Technician	
<b>Method of Instruction:</b> Hands on	
<b>Learning Objective:</b> Structural Collapse victim removal.	
<b>References:</b> FEMA FOG; OSFM Structural collapse; Jones & Bartlett Technical Rescue	
<b>Location:</b> 1250 Arlington Heights Rd. Itasca, IL 60143	
<b>Time / dates:</b> March 11 <sup>th</sup> , 12 <sup>th</sup> , and 13 <sup>th</sup> – 0900-1200	
<b>Instructor:</b> BC Adam Lager	
<b>Materials Needed:</b> TRT trailer 49 and necessary equipment.	
<b>Safety Hazards / Identification:</b> During the training, you will be participating with heavy structural members. To ensure your safety while working on or around the training site, it is mandatory to wear safety equipment. This includes a helmet, safety glasses, work gloves, N95 mask if breaching, and hearing protection if required for the task at hand.	
<b>Step #1 Lesson Preparation:</b> Students will understand the concept of structural tiebacks, their purpose, types, and application for both civil engineering projects and technical rescue application. <ul style="list-style-type: none"> <li>• Present the FOG manual and discuss a temporary Tieback system.</li> <li>• Overview the site safety requirements and the necessity of wearing appropriate PPE.</li> <li>• Discuss the potential of hazardous energy created by installing a structural Tieback.</li> <li>• <b>Assign a safety officer position to mitigate risk of rescuer injury.</b></li> <li>• Provide for the safety of all persons operating within the designated training facility.</li> </ul>	
<b>Step #2 Presentation:</b> The instructor will discuss the US&R Structures FOG manual procedures for the purpose and application of a structural tie back. <ul style="list-style-type: none"> <li>• Students will discuss load path</li> <li>• Instructor will discuss the differences between a temporary Tieback vs. a permanent system</li> <li>• Instructor will discuss the significance of axial loads on supporting members below the tieback.</li> <li>• Instructor will discuss the necessity of anchor supports to accomplish a tieback.</li> <li>• Students will successfully accomplish a tieback.</li> </ul>	<b>Step # 3 Application:</b> See attached OSFM objectives

DIVISION 12 TRT INSTRUCTOR GUIDE  
LESSON PLAN

**Step #4 Evaluation:** SWBAT (Student will be able to) successfully demonstrate the abovementioned skills. The instructor shall complete a Target Solutions assignment acknowledging that all participants have completed the skills reviewed.

**OSFM Objectives – Select all that apply**

	<b>Rope Operations</b>
<input type="checkbox"/>	6.1.01 Direct a team
<input type="checkbox"/>	6.1.02 Direct a lowering operation
<input type="checkbox"/>	6.1.03 Construct a multiple-point anchor system
<input type="checkbox"/>	6.1.04 Construct a compound rope mechanical advantage system
<input type="checkbox"/>	6.1.05 Construct a fixed rope system
<input type="checkbox"/>	6.1.06 Direct the operation of a compound rope mechanical advantage system
<input type="checkbox"/>	6.1.07 Ascend a fixed rope in a high-angle environment
<input type="checkbox"/>	6.1.08 Descend a fixed rope in a high-angle environment
	<b>Rope Technician</b>
<input type="checkbox"/>	6.2.01 Complete an assignment
<input type="checkbox"/>	6.2.02 Manage the movement of the victim
<input type="checkbox"/>	6.2.03 Function as a litter tender
<input type="checkbox"/>	6.2.04 Direct a team (victim removal)
<input type="checkbox"/>	6.2.05 Direct a team (highline construction)
<input type="checkbox"/>	6.2.06 Direct a team (highline operation)
<input type="checkbox"/>	6.2.07 Access a victim
<input type="checkbox"/>	6.2.08 Isolate and manage potentially harmful energy sources
	<b>Confined Space Operations</b>
<input type="checkbox"/>	7.2.01 Initiate a Search Inside a Confined Space in those Areas Immediately Visible
<input type="checkbox"/>	7.2.02 Perform Size-up of a Confined Space
<input type="checkbox"/>	7.2.03 Conduct Monitoring of the Environment
<input type="checkbox"/>	7.2.04 Assess the Incident
<input type="checkbox"/>	7.2.05 Control Hazards
<input type="checkbox"/>	7.2.06 Apply and Use Self-Contained Breathing Apparatus (SCBA) as a Rescue Entrant
<input type="checkbox"/>	7.2.07 Apply and Atmospheric Respirator to a Victim
<input type="checkbox"/>	7.2.08 Perform Full Spinal Immobilization of a Victim Inside a Confined Space
<input type="checkbox"/>	7.2.09 Prepare for Entry into Horizontally Oriented Confined Space
<input type="checkbox"/>	7.2.10 Enter a Horizontally Oriented Confined Space for Rescue

DIVISION 12 TRT INSTRUCTOR GUIDE  
LESSON PLAN

<input type="checkbox"/>	7.2.11 Package a Victim in a Litter for Removal from a Horizontally Oriented Confined Space
<input type="checkbox"/>	7.2.12 Assemble a Portable Anchor System for Application of a High Point of Attachment
<input type="checkbox"/>	7.2.13 Prepare for Entry into Vertically Oriented Confined Space
<input type="checkbox"/>	7.2.14 Enter a Vertically Oriented Confined Space for Rescue
<input type="checkbox"/>	7.2.15 Package a victim in a litter for removal from a horizontally oriented confined space
<input type="checkbox"/>	7.2.16 Access and Rapidly Remove a Victim from a Vertically Oriented Confined Space
<input type="checkbox"/>	7.2.17 Remove Entrants from a Confined Space
<input type="checkbox"/>	7.2.18 Terminate a Technical Rescue Operation
	<b>Confined Space Technician</b>
<input type="checkbox"/>	7.3.1 Initiate a Search Inside a Confined Space in those Areas Not Immediately Visible
<input type="checkbox"/>	7.3.2 Pre-Plan a Confined Space Incident
<input type="checkbox"/>	7.3.3 Apply and Use Supplied-Air Respirators (SARs) as a Rescue Entrant
<input type="checkbox"/>	7.3.4 Perform a Short Spinal Immobilization of a Victim Inside a Confined Space
<input type="checkbox"/>	7.3.5 Prepare for Entry into the Confined Space with a Hazardous Atmosphere
<input type="checkbox"/>	7.3.6 Enter a Confined Space with Atmospheric Hazards
	<b>Trench Operations</b>
<input type="checkbox"/>	8.1.01 Conduct a size-up
<input type="checkbox"/>	8.1.02 Implement a trench emergency action plan
<input type="checkbox"/>	8.1.03 Implement support operations
<input type="checkbox"/>	8.1.04 Support a nonintersecting straight wall trench
<input type="checkbox"/>	8.1.05 Terminate a technical rescue operation
<input type="checkbox"/>	8.1.06 Remove a victim from a trench
<input type="checkbox"/>	8.1.07 Disassemble support systems
	<b>Trench Technician</b>
<input type="checkbox"/>	8.2.01 Support an intersecting trench as a member of a team
<input type="checkbox"/>	8.2.02 Install supplemental sheeting and shoring for each two feet of depth below a shoring system
<input type="checkbox"/>	8.2.03 Construct load stabilization systems
<input type="checkbox"/>	8.2.04 Lift a load
<input type="checkbox"/>	8.2.05 Coordinate the use of heavy equipment
<input type="checkbox"/>	8.2.06 Release a victim from entrapment by components of a collapsed trench
	<b>Structural Collapse Operations</b>
<input type="checkbox"/>	6.2.01 Conduct a size-up of a light frame or unreinforced masonry (URM) collapsed structure
<input type="checkbox"/>	6.2.02 Determine potential victim locations in light frame and URM construction collapse incidents
<input type="checkbox"/>	6.2.03 Develop a collapse incident action plan
<input type="checkbox"/>	6.2.04 Implement a collapse rescue incident action plan

DIVISION 12 TRT INSTRUCTOR GUIDE  
LESSON PLAN

<input type="checkbox"/>	6.2.05 Search a light frame and URM constructed collapsed structure
<input type="checkbox"/>	6.2.06 Stabilize a collapsed light frame and URM construction structure
<input type="checkbox"/>	6.2.07 Release a victim from entrapment
<input type="checkbox"/>	6.2.08 Remove a victim from a light frame and URM construction collapse incident
<input type="checkbox"/>	6.2.09 Lift a heavy load as a team member
<input type="checkbox"/>	6.2.10 Move a heavy load as a team member
<input type="checkbox"/>	6.2.11 Breach light frame and URM construction structural components
<input type="checkbox"/>	6.2.12 Construct cribbing systems
<input checked="" type="checkbox"/>	6.2.13 Inspect and maintain hazard-specific PPE
<input checked="" type="checkbox"/>	6.2.14 Inspect and maintain rescue equipment
<input checked="" type="checkbox"/>	6.2.15 Terminate an incident
	<b>Structural Collapse Technician</b>
<input checked="" type="checkbox"/>	6.3.01 Conduct a size-up of a collapsed heavy construction-type structure
<input type="checkbox"/>	6.3.02 Determine potential victim locations in a heavy construction-type incident
<input checked="" type="checkbox"/>	6.3.03 Develop a collapse rescue incident action plan
<input checked="" type="checkbox"/>	6.3.04 Implement a collapse rescue incident action plan
<input type="checkbox"/>	6.3.05 Search a heavy construction type collapsed structure
<input checked="" type="checkbox"/>	6.3.06 Stabilize a collapsed heavy construction type structure as a member of a team
<input type="checkbox"/>	6.3.07 Release a victim from entrapment by components of a heavy construction type collapse
<input type="checkbox"/>	6.3.08 Remove a victim from a heavy construction type collapse incident
<input type="checkbox"/>	6.3.09 Lift a heavy load as a team member
<input type="checkbox"/>	6.3.10 Move a heavy load as a team member
<input type="checkbox"/>	6.3.11 Breach heavy structural components
<input type="checkbox"/>	6.3.12 Construct cribbing systems
<input checked="" type="checkbox"/>	6.3.13 Stabilize a collapsed heavy construction type structure as a member of a team
<input type="checkbox"/>	6.3.14 Cut through structural steel
<input type="checkbox"/>	6.3.15 Coordinate the use of heavy equipment
	<b>Vehicle Machinery Technician (VMT)</b>
<input type="checkbox"/>	08.3.1 Create an Incident Action Plan for a Commercial or Heavy Vehicle
<input type="checkbox"/>	08.3.2 Stabilize Commercial / Heavy Vehicle
<input type="checkbox"/>	08.3.3 Determine the Heavy Vehicle Access & Egress Points
<input type="checkbox"/>	08.3.4 Create Access and Egress Points for Heavy Vehicle
<input type="checkbox"/>	08.3.5 Disentangle Victim(s)
<input type="checkbox"/>	08.3.6 Isolate and Mitigate Potentially Harmful Energy Sources
<input type="checkbox"/>	12.3.1 Plan for a large machinery incident
<input type="checkbox"/>	12.3.2 Stabilize large machinery
<input type="checkbox"/>	12.3.3 Determine large machinery access and egress points
<input type="checkbox"/>	12.3.4 Create access and egress openings for rescue from large machi
<input type="checkbox"/>	12.3.5 Disentangle victim(s)

\* 15-20° OFF AXIS  
FOR TIEBACK DIAGONAL.

US&R STRUCTURES SPECIALIST FOG  
GENERAL REFERENCE

3-4X4s

EMERGENCY SHORING

TIEBACK

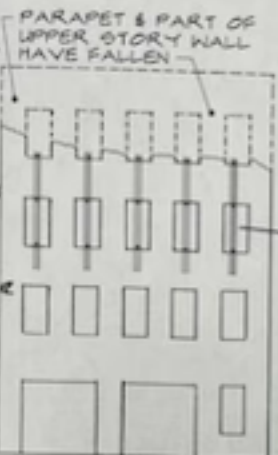
(1.1.34)

TIE1-8

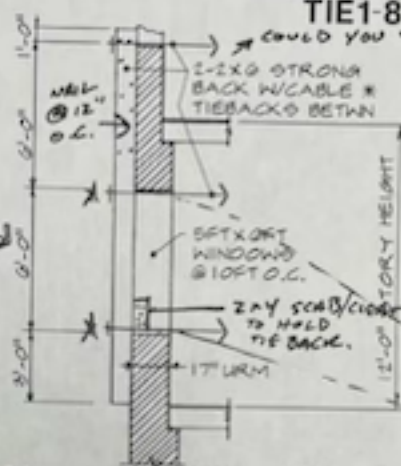
could you use a 4"x6"? YES

\* CURRENT FOGS

- 2-2"x6" STRONG BACK 11'
- 2 TIEBACK SYSTEMS
- 1 FRANG LADDERS
- 2 GRIP HOISTS
- TRY TO GET FLOOR TO CEILING.



4 STORY URM OFFICE BLDG

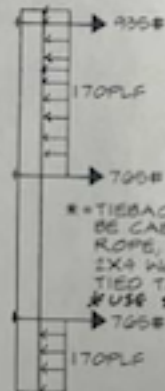


TYP SECT AT WINDOW

\* DO NOT PRESUMBE HORIZONTAL.

ANCHOR - CAN USE SAME ANCHOR.

- LOAD ON TIEBACK  
 $170\text{PSF} \times 11 \times 10\text{FT} = 170\text{PLF}$   
 ADD FOR PIER BETWEEN WINDOWS  
 $170\text{PSF} \times 1 \times 5\text{FT} \times 0\text{FT} / 2 = 255\#$
- MAX BENDING IN STRONGBACK  
 $170\text{PLF} \times 0.75 = 705\#$   
 $M/\phi = 705 \times 12 / 2 \times 7.2 = 900\text{POI}$
- MAX LOAD ON TIEBACK  
 $170\text{PLF} \times (8\text{FT} + 1\text{FT}) + 255\# = 935\#$  (AT TOP)  
 $170\text{PLF} \times 8\text{FT} + 255\# = 705\#$  (AT WINDOW HEAD & SILL)



\* TIEBACKS COULD BE CABLE, UTILITY ROPE, OR EVEN 2X4 WOOD PIECES TIED TOGETHER  
 \* USE STEEL TO TIE BACK  
 - NO ROPE/WEBBING.  
 - MANUFACT

\* TIEBACKS COULD BE EXTENDED ACROSS BLDG TO OPP WALL AND ANCHORED, OR ANCHORED TO FLOOR BEAMS.

WIND PRESSURES

7-2

6-14