



## Northeastern Illinois Public Safety Training Academy

### Course Syllabus

207

<b>Title:</b> Structural Collapse Operations	<b>Program Duration:</b> 40 hours
<b>Type:</b> Campus Training Program (CTP)	<b>Coordinator:</b> P. Schey

#### Course Description

NIPSTA's Structural Collapse Operations program is designed to exceed the requirements outlined by the Illinois Office of the State Fire Marshal "OSFM", and provides students with the basic knowledge and skills needed to perform structural collapse rescue at the NFPA 1006 Operations level. Students will leave prepared to operate as a member of a regional team capable of responding to statewide emergencies where lightweight structural collapse rescue may be needed.

#### Prerequisites

The purpose of prerequisite course work is to ensure students have sufficient backgrounds to understand the terminology, tactics and practical applications presented in NIPSTA programs. At a minimum, NIPSTA requires successful completion of the following:

- Member of recognized fire department/brigade
- Rope Rescue Operations

#### Attendance

In order to receive a certificate of completion for courses, NIPSTA requires students to be present for all lectures, demonstrations and evolutions.

#### Safety

NIPSTA Instructors will ensure hazards have been identified and addressed prior to the start of each program. All course safety guidelines are discussed prior to operations and at a minimum, a one (1) to six (6) instructor to student ratio will be maintained at all times. Unsafe actions or behaviors will not be tolerated and will be grounds for dismissal.

#### Academic Integrity

NIPSTA aspires to the highest possible standards of academic honesty and integrity in all programs as key tenants of the NIPSTA experience. NIPSTA Instructors set forth clear ethical expectations, promote consistency of standards, and encourage reporting of dishonest and unsafe behaviors. While education through participation is the central goal for every NIPSTA program, it is only possible when honesty and integrity are part of the overall mission.

#### Performance Testing & Evaluation

NIPSTA employs multiple methods of measuring competency subject matter including cognitive and performance skill testing. Cognitive skills will be measured by utilizing a comprehensive written exam at the conclusion of the course. Students must achieve a minimum 70% score to successfully pass the written exam. Performance skill tests measure an individual's ability to perform specific tasks or applications based on given or known JPRs. Unless otherwise specified, performance skill tests will be measured on a pass or fail basis.

## ADA Compliance

Students with a documented disabilities, as that term is used in the American with Disabilities Act (ADA), may qualify for reasonable accomodations as defined in section 504 of the Rehabilitation Act of 1973.

## Textbook

The following materials are required for NIPSTA's Structural Collapse Operations course.

- ❑ **Title:** "FEMA National US&R Response System, Structural Collapse Technician Training Manual" (provided by Program Coordinator)
- ❑ **Title:** "U.S. Army Corps of Engineers, Urban Search and Rescue Structures Specialist Field Operations Guide" Ed. 9 (provided by Program Coordinator)

## Course Content

Course content is broken into subject area modules or "Mods". NIPSTA's Structural Collapse Operations program is comprised of the followng Mods:

**Mod:** Introduction & Orientation  
**Mod:** Safety & Risk Management  
**Mod:** Incident Hazard Identification  
**Mod:** Collapse Rescue PPE  
**Mod:** Destructive Force Types  
**Mod:** Structural Components & Systems  
**Mod:** Building Types (Operations Level)  
**Mod:** Collapse Incident Size-up  
**Mod:** Structural Assessment  
**Mod:** Building Marking Systems  
**Mod:** Structural Monitoring Operations  
**Mod:** Collapse Tools & Equipment  
**Mod:** Collapse Incident ICS & IAPs  
**Mod:** Record Keeping & Documentation  
**Mod:** WMD/CBRNE Factors  
**Mod:** Tool & Equipment Familiarization  
**Mod:** Cut Station Operations  
**Mod:** Shoring Components  
**Mod:** Vertical Shoring Operations  
**Mod:** Lateral Shoring Operations  
**Mod:** Estimating Load Weights  
**Mod:** Mechanical Lifting Operations  
**Mod:** Manual Lifting Operations

**Mod:** Cribbing & Stabilization Operations  
**Mod:** Pneumatic Shoring Systems  
**Mod:** Building Marking Systems  
**Mod:** Listening Devices  
**Mod:** Haling Operations  
**Mod:** Patient Packaging  
**Mod:** Collapse Search & Resonance  
**Mod:** Victim Location & Survivability  
**Mod:** Injury Care & Pt. Management  
**Mod:** Vertical Breaching Operations  
**Mod:** Horizontal Breaching Operations  
**Mod:** Equipment Inspection & Inventory  
**Mod:** Lifting Operations  
**Mod:** Horizontal Breaching Operations  
**Mod:** Decontamination & Sanitation  
**Mod:** Equipment Inspection & Inventory  
**Mod:** Course Final Exam  
**Mod:** Collapse Rescue ICS  
**Mod:** Practical Skill Evaluations  
**Mod:** Incident Termination  
**Mod:** Post Incident Analysis  
**Mod:** Equipment Inspection & Inventory  
**Mod:** Course Evaluation

## Learning Outcomes & Evaluation

Following the conclusion of these modules, students will be familiar with the requisite knowledge and skills needed to perform as a member of a vehicle and machinery rescue team. Written and practical evaluations will be conducted at the completion of this course.

## Course Schedule

### Day 1

#### Morning

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**Mod:** Introduction & Orientation  
**Mod:** Safety & Risk Management  
**Mod:** Incident Hazard Identification  
**Mod:** Collapse Rescue PPE  
**Mod:** Destructive Force Types  
**Mod:** Structural Components & Systems (Operations Level)  
**Mod:** Building Types (Operations Level)  
**Mod:** Collapse Incident Size-up (Operations Level)  
**Mod:** Building Assessments (Operations Level)  
**Mod:** Building Marking Systems  
**Mod:** Structural Monitoring Operations  
**Mod:** Collapse Tools & Equipment (Operations Level)  
**Mod:** Collapse Incident ICS: Incident Action Plans  
**Mod:** Record Keeping & Documentation  
**Mod:** WMD/CBRNE Factors

#### Afternoon

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**Mod:** Tool & Equipment Familiarization:

- Breaching & Breaking Equipment
- Lifting & Moving Equipment
- Carpentry Equipment, Fasteners & Nail Patterns
- Monitoring Equipment: Structural & Atmospheric

**Mod:** Cut Station Operations: Table Jig & Lumber Management  
**Mod:** Shoring Components: Gussets, Wedges, Posts, Headers, Soles & Braces  
**Mod:** Vertical Shoring: T-Spot Shores

### Day 2

#### Morning

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**Mod:** Vertical Shoring Operations: 2 & 3 Post Vertical Shores  
**Mod:** Vertical Shoring Operations: Window Shores  
**Mod:** Lateral Shoring Operations: 3 Strut Horizontal Shores

#### Afternoon

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**Mod:** Estimating Load Weights  
**Mod:** Mechanical Lifting Operations: Air Bags & Bottle Jacks  
**Mod:** Manual Lifting Operations: Levers & Pinch-bars  
**Mod:** Cribbing & Stabilization Operations  
**Mod:** Vertical Shoring Operations: Door Shores  
**Mod:** Pneumatic Shoring Systems  
**Mod:** Building Marking Systems (Structural & Victim)  
**Mod:** Listening Devices & Haling Operations  
**Mod:** Patient Packaging: Hasty Harness, SKED, Stokes Baskets

## **Day 3**

### **Morning**

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**Mod:** Collapse Search & Resonance  
**Mod:** Victim Location & Survivability  
**Mod:** Victim Injuries, Care & Management  
**Mod:** Lateral Shoring: Solid Sole Raker Shores  
**Mod:** Lateral Shoring: Split Sole Raker Shores

### **Afternoon**

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**Mod:** Lateral Shoring: Split & Solid Sole Raker Shores (cont.)  
**Mod:** Vertical Breaching Operations: “Dirty Breach”  
**Mod:** Horizontal Breaching Operations: Tunneling Exercise  
**Mod:** Decon & Sanitation  
**Mod:** Equipment Inspection & Inventory

## **Day 4**

### **Morning**

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**Mod:** Lifting Operations: Heavy Lifting, Moving & Stabilization Exercise  
**Mod:** Vertical Shoring Operations: Laced Post Shores

### **Afternoon**

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**Mod:** Vertical Shoring Operations: Sloped Floor Shores  
**Mod:** Horizontal Breaching Operations: Tunneling Exercise  
**Mod:** Decon & Sanitation  
**Mod:** Equipment Inspection & Inventory

## **Day 5**

### **Morning**

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**Mod:** Course Final Exam  
**Mod:** Collapse Rescue ICS (Final Scenario IAP & Briefing)

### **Afternoon**

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**Mod:** Practical Skill Evaluations

- Comprehensive Final Collapse Rescue Operations Scenario

**Mod:** Incident Termination & Post Incident Analysis  
**Mod:** Decon & Sanitation  
**Mod:** Equipment Inspection & Inventory  
**Mod:** Course Evaluation (CEQs)

## Reference List

NFPA 1006, *Standard for Rescue Technician Professional Qualifications*, 2021 Edition

FEMA National Urban Search and Rescue Response System: *Incident Command System for Structural Collapse Incidents*, 3<sup>rd</sup> Ed. 2006

FEMA National Urban Search and Rescue Response System: *National US&R Response System Operational Systems Description US&R Safety Program and Search Procedures*

FEMA National Urban Search and Rescue Response System: *Rescue Specialist Training Manual*, Vol. 1 and 2.

FEMA National Urban Search and Rescue Response System: *US&R Safety Program and Search Procedures*

United States Army Corps of Engineers: *Urban Search and Rescue Structures Specialist Field Operations Guide*, 2021 Ed. 9.0