SHORING PRACTICAL EXERCISE STATIONS
STUDENT SYLLABUS
AGENDA

DAY 1:

- **Rotation 1 1.5 hours**
- **Rotation 2 1.5 hours**
- **Rotation 3 1.5 hours**
- **Lunch .75 hour**
- **Rotation 4 1.5 hours**
- **Rotation 5 1.5 hours**
- **Clean Up 0.5 hour**

DAY 2:

- **Rotation 1 1.5 hours**
- **Rotation 2 1.5 hours**
- **Rotation 3 1.5 hours**
- **Lunch .75 hour**
- **Rotation 4 1.5 hours**
- **Rotation 5 1.5 hours**
- **Clean Up 0.5 hour**

DAY ONE 10 HOURS

07:30-08:00 Introduction & Safety Lecture
08:00-09:30 Station 1 Lecture
09:45-11:15 Station 2 laced post
11:30-13:00 Station 3 sloped floor shore
13:00-13:45 Lunch
13:45-15:15 Station 4 Window & Door shore
15:30-17:00 Station 5 Vertical shore
17:00-17:30 Clean-up & Critique

MODULE 2b - SHORING - CONSTRUCTION

DAY TWO 10 HOURS

This will be a continuation of the 5 station rotation

07:30-08:00 Introduction & Safety Lecture
08:00-09:30 Station 1 double raker
09:45-11:15 Station 2 raker anchor & bracing
11:30-13:00 Station 3 Split sole raker shore
13:00-13:45 Lunch
13:45-15:15 Station 4 Solid sole raker shore
15:30-17:00 Station 5 testing station
17:00-17:30 Clean-up & Critique

LECTURE NEEDS

The lecture will consist of a PowerPoint program- a cd-rom capable laptop is needed. Projector for same. Drawing board, with writing materials will also be required.

DAY ONE

Rotation 1 LECTURE

The instructor will give the lecture and answer any questions the students may have on the subject of rescue shoring. The instructor will also outline the next two days activities to the student.

Rotation 2 LACED POST SHORE

The laced post shore is one of the strongest and most stable shores your team can erect. Generally constructed of 4x4's or 6x6's it is excellent for stand alone shoring situations.

Station objectives

- Properly erect the laced post shore in the correct sequence
- Be able to determine the proper lumber size needed in any given situation
- Be able to properly determine the most efficient location for the shore in any given situation
- Be able to erect the most common types of variations of the shore
- Know how to brace and properly anchor the shore to the structure
- Make sure all nail patterns are done properly
- The students will erect a 4x4 laced post as well as a 6x6 laced post, both at different widths

MODULE 2b - SHORING - CONSTRUCTION

Site Needs

An area of at least 20' x 20' with stable and level floor and a full ceiling with a height of 8'-10'

Station needs

4x4's	8'	12 pcs
2x4's	10'	12 pcs
2x6's	16'	9 pcs
4x6's	16'	3 pcs
6x6's	16'	5 pcs
2" wedges		24 pcs
3/4" ply gusset plates		12 pcs
8d nails		10 lbs
16d nails		10 lbs
10 1'4 circular saw		1
16" chain saw		1
tool pouch kit		6
4' level		1
3ft pinch bar		2
cats paw nail puller		4

Rotation 3 SLOPED FLOOR SHORE

The slope floor shore can be utilized in void areas where the use of box cribbing is impractical, or unsafe. It can be constructed of larger dimensional material, and can support quite a bit of weight. The shore must be erected in two segments in order for it to be considered stable.

Station objectives

- Properly erect the slope floor shore in the correct sequence
- Be able to determine the proper lumber size needed in any given situation
- Be able to properly determine the most efficient location for the shore in any given situation
- Be able to erect the most common types of variations of the shore
- Be able to properly anchor the shore in various situations
- Determine the proper angles and the necessary steps to cut those angles
- The students will erect two shores at different heights and will erect one friction and one perpendicular type
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MODULE 2b - SHORING - CONSTRUCTION

Site Needs

An area of at least 20' x 20' with stable and level floor and a sloped ceiling section at least 16' x 16' with a pitch of 3/12 which will start at 2' high and terminate at 6' high.

Station needs

4x4's	8'	16 pcs
2x4's	8'	8 pcs
2x6's	16'	4 pcs
4x6's	16'	3 pcs
2" wedges		24 pcs
3/4" ply gusset plates		12 pcs
8d nails		10 lbs
16d nails		10 lbs
10 1'4 circular saw		1
16" chain saw		1
tool pouch kit		6
4' level		1
angle finder		2
"T" bevel square		2
sledge hammer 10lb		2
3ft pinch bar		2
cats paw nail puller		4

Rotation 4 WINDOW & DOOR SHORE

This station will concentrate on the proper erection of both the window and door shores. The various methods of installing these shores will be shown and the positions of the shores related to racked openings will also be covered.

Station objectives

- Properly erect the window & door shore's in the correct sequence
- Be able to determine the proper lumber size needed in any given situation
- Be able to properly determine the most efficient location for the shore in any given situation
- Be able to erect the most common types of variations of the shore
- Know how to brace and properly anchor the shore to the structure
- Make sure all nail patterns are done properly
- Be able to erect these shores in racked openings
- Students will erect both types of shore's in a square, racked and large opening

MODULE 2b - SHORING - CONSTRUCTION

Site Needs

An area of at least 30 x 30 with three window openings 3'-4' wide, one square, one racked, the other 6' wide. An area with three door openings 3'-4' wide, one square, one racked the other is to be 6' wide.

Station needs

4x4's	12'	24 pcs
2x4's	8'	12 pcs
2" wedges		20 pcs
3/4" ply gusset plates		24 pcs
8d nails		20 lbs
16d nails		20 lbs
10 1'4 circular saw		1
16" chain saw		1
tool pouch kit		6
4' level		1
3ft pinch bar		2
cats paw nail puller		4

Rotation 5 VERTICAL SHORE & HORIZONTAL SHORE

The vertical shore is the most common shore you will normally erect in a collapse scenario. Proper and through knowledge of the erection of this shore is an absolute must. The horizontal shore is utilized to stabilize damaged passageways and normally is constructed in larger structures.

Station objectives

- Properly erect the vertical shore in the correct sequence
- Be able to determine the proper lumber size needed in any given situation
- Be able to properly determine the most efficient location for the shore in any given situation
- Be able to erect the most common types of variations of the shore
- Know how to brace and properly anchor the shore to the structure
- Make sure all nail patterns are done properly
- Students will erect several of these shores, minimum 4 posts each, and at least one with a sloped ceiling situation
- Students will erect a 3 post horizontal shore

MODULE 2b - SHORING - CONSTRUCTION

Site Needs

An area of at least 20' x 20' with stable and level floor and a full ceiling with a height of 8'-10'. Two walls 8' high at least 8'long, 4'-6' in width will be needed for the horizontal shore.

Station needs

4x4's	12'	16 pcs
2x6's	16'	6 pcs
2x4's	8'	6 pcs
2" wedges		20 pcs
3/4" ply gusset plates		12 pcs
8d nails		10 lbs
16d nails		10 lbs
10 1'4 circular saw		1
16" chain saw		1
tool pouch kit		6
4' level		1
3ft pinch bar		2
cats paw nail puller		4

DAY TWO

Rotation 1 DOUBLE RAKER

The double raker shore is utilized where walls are leaning and either broken or have heavy debris behind the wall which may fail the wall at any time. It can also be utilized for shores designed for support above the second story.

Station objectives

- Properly erect the double raker shore in the correct sequence
- Be able to determine the proper lumber size needed in any given situation
- Be able to properly determine the most efficient location for the shore in any given situation
- Be able to erect the most common types of variations of the shore
- Be able to properly anchor the shore in any given situation.
- Determine the proper angles and the necessary steps to cut those angles
- Be aware of the inherent dangers involved with the use of this type of shore
- Students will erect two of these shores both with different insertion points and at 45 and 60 degree angles

MODULE 2b - SHORING - CONSTRUCTION

Site Needs

An area of at least 20' x 20' with stable and level wall at least 20' high and 16' long. The area should have concrete or asphalt floor and a section of earth.

Station needs

4x4's	12'	24 pcs
4x4's	16'	16 pcs
2x4's	8'	12 pcs
2x6's	16'	6 pcs
4x6's	16'	12 pcs
6x6's	16'	6 pcs
2" wedges		24 pcs
3/4" ply gusset plates		48 pcs
8d nails		20 lbs
16d nails		20 lbs
10 1'4 circular saw		1
16" chain saw		1
tool pouch kit		6
4' level		1
2 ft framing square		2
1" thick steel pins 3' long		6
sledge hammer 10lb		2
3ft pinch bar		2
cats paw nail puller		4

Rotation 2 RAKER ANCHOR & BRACING

This station will concentrate on the various bracing and anchoring methods needed to secure properly the different types of raker shores we will be erecting. This station will also cover flying rakers and the proper methods for cutting and determining the angles utilized for all the shores.

Station objectives

- Properly erect raker shore bracing in the correct sequence
- Be able to determine the proper lumber size needed in any given situation
- Be able to properly determine the most efficient location for the bracing in any given situation
- Be able to erect the most common types of variations of the bracing
- Be able to properly anchor the various shores in any given situation.
- Determine the proper angles and the necessary steps to cut those angles
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MODULE 2b - SHORING - CONSTRUCTION

- Be aware of the inherent dangers involved with the misuse or inappropriate anchoring of the various shoring systems.
- Students will anchor down rakers with at least 4 different types of anchors. They will brace a series of rakers with 2 horizontals and 3 horizontals with the proper "X" bracing included
- Students will also erect the flying raker shore at this station

Site Needs

An area of at least 20' x 20' with stable and level wall at least 10' high and 16' long. The area should have concrete or asphalt floor and a section of earth.

Station needs

4x4's	12'	36 pcs
4x4's	16'	16 pcs
2x4's	16'	24 pcs
2x6's	16'	16 pcs
2" wedges		24 pcs
3/4" ply gusset plates		48 pcs
8d nails		20 lbs
16d nails		20 lbs
10 1'4 circular saw		1
16" chain saw		1
tool pouch kit		6
4' level		1
2 ft framing square		2
1" thick steel pins 3' long		6
sledge hammer 10lb		2
3ft pinch bar		2
cats paw nail puller		4

Rotation 3 SPLIT SOLE RAKER

The split sole raker shore is utilized to support damaged or leaning walls, exterior, bearing or non-bearing. They can be erected in several stylizes, however they must be erected in pairs to be considered stable. These are generally utilized where bearing for the shore will be in earth or if a large amount of debris is blocking access to the base of the wall in question.

Station objectives

- Properly erect the split sole raker shore in the correct sequence
- Be able to determine the proper lumber size needed in any given situation

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- Be able to properly determine the most efficient location for the shore in any given situation
- Be able to erect the most common types of variations of the shore
- Be able to properly anchor the shore in earth situations and into concrete.
- Determine the proper angles and the necessary steps to cut those angles
- Be aware of the inherent dangers involved with the use of this type of shore
- Students will erect a split sole raker into an earth situation as well erect one in front of a wall with debris piled at least 3' high

Site Needs

An area of at least 20' x 20' with stable and level wall at least 10' high and 16' long. The area should have concrete or asphalt and a section of earth

Station needs

4x4's	12'	36 pcs
4x4's	16'	16 pcs
2x4's	8'	24 pcs
2x6's	16'	16 pcs
4x6's	16'	6 pcs
6x6's	16'	6 pcs
2" wedges		24 pcs
3/4" ply gusset plates		48 pcs
8d nails		20 lbs
16d nails		20 lbs
10 1'4 circular saw		1
16" chain saw		1
tool pouch kit		6
4' level		1
2 ft framing square		2
1" thick steel pins 3' long		6
pointed shovels		4
sledge hammer 10lb		2
5ft digging bar		4
3ft pinch bar		2
cats paw nail puller		4

MODULE 2b - SHORING - CONSTRUCTION
Rotation 4 SOLID SOLE RAKER

The solid sole raker shore is utilized to support damaged or leaning walls, whether interior or exterior, bearing or non-bearing. They can be erected in several stylizes, however they must be erected in pairs to be considered stable.

Station objectives

- Properly erect the solid sole raker shore in the correct sequence
- Be able to determine the proper lumber size needed in any given situation
- Be able to properly determine the most efficient location for the shore in any given situation
- Be able to erect the most common types of variations of the shore
- Be able to properly anchor the shore in various situations
- Determine the proper angles and the necessary steps to cut those angles
- Students will erect the solid sole raker with a minimum insertion point of 9'6". One is to be erected on an earth situation and have the load properly distributed

Site Needs

An area of at least 20' x 20' with stable and level wall at least 10' high and 16' long. The area should have concrete or asphalt and a section of earth

Station needs

4x4's	12'	36 pcs
4x4's	16'	16 pcs
2x4's	8'	24 pcs
2x6's	16'	16 pcs
4x6's	16'	6 pcs
6x6's	16'	6 pcs
2" wedges		24 pcs
3/4" ply gusset plates		48 pcs
8d nails		20 lbs
16d nails		20 lbs
10 1'4 circular saw		1
16" chain saw		1
tool pouch kit		6
4' level		1
2 ft framing square		2
1" thick steel pins 3' long		12
sledge hammer 10lb		2
5ft digging bar		4
3ft pinch bar		2
cats paw nail puller		4

MODULE 2b - SHORING - CONSTRUCTION

Rotation 5 TESTING STATION

This station is designed to give the students every opportunity to construct, discuss and go over what ever shores they feel the need to review. Any and all questions should be asked at this station. The students will then be tested on the correct fabrication of the shores. Efforts will be guided to the proper step by step erection of the various shores and their proper positioning in a collapse environment.

Station objectives

- Properly erect any shore in the correct sequence
- Be able to determine the proper lumber size needed in any given situation
- Be able to properly determine the most efficient location for the shore in any given situation
- Understand the principles behind the most common types of variations of the shores
- Be able to properly anchor any type shoring in a given situation.
- Determine the proper angles and the necessary steps to cut those angles
- Answer any and all questions the students may have on any shoring techniques or procedures.
- Students will erect a solid sole raker shore, vertical shore, window or door shore, laced post shore, and one other shore which can be determined on the scene

Site Needs

An area of at least 30’ x 30’ with stable and level floor and a full ceiling with a height of 8’-10’. Another section with a slope ceiling of 3/12 pitch, 8’x8’ minimum. A wall section 10’ high and 16’ long with a solid floor and earth floor section. A wall section with several openings two which must be racked, 8’x16’ minimum.

Station needs

4x4’s	12’	24 pcs
4x4’s	16’	10 pcs
2x4’s	8’	12 pcs
2x6’s	16’	16 pcs
4x6’s	16’	6 pcs
6x6’s	16’	6 pcs
2” wedges		24 pcs
3/4” ply gusset plates		24 pcs
8d nails		20 lbs
16d nails		20 lbs

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10 1’4 circular saw	1
16” chain saw	1
tool pouch kit	6
4’ level	1
2 ft framing square	2
1” thick steel pins 3’ long	6
sledge hammer 10lb	2
3ft pinch bar	2
cats paw nail puller	4