

	Northeastern Illinois Public Safety Training Academy	
	Course Syllabus	207.1

Title: Structural Collapse Technician	Program Duration: 40 hours
Type: Campus Training Program (CTP)	Coordinator: P. Schey

Course Description

NIPSTA's Structural Collapse Technician 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 technician level. Students will leave prepared to operate as a member of a regional team capable of responding to statewide emergencies where heavyweight 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
- Vehicle & Machinery Operations
- Rope Rescue Operations
- Confined Space Operations
- Structural Collapse 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 course coordinator*)
- ❑ **Title:** "U.S. Army Corps of Engineers, Urban Search and Rescue Structures Specialist Field Operations Guide" Ed. 9 (*provided by course coordinator*)

Pre-course Assignments

The purpose of pre-course assignments is to ensure candidates are prepared to succeed at the onset of the program. The pre-course assignments for NIPSTA's Structural Collapse Technician course are as follows:

- ❑ **Review:** Urban Search and Rescue Structures Specialist Field Operations Guide

Course Content

Course content is broken into subject area modules or "Mods". NIPSTA's Structural Collapse Technician program is comprised of the followng 40 Mods:

Mod 1: Introduction & Orientation	Mod 21: Cribbing & Stabilization
Mod 2: Safety & Risk Management	Mod 22: Double Raker Shoring Systems
Mod 3: Incident Hazards (heavyweight)	Mod 23: Laced Post Shoring Systems
Mod 4: Collapse Rescue PPE	Mod 24: Sloped Floor Shoring Systems
Mod 5: Destructive Forces	Mod 25: Pneumatic & Tie Back Systems
Mod 6: Force Types	Mod 26: Heavy Lifting & Moving
Mod 7: Structural Components & Systems	Mod 27: Anchoring & Rigging
Mod 8: Building Types (heavyweight)	Mod 28: Heavy Equipment Operations
Mod 9: Building Assessments	Mod 28: Breaching & Breaking
Mod 10: Marking Systems	Mod 30: Cutting & Burning
Mod 11: Collapse Incident Size-up	Mod 31: Victim Search Equipment
Mod 12: Collapse Resonance	Mod 32: Structural Monitoring Equipment
Mod 13: Victim Location & Survivability	Mod 33: Collapse Rescue ICS
Mod 14: Collapse Incident Safety	Mod 34: Rescue Planning & Logistics
Mod 15: Structural Monitoring	Mod 35: WMD/CBRNE Factors
Mod 16: Search Operations	Mod 36: Decontamination & Sanitation
Mod 17: Rescue Operations	Mod 37: Incident Termination
Mod 18: Victim Assessment & Treatment	Mod 38: Equipment Inspection
Mod 19: Collapse Patient Packaging	Mod 39: Knowledge Assessment Testing
Mod 20: Cut Station & Assembly	Mod 40: Skill Assessment Testing

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 structural collapse rescue team. Written and practical evaluations will be conducted at the completion of this course.

Course Schedule

Day 1

Morning

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

Afternoon

Mod: Tool & Equipment Familiarization:

- Breaching & Breaking Equipment
- Steel Cutting & Burning Equipment
- Lifting & Moving Equipment
- Carpentry Equipment, Fasteners & Nail Patterns
- Monitoring Equipment: Structural & Atmospheric
- Listening Devices & Search Cameras
- Structural Monitoring Equipment

Mod: Cut Station Operations: Table Jig & Lumber Management
Mod: Shoring Components: Gussets, Wedges, Posts, Headers, Soles & Braces
Mod: Vertical Shoring: T-Spot, Double T and 3 Post Vertical Shores

Day 2

Morning

Mod: Collapse Scene Safety
Mod: Collapse Search & Resonance
Mod: Victim Location & Survivability
Mod: Victim Injuries, Care & Management
Mod: Structural Monitoring
Mod: Heavy Lifting Operations
Mod: Collapse Shoring Operations (Tech Level)

Afternoon

Mod: Listening Devices & Haling Operations
Mod: Structural Monitoring
Mod: Collapse Search & Resonance: Inspection Holes
Mod: Horizontal Breaching Operations: Stitch Cutting
Mod: Vertical Breaching Operations: Dirty Breach (up)
Mod: Patient Packaging: Hasty Harness, SKED, Stokes Baskets
Mod: Lateral Shoring: Split Sole & Solid Sole Raker Shores (braced together)
Mod: Decontamination & Sanitation
Mod: Equipment Inspection & Inventory

Day 3

Morning

Mod 27: Anchoring & Rigging Operations (Concrete, Wood, & Steel)
Mod 28: Heavy Equipment Operations (Loaders, Cranes, Etc)

Afternoon

Mod: Building Marking Systems (Structural & Victim)
Mod: Pneumatic Shoring Systems (Lateral & Vertical)
Mod: Vertical Breaching Operations: Lift-Out
Mod: Vertical Shoring Operations: Laced Post Shores
Mod: Heavy Lifting Operations: Bridge Beam Exercise (Air Bags, Cribbing Etc)
Mod: Decontamination & Sanitation
Mod: Equipment Inspection & Inventory

Day 4

Morning

Mod: Heavy Lifting Operations: Lifting & Moving Exercise (hand tools, etc)
Mod: Building Marking Systems (Structural & Victim)
Mod: Structural Monitoring Operations

Afternoon

Mod: Vertical Breaching Operations: Step Cutting
Mod: Vertical Shoring Operations: Sloped Floor Shores (Type II & II, Cribbing)
Mod: Decontamination & Sanitation
Mod: Equipment Inspection & Inventory

Day 5

Morning

Mod: Knowledge Assessment (Final Exam)
Mod: Anchoring & Rigging Operations: Grip Hoist
Mod: Heavy Equipment Operations: Rigging and Communicating with Loaders and Cranes
Mod: Steel Cutting & Burning Exercise

Afternoon

Mod: Collapse Rescue ICS (Final Scenario IAP & Briefing)
Mod: Practical Skill Evaluation: Comprehensive Final Collapse Tech Scenario
Mod: Incident Termination & Post Incident Analysis
Mod: Decontamination & 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*, 3rd 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