



SSRL Hoisting & Rigging Lift Plan

Stanford Synchrotron Radiation Laboratory

General Information

Lift Plan Document #	Plan prepared by:
Describe the load or items to be lifted:	
Could the load, if dropped, release hazardous materials or radioactivity?	No <input type="checkbox"/> Yes <input type="checkbox"/> (describe)
Is the load irreplaceable or would it be very costly to replace if damaged?	No <input type="checkbox"/> Yes <input type="checkbox"/> (describe)
Brief description of lift activities (specify if rolling or flipping involved)	

Equipment Information

Equipment ID:	Equipment custodian:
Rated capacity:	Operator capacity :

Personnel Protective Equipment (PPE)

Steel-toed shoes	Required for all personnel involved with lift activity to protect from crushing of feet/toes
Gloves	Required when handling materials or guiding a load
Hard hat	Required for all personnel under the bridge of a moving bridge crane and whenever the potential for head injury exists (eg. working near a load where the head could contact load)
Safety glasses	Required when potential exists for objects to fall into eyes (eg. working under bridge of crane and looking up)
Other (specify)	

Hazards and Additional Information

Identify and list additional hazards such as obstacles in load or operator path, magnetic devices in area, foot traffic, oily materials, other activities in area, etc.) and how the hazards will be controlled or mitigated.

Rigging Details

Attach a rigging sketch or photographs to documentation the rigging configuration that will be used. Include enough detail to allow the rigger to select appropriately rated gear. Record any H&R process feedback and Improvement if applicable.

Approvals

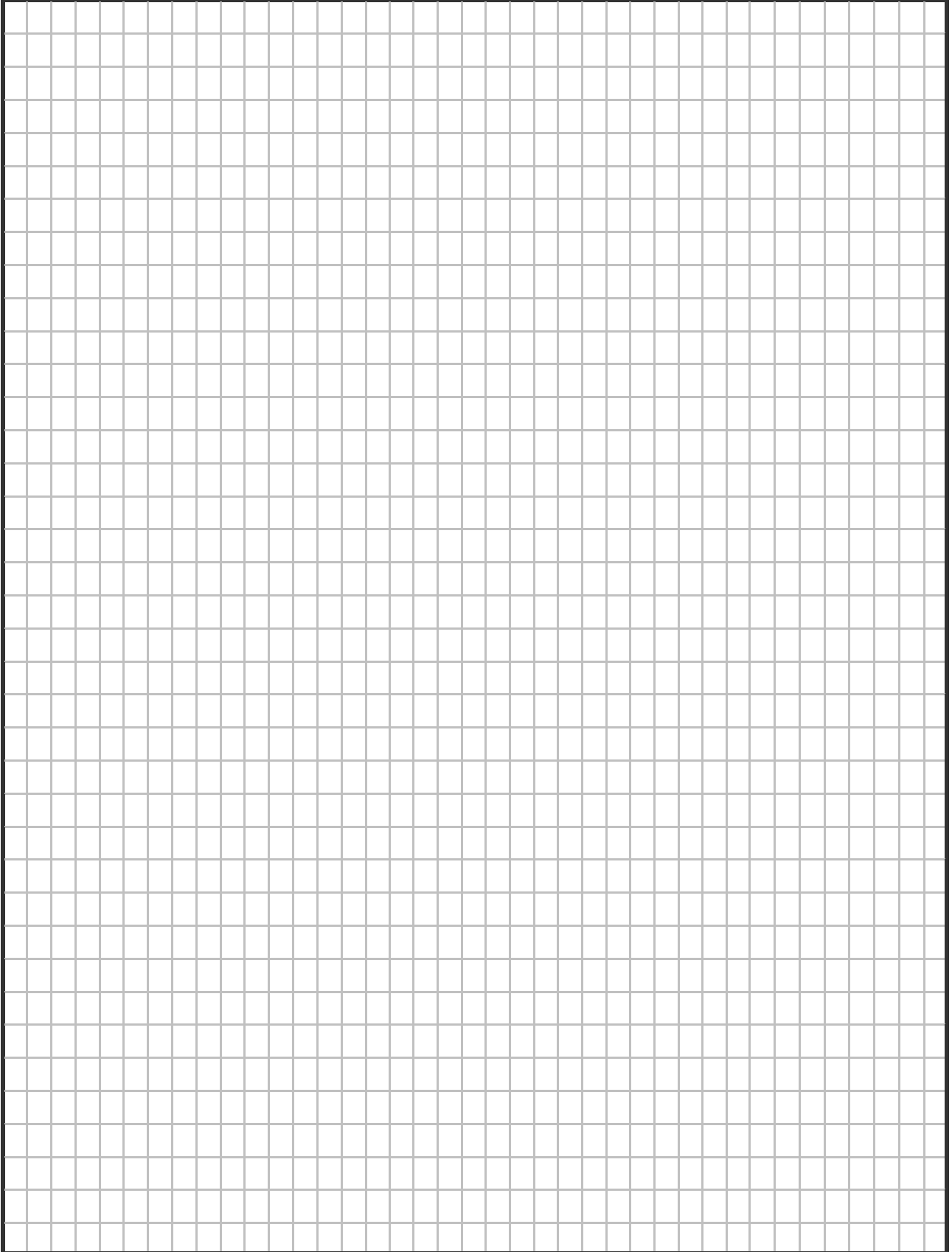
Any supervisor authorizing personnel to use this plan must first review and approve the plan. Lifts that involve flipping or rolling the load require SSRL Rigging Panel approval. Lifts that involve loads that, if dropped, could release hazardous or radioactive materials or loads that are irreplaceable or very costly to replace require approval from the SSRL Safety Officer and the SSRL Rigging Panel member.		
Printed name	Signature	Date

Authorized Personnel (attach more sheets if necessary)

Printed name	Signature	Date



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Guidelines for Generating a Rigging Sketch

The lift plan required a rigging sketch or photographs that include information that needed to calculate the forces on all of the rigging gear used in the lifting activity. This allows the rigger to select appropriately rated gear.

A very simple way to communicate rigging details is to rig the item, take a digital photo of the setup, and then write supporting information and details directly on a print of the photo. Alternatively, you can make a very simple sketch of the item, or use blueprints or other drawings- or combination of these techniques.

Below is a general approach that can be used to document rigging details. The page numbers included below refer to pages in Bobs Overhead Crane & Rigging Handbook (2nd edition).

Step 1. Document the load

- ✚ Photograph (including rigging gear if possible) or make a simple sketch of the load.
- ✚ Measure the load, and enter the general dimensions on the sketch or photo.
- ✚ Indicate the vertical and horizontal center of gravity on the sketch or photo. (pg 98-101)
- ✚ Enter the weight of the item on the sketch or photo. (pg. 83-97)

Step 2. Show how the item will be rigged

- ✚ If a below-the-hook lifting device will be used (eg. lifting fixture, spreader bar, basket, multi-leg bridle, etc): add it to the sketch or photo (if not already shown) in the approximate position of where it will be used.
- ✚ Record weight and serial # of lifting on the sketch or photo.
- ✚ Show how the item to be lifted will be attached to the lifting device or crane hook. If the item has lifting points, show their location on the sketch or photo. If they are threaded holes for installing hardware, indicate the diameter and depth of the holes. Identify all hardware to be used such as (eg. shackles, eyebolts, lift rings). If eyebolts are used for angular lifts, show proper eyebolt orientation. (pg. 164) If the item is hitched directly with slings, show types of hitches used (pg. 173-180).
- ✚ Show how the lifting device attaches to the crane including slings or other hardware used.
- ✚ Calculate the total weight of the load (item plus all rigging gear) and enter on the sketch or photo. Ensure that it does not exceed the rating of the crane.

Step 3. Calculate forces on all rigging gear

- ✚ Designate the specific rating or minimum rating for all rigging gear and hardware.
- ✚ Calculate the sling loads (pg. 102-108) and enter the information for each sling/leg on your sketch. Your sketch should include all the information necessary to perform these calculations as well as the calculations themselves.
- ✚ It is preferred that eyebolts be used only for vertical lifts. If eyebolts are used for angular lifts, calculate the load angle factors and minimum size and rating required for the eyebolts. (pg. 164). Also, indicate that eyebolts must be shouldered on the sketch.

Step 4. If your activity will include rolling, turning, or flipping a load.

- ✚ Show the direction of the rolling activities and the orientation of the chocker hitches.
- ✚ If a come-along or chain fall will be used to assist in the roll, draw them in your sketch and include information on the forces applied to them (similar to Step 3).
- ✚ Identify on the lift plan that two persons will be required to perform the rolling activity.

Step 5. If applicable record any hoist and rigging process feedback and improvement.

- ✚ Discuss and record any hoisting and rigging process feedback and improvement. This can be added onto the area provided for sketches or attach an additional sheet of paper with comments.