Report Date: 20 Nov 2014

Summary Report for Individual Task
052-247-1225
Construct Cribbing System(s) to Stabilize a Load
Status: Approved

Distribution Restriction: Approved for public release; distribution is unlimited.

Destruction Notice: None

Foreign Disclosure: FD1 - The materials contained in this course have been reviewed by the course developers in coordination with the Ft Leonard Wood MO/MSCOE foreign disclosure authority. This course is releasable to students from all requesting foreign countries without restrictions.

Condition: You are a member of an Urban Search and Rescue (US&R) team given personal protective equipment (PPE), load to be stabilized, structural collapse tool kit, various lengths and dimensions of construction grade lumber used for cribbing, wedges, and shims. This task should not be trained in MOPP 4.

Standard: Construct a cribbing system ensuring it will safely support the load, the system is stable and the crib is completed in accordance with (IAW) FEMA Shoring Standards Field Operations Guide (FOG) manual.

Special Condition: None

Safety Risk: Medium

MOPP 4: Never

Task Statements

Cue: None

DANGER

None

WARNING

None

CAUTION

None

Remarks: All required references and technical manuals will be provided by the local US&R command.

Notes: None

Performance Steps

1. Conduct a size-up of the load to be stabilized.

   a. Determine the load's construction, condition, and integrity.

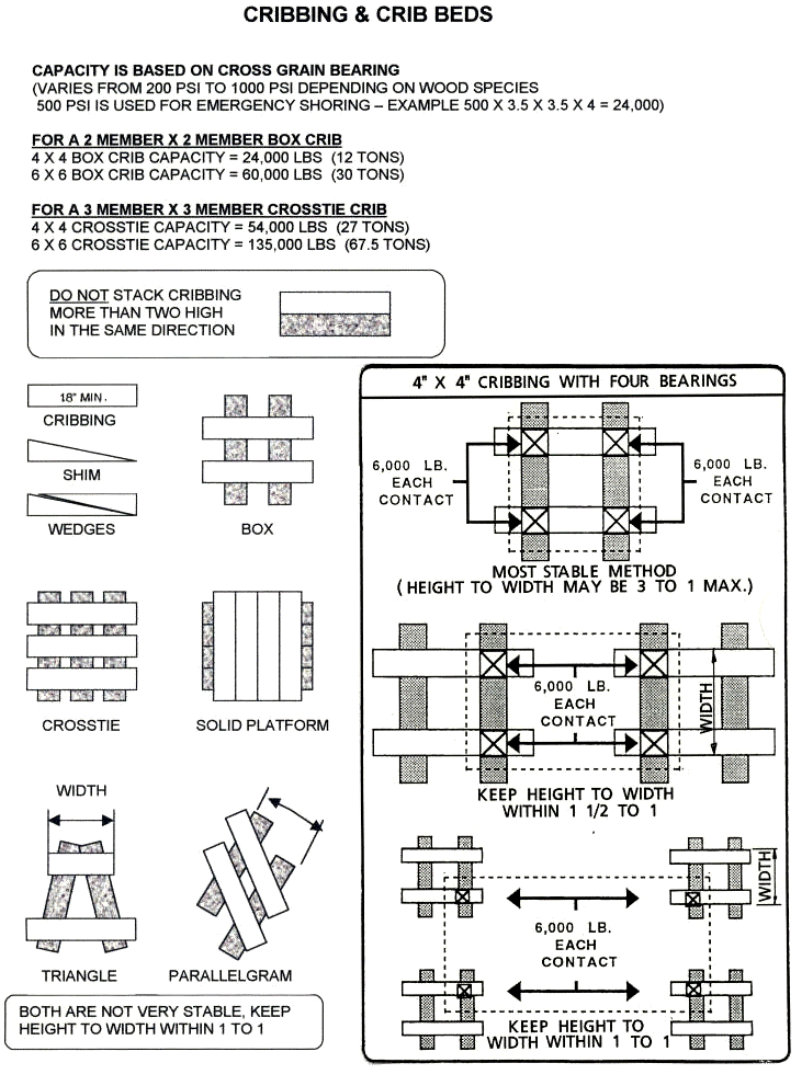
   b. Identify support locations on the load.

   c. Determine whether the ground under the support locations will support the load's weight.

2. Calculate the weight of the load. (See task 052-247-2106)

3. Determine which cribbing system(s) to use.

   Note: Considerations for selecting the appropriate cribbing system are, but not limited to, the type of load, weight of the load, space available, size/type of the cribbing material and ground condition/stability.



Types of cribbing systems

Figure 052-247-1225-1

4. Construct the cribbing system(s).

   Note: When building cribs, make sure the load is supported through solid wood contact. It may be necessary to widen the crib area with supports if the ground is unstable.

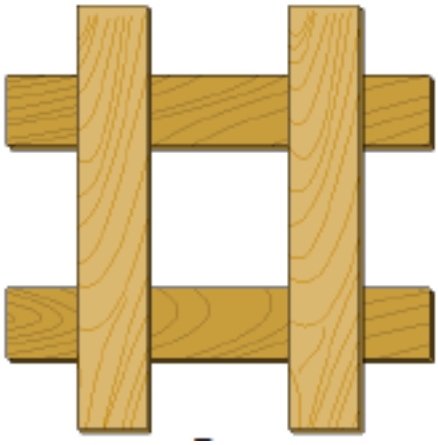
WARNING

The box crib should never be built higher than two times the diameter of the base when used for lifting and three times the base when used for stabilization or supporting a damaged structure. To determine the cribbing length to use, measure the shortest side of crib bed from outside of contact point to outside of contact point.

CAUTION

Heavy loaded cribbing can lose 10% to 20% of its height. This provides a warning of overload and present problems regarding stability. Shrinkage of green lumber will cause the crib to shorten and should be checked daily.

a. Construct a box crib.



Box Crib
Figure 052-247-1225-2

(1) Place the first layer of cribbing near the outer edge of the load.

(a) Space the cribbing evenly for the desired load.
Note: Cribbing should be spaced to allow additional layers to overhang at least 4". (Normal cribbing is 18" - 24")

(b) Ensure the blocks are parallel to each other.

(2) Place additional layers of cribbing as needed.

(a) Place the second layer of cribbing at a 90 degree angle to the first layer.

(b) Place the cribbing 4 inches from the ends of the first layer.

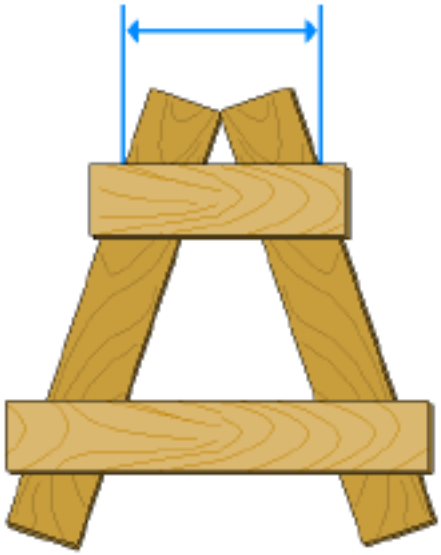
(c) Place an equal number of cribbing blocks as the first layer.

(3) Place wedges to fill void spaces between top of crib bed and load.

WARNING

When constructing a triangle or parallelogram crib, keep the height to width ratio at 1:1.

b. Construct a triangle crib.



Triangle Crib
Figure 052-247-1225-3

(1) Place the first layer of cribbing near the outer edge of the load using two cribbing blocks with the blocks forming a point facing the load.

(2) Ensure the outer ends of cribbing are far enough apart to allow for a 4 inch overlap on both ends of the next layer.

(3) Place the second layer of cribbing on top of the first layer.

(a) Place a 4x4x9 inch crib block across the point end of the first layer ensuring there is a 4 inch overlap.

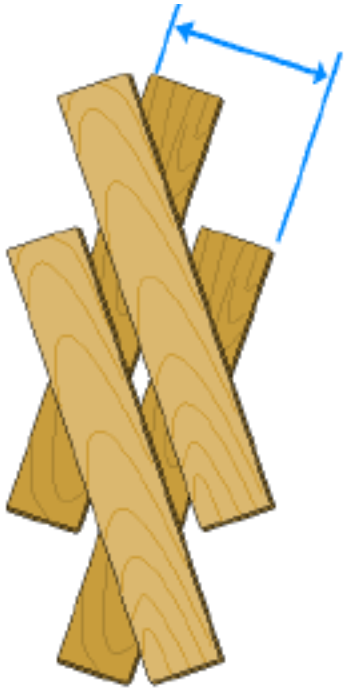
(b) Place a 4x4x18 inch crib block across the back outer end of the first layer ensuring there is a 4 inch overlap.

(4) Place additional layers of cribbing as needed.

(5) Place wedges to fill void spaces between top of crib bed and load as needed.

c. Construct a parallelogram crib.

Note: Parallelogram cribs are used when there is minimal space and a box crib cannot be used.



Parallelogram Crib
Figure 052-247-1225-4

(1) Place the first layer of cribbing near the edge of the load by placing two pieces of cribbing side by side staggered on ends.

(a) Space the cribbing evenly for the desired load.

Note: Cribbing should be spaced to allow additional layers to overhang at least 4". (Normal cribbing length is 18"-24")

(b) Ensure the outer ends are facing the rescuer.

(2) Place the second layer of cribbing on top of the first layer.

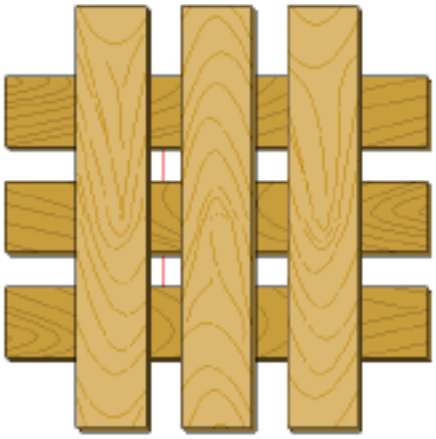
(a) Place the second layer of cribbing more than 90 degrees to the first layer.

(b) Place the blocks 4 inches from the ends of first layer using the same number of blocks.

(c) Ensure blocks are parallel to one another and are staggered on the ends.

(3) Place wedges to fill void spaces between top of crib bed and load as needed.

d. Construct a crosstie crib.



Crosstie Crib
Figure 052-247-1225-5

(1) Place 3 pieces of cribbing near the outer edge of the load.

(a) Space cribbing evenly for the desired load.
Note: Cribbing should be placed to allow additional layers to overhang at least 4". (Normal cribbing is 18"-24")

(b) Ensure blocks are parallel to each other.

(2) Place additional layers of cribbing as needed.

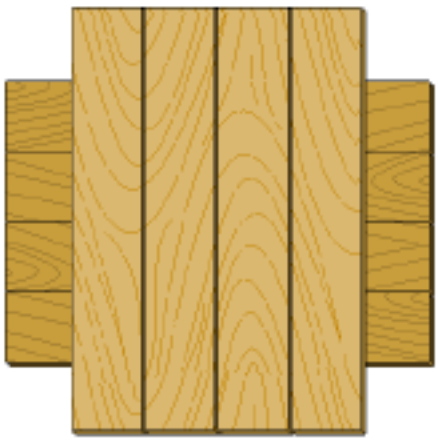
(a) Place second layer of cribbing at a 90 degree angle to the first layer.

(b) Place cribbing 4 inches from the ends of the first layer.

(c) Place equal number of cribbing blocks as the first layer.

(3) Place wedges to fill void spaces between top of crib bed and load.

e. Construct a solid platform crib.
Note: Solid platform cribs are used when the ground is unstable and/or maximum contact with the load is required.



Solid Platform Crib
Figure 052-247-1225-6

(1) Place the first layer of cribbing near the outer edge of the load.

(a) Place 4 cribbing blocks next to each other so they are touching.

(b) Ensure blocks are parallel to each other.

(2) Place additional layers of cribbing as needed.

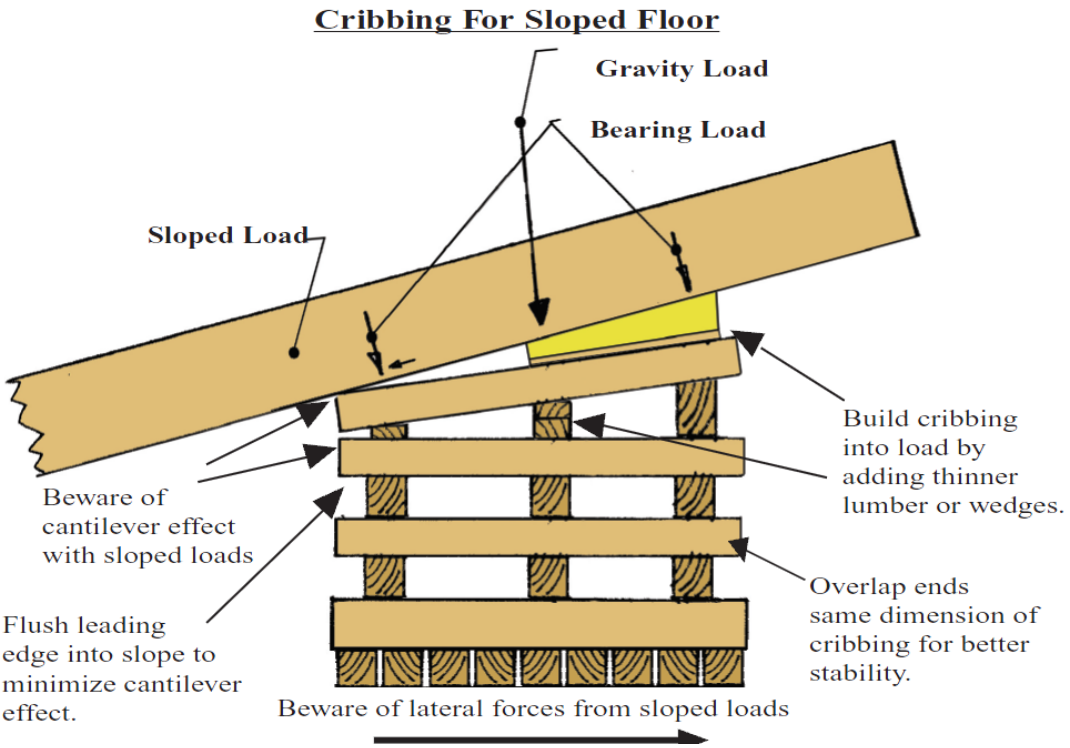
(a) Place the second layer of cribbing at a 90 degree angle to the first layer.

(b) Place cribbing 4 inches from the ends of the first layer.

(c) Place equal number of cribbing blocks as the first layer.

(3) Place wedges to fill void spaces between top of crib bed and load.

5. Construct a sloped surface crib bed.



Sloped Floor Cribbing
Figure 052-247-1225-7

a. Place the first layer of the crib.

(1) Place the ends of the crib perpendicular to the object.
Note: On soft surfaces, use a solid layer of cribbing parallel to the object.

(2) Lay the cribs level to the ground.
Note: The rescuer may be required to excavate the ground to make it level.

b. Place the second layer of cribs.

Note: When cribbing to sloped surfaces, place the ends of the cribbing closest to the load in line with the layer below. This increases crib stability and reduces the cantilever effect.

(1) Lay it perpendicular to the first layer.

(2) Maintain a 4 inch overlap from ends of the first layer.

c. Place additional layers. Continue alternating the direction on each layer until the crib bed components are in near contact with the object to be shored.

d. Change the angle.

(1) Use the last two crib layers to change the angle of the shore to make contact with the shored surface.

(2) Use thinner cribbing material or wedges under the sloped surface area to change the angle of the crib bed.

e. Fill void spaces with wedges.

(1) Fill all void spaces to ensure full surface contact.

(2) Gently tap the wedges to snug up the shore.

6. Evaluate the shore and structure for movement and stability.

(Asterisks indicates a leader performance step.)

Evaluation Guidance: Score each Soldier GO if all measures are passed (P) correctly. Score Soldier NO-GO if any measure is failed (F). If the Soldier fails any measurement, show him how to do it correctly.

Evaluation Preparation: Setup: Provide the Soldier with the items listed in the conditions.
Brief Soldier: Tell the Soldier to construct cribbing systems to stabilize a load.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Conducted a size-up of the load to be stabilized.			
2. Calculated the weight of the load. (See task 052-247-2106)			
3. Determined which cribbing system(s) to use.			
4. Constructed the cribbing system(s).			
5. Constructed a sloped surface crib bed.			
6. Evaluated the shore and structure for movement and stability.			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	Corps of Engineers	US Army Corps of Engineers, Urban Search and Rescue, Shoring Operations Guide, 3rd Edition	No	No
	IFSTA	International Fire Service Training Association (IFSTA) Fire Service Search and Rescue, 7th Edition	No	No
	IFSTA - 1st Edition	IFSTA Technical Rescue for Structural Collapse, 1st Edition	No	No
	NFPA 1006	Standard for Rescue Technician Professional Qualifications	Yes	Yes

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT.

Safety: In a training environment, leaders must perform a risk assessment in accordance with ATP 5-19, Risk Management. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination.

Prerequisite Individual Tasks : None

Supporting Individual Tasks :

Task Number	Title	Proponent	Status
052-247-1233	Rescue an Injured or Entrapped Victim from a Heavy Vehicle or Machinery Incident	052 - Engineer (Individual)	Analysis
052-247-1232	Establish Access and Egress Openings for a Heavy Vehicle or Machinery Incident	052 - Engineer (Individual)	Analysis
052-247-1325	Move a Heavy Load Within a Structural Collapse	052 - Engineer (Individual)	Approved
052-247-1319	Search for Victims in a Light Frame Collapsed Structure	052 - Engineer (Individual)	Analysis
052-247-1326	Stabilize Vehicles and Machinery	052 - Engineer (Individual)	Approved
052-247-1327	Establish Access and Egress Openings for Light Vehicles and Small Machinery	052 - Engineer (Individual)	Approved
052-247-1231	Stabilize Heavy Vehicles and Machinery	052 - Engineer (Individual)	Analysis
052-247-1328	Rescue an Injured or Entrapped Victim from a Light Vehicle or Machinery Incident	052 - Engineer (Individual)	Analysis
052-247-1220	Construct Load Stabilization Systems to Lift a Load from a Trench	052 - Engineer (Individual)	Analysis
052-247-1322	Search for Victims in a Heavy Frame Collapsed Structure	052 - Engineer (Individual)	Analysis
052-247-1323	Construct Shoring Systems for a Heavy Frame Structure	052 - Engineer (Individual)	Analysis
052-247-1228	Perform Rescue of an Injured or Unconscious Victim from a Collapsed Structure	052 - Engineer (Individual)	Analysis
052-247-1320	Construct Shoring Systems for a Light Frame Structure	052 - Engineer (Individual)	Analysis

052-247-1221	Perform Rescue of an Injured or Entrapped Victim from a Trench	052 - Engineer (Individual)	Analysis
052-247-1226	Conduct Lifting Operations for a Structural Collapse	052 - Engineer (Individual)	Approved

Supported Individual Tasks :

Task Number	Title	Proponent	Status
052-247-1326	Stabilize Vehicles and Machinery	052 - Engineer (Individual)	Approved
052-247-1226	Conduct Lifting Operations for a Structural Collapse	052 - Engineer (Individual)	Approved
052-247-1325	Move a Heavy Load Within a Structural Collapse	052 - Engineer (Individual)	Approved
052-247-1232	Establish Access and Egress Openings for a Heavy Vehicle or Machinery Incident	052 - Engineer (Individual)	Analysis
052-247-1324	Breach Heavy Frame Structural Components for Structural Collapse	052 - Engineer (Individual)	Reviewed
052-247-1231	Stabilize Heavy Vehicles and Machinery	052 - Engineer (Individual)	Analysis
052-247-1220	Construct Load Stabilization Systems to Lift a Load from a Trench	052 - Engineer (Individual)	Analysis

Supported Collective Tasks : None