3D Lift Plan Manual
Rev. 4 10/21/09
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**Introduction**

Welcome to 3DLiftPlan.com and thank you for using our product. 3Dliftplan.com is the only lift planning application that uses the newest true 3d technology. This is not a CAD based program, so there is no need to buy an expensive additional program to use it, nor the expensive training or wasted time trying to draw objects. We have easy tools to draw many objects for your jobsite. You can use a combination of them to create detailed drawings or just keep it simple with our pre loaded objects.

This comprehensive manual is designed to help you use our site, to better understand how to navigate the site and produce high quality and professional lift plan.

The manual will be updated often as we develop and implement new features; I hope you find it useful, and complete.

Please let us know if there is any thing that requires more explanation or clarification.

Thanks for using 3dliftplan.com!
**About 3DLiftPlan.com**

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<th>Frequently Asked Questions</th>
</tr>
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<td><strong>Why 3D Lift Plan?</strong></td>
</tr>
<tr>
<td>• 3D Lift Plan's step-by-step design allows you to create detailed, accurate lift plans in minutes. With state-of-the-art 3D graphics and a powerful crane selection algorithm, 3D Lift Plan is the easiest to use and most powerful lift planning application available.</td>
</tr>
<tr>
<td><strong>Why online lift planning?</strong></td>
</tr>
</tbody>
</table>
| • It is easily accessible from any location.  
• Program features, load charts, and crane graphics are all updated on our server, so there is no need for you to install updates. |
| **How much does it cost?** |
| • All Link-Belt cranes are provided by Link-Belt at no charge.  
• Other cranes can be purchased online from one week to one year at a time. Create an account to see the prices of the cranes in your fleet. |
| **Can I use my entire fleet in 3D Lift Plan?** |
| • Yes, you can use as many or as few cranes as you wish.  
• We have over 500 cranes to choose from. If we don’t have one of your cranes in our database, we can add it at no additional charge.  
View the complete list of cranes available on 3D Lift Plan. |
| **Do I need to know CAD?** |
| • No, 3D Lift Plan does not use any CAD-based program. |
| **Do I need any special training to use 3D Lift Plan?** |
| • No, you just need to know how to browse the internet and perform basic windows operations.  
• We can provide training if you feel it would increase productivity for you or your company. |
| **Does 3D Lift Plan work with metric units?** |
| • Yes, you can choose to work in US or Metric units. |
| **What does my computer require?** |
| • Pentium III-class 600 MHz processor  
• Hardware-accelerated 3D graphics card with at least 32MB of video memory  
• DirectX version 9 (or newer)  
• An X3D browser plugin. We recommend the Flux Player.  
• Internet Explorer v6 (or newer) |
| **What is the relationship between 3D Lift Plan and Link-Belt?** |
| • Link-Belt sponsors all of their cranes in 3D Lift Plan at no charge to the customer. |
Current Features of 3DLiftPlan.com

Features and Benefits of 3D Lift Plan

Convenient
- Runs online in your web browser, accessible from any location.
- Cranes can be added in seconds. You don't need to wait days or weeks for an installation for all your pc's.
- You will always have the latest version, no need for you to install updates.
- Safe and secure storage of lift plans on the 3D Lift Plan server.

Easy-to-Use
- Doesn't require CAD or any other expensive program to run.
- Easy to move back and forth through the program to make changes.

Affordable
- Link-Belt cranes are provided by Link-Belt at no charge.
- Purchase other cranes for as little as one week, paying for just the time you need.

3D Graphics
- Highly-accurate graphics are in true 3D, allowing you to view the lift plan from any angle.
- Easy to create detailed 3D jobsites and rigging designs.
- Change ground and skyline colors.

Lift Simulation
- Performs a simulation of your lift while monitoring the crane's capacity.
- Allows you to view the load chart to see the capacity at various distances.

Crane Selection
- Searches your entire fleet of cranes in seconds.
- Displays the most economical crane configurations that can handle your lift at the top of the results list, allowing you to save time sifting through long lists of possible choices.
- Accounts for any obstruction in your jobsite whether it's to the side, front, rear, or above the crane.
- Provides several filter options so you can search only the cranes and configurations you choose.

Print Detailed Lift Plans
- Print your lift plan from any viewpoint.
- Quickly add notes to the printout.
- Show your logo on the printout.
Minimum Requirements

Pentium III-class 600 MHz processor

Hardware-accelerated 3D graphics card with at least 32MB of video memory

DirectX version 9 (or newer)

Flux Player Browser Plug in

Internet Explorer v6 (or newer)
Creating an Account

Click the Button Create a New Account

Select a Username, password and fill in all of your contact information.

Make sure you read all of the Website Application User Agreement, check the box that your agree to the terms and click the submit button.
My Account Page

Use these links to add and edit your cranes in your account.

Use these links to set preferences, change your password or edit your account information.

Create, Open and Delete Lift Plans.

Read the latest up to date news about 3dliftplan.
# Getting Started

This page will walk you through the basic steps required to create a lift plan. You can return to this page at any time by clicking the "Getting Started" link on your account page or under the "Support" menu option.

## Step 1 - Create an account
- On the home page, click the "Create a new account" button and fill out the form that appears on the screen. Be sure to write down your password and keep it in a safe place. Your username and password are required every time you log on to 3D Lift Plan.
- You will access the features of 3D Lift Plan from the "My Account" page, which you can reach by clicking the "My Account" link at the top of the page.

## Step 2 - Install the Flux Player
- The Flux Player by Media Machines is a free browser plugin that displays the 3D images.
  - [Click here to install the Flux Player](#)
  - *Note to Windows 98/Me Users:* The Flux Player uses the Microsoft XML libraries (MSXML) to load XML-encoded X3D files. These libraries may not be installed on your system. [Click here to download MSXML](#).
- If you have any problems installing the Flux Player or viewing 3D Images on the website, please visit this page: [Troubleshooting (3D Images)](#).

## Step 3 - Add cranes to your account
- From the "My Account" page, select "Add Cranes".
- Select all of your Link-Belt cranes in the list, then press "Add to Shopping Cart". Note: All Link-Belt cranes are free of charge.
- Then select all of your other cranes in the same manner, changing the "Crane Make" to see a list of other manufacturer's cranes.
- Once you have added all of your cranes to the shopping cart, press "Purchase Cranes".

## Step 4 - Create a new Lift Plan
- From the "My Account" page, enter a name for your new lift plan and press "Create New Lift Plan". This name will help you identify your lift plan if you want to make any changes to it after you close it.
- Your lift plan will automatically be saved every time you navigate to a different page of the website, so there is no need to manually save a file.
- When you want to load a lift plan later, you can find it in the "Load a Lift Plan" table at the bottom of the "My Account" page.

## Step 5 - Design your Lift Plan
- 3D Lift Plan will guide you through the steps required to design your lift plan, just follow the instructions at the top of each page.
- Generally, you will fill out the information on each page and press the "Next" button to go to the next step.
- The navigation bar on the left side of the page allows you to go back to any step to make changes. Please note, if you make changes to the load or jobsite you will need to perform the Crane Search again to account for the changes you made.

## Further Assistance
- If you need further assistance, please press the "Support" button at the top of the page.
Installing and Using the Flux Player

Install the Flux Player
- The Flux Player by Media Machines is a free browser plugin that displays the 3D images.
- Click here to install the Flux Player
- **Note to Windows 98/Me Users:** The Flux Player uses the Microsoft XML libraries (MSXML) to load XML-encoded X3D files. These libraries may not be installed on your system. Click here to download MSXML.
- If you have any problems installing the Flux Player or viewing 3D Images on the website, please visit this page: Troubleshooting (3D Images)
Adding Cranes

We offer cranes from many different manufacturers. Simply pick the manufacture from the drop down list and see all the cranes we have available for each one. You will also notice a tier number next to each model. These tier numbers help you determine the cost to use the model on 3dliftplan.com. For example, the Terex-Demag AC25 is a Tier 3 crane. If you look at the table to the left you will see Tier 3. You can purchase the use of the AC25 for 7 days to 365 days. If we want to use the AC25 for 30 days the price would be $25.
Click the purchase button to advance to the credit card entry form. If you would rather we send you an invoice for payment by check just call us or email us with your order number.
Edit Account Information

Update all of your account information at any time. Simply click on the Edit Account Information link from the My Account page.
Upgrade to a Corporate Account

Upgrade to a corporate account to access features like:

Tandem Lifts, Advanced Rigging, Copy Lift Plans, Change Crane Colors, Snapshot and Share Feature. With a corporate account you can also share cranes, 3D objects, and lift plans between co-workers.

<table>
<thead>
<tr>
<th>Corporate Account Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Connect to a Corporate Account</strong></td>
</tr>
<tr>
<td>If you would like to connect this account to a Corporate Account, enter the Corporate User Name provided to you by your account administrator.</td>
</tr>
<tr>
<td>Corporate User Name: [Input] Submit</td>
</tr>
</tbody>
</table>

| **Upgrade to a Corporate Account** |
| If you would like to convert this account into a Corporate Account, click here. (No changes will be made to your account when you click this link) |

For more information about Corporate Accounts, click here.
Corporate Account Cont’d

My Account - Purchase Corporate License

Purchase Corporate License:
- Purchase new Corporate License
- Extend my current Corporate License
- Add more seats to my current Corporate License

Account Type:
- Shared Login
- Individual Login

Seats: 2

Your Order:
- 2 seats (365 days):
- Your account will expire on August 29, 2010

Total Price: [Price]
- Purchase
- Cancel

Credits will be removed from your account.

Your current license
- Seats: ...
- Expires: ...
- Credits: 700

Corporate Account Pricing
- First two seats: $250 each
- Seats 3-5: $200 each
- Seats 6-10: $150 each
- Seats 11-20: $100 each
- Additional Seats: $50 each
To allow user access to your corporate account have them create their own individual account and tell you their registered username so you can add it to this list. When you are done typing in their username click the "Update" button.
Corporate Account Cont’d

Corporate Account Information

Connect to a Corporate Account
If you would like to connect this account to a Corporate Account, enter the Corporate User Name provided to you by your account administrator.

Corporate User Name: [Input Field]  Submit

Upgrade to a Corporate Account
If you would like to convert this account into a Corporate Account, click here. (No changes will be made to your account when you click this link)

For more information about Corporate Accounts, click here.

User accounts will enter the corporate account name here, then click submit.
Setting Preferences

Set all of the preferences you want to default to when using 3dliftplan.com.

Select whether you want to work in metric or U.S. units.

Select the default color and texture for the sky and ground color in your lift plans. Select whether you want to show the grid and xyz axis and what view you want for the default.

Select the size of you want the flux player window to be.

Specify the default clearances you want for running crane selection. For boom clearance you might want to make it a lower number like 2 so you will get more results when running crane selection.
Managing, Opening and Creating Lift Plans

Create a new lift plan by simply typing in a name and left clicking the “Create New Lift Plan” button.

Open an existing lift plan by left clicking the “Open” next to the lift plan you want to open.

To delete a lift plan, left click on the “Delete” button next to the lift plan you want to delete.
Lift Plan Settings Page

- **Put a Description in for your Lift Plan**
- **Give your Lift Plan a name**
- **Choose between US or Metric units**
- **Choose the Ground color for your plan**
- **Choose the Sky color for your plan**
- **Choose the default viewing position for the images as the appear on each screen**
- **Choose whether you want to see the sky and ground textured**
- **Choose whether you want to see the XYZ axes markers and the grid**

**Lift Plan Settings**

- **Lift Plan Name:** manual
- **Description:**
- **Units:** U.S.
- **Ground:** Sand
- **Sky:** Morning
- **View:** Iso1
- **Show Grid**
- **Show Grid Labels**
- **Jobsite Origin:** XZ
- **Import Lift Plan**
- **Change Crane Colors**
- **Advanced Lift Setup**
- **Quick Lift Setup**

**Instructions:***

- **Enter a Customer name**
- **Copy an Existing Lift Plan**
- **Once you have selected your crane you can return here to change the color of your crane. Some cranes cannot be changed.**
- **Choose the Advanced Lift Setup to add rigging and create an advanced jobsite.**
- **Use the Quick Lift Setup, answer a few questions then find the best liftplan’s crane selection find the best crane fast.**

For Instructions on the Advanced Lift Setup go to page 28
Quick Lift Setup Step 1

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>How much weight are you lifting?</td>
<td>1,000 lbs</td>
</tr>
<tr>
<td>How high are you lifting?</td>
<td>15 ft</td>
</tr>
<tr>
<td>What shape is the object you are lifting?</td>
<td></td>
</tr>
<tr>
<td>How big is the object you are lifting?</td>
<td></td>
</tr>
<tr>
<td>Length:</td>
<td>5 ft</td>
</tr>
<tr>
<td>Width:</td>
<td>5 ft</td>
</tr>
<tr>
<td>Height:</td>
<td>5 ft</td>
</tr>
</tbody>
</table>

Answer a few simple questions about your lift to determine which crane you need for the job.
Quick Lift Setup Step 2

Add a front obstruction, and give it dimensions. Enter your load distance (distance from front edge of building to center of load), and enter your minimum setup distance (distance from center pin of crane to front edge of load.)

You can also enter multiple heights and depths for your front obstruction.

You can also enter obstructions in behind you or to the right or left of you. For the rear building how much room do you have between the 2 buildings? For the buildings to the left and right assume that your crane is going to be centered on the front obstruction. How far over to the left or right do you want the edge of the obstruction to start?
Crane Search Setup Page

Starting point for placement of center pin
Ending point for placement of center pin
Location of center pin from side to side

The red area represents the area in which the crane will be placed.

White Line Represents the location you want to place the center pin.

Controls to place the load on the jobsite, X is the position lengthwise on the jobsite. By choosing 5 the load will be placed starting at 5’ from 0 on the X axis. Set Z to the location from side to side, and Y for the height you want to lift it.

Controls to set the clearance of the crane components to all your jobsite obstructions, for example if you had a power line you would want to set your boom clearance to 10 to make sure that when the program performs crane selection it choose a crane and configuration that is at least 10’ away from the power line.

<table>
<thead>
<tr>
<th>Crane Location</th>
<th>Load Location</th>
<th>Clearances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. Setup Distance (ft)</td>
<td>X (ft)</td>
<td>Boom (ft)</td>
</tr>
<tr>
<td>Max. Setup Distance (ft)</td>
<td>Y (ft)</td>
<td>Boom (ft)</td>
</tr>
<tr>
<td></td>
<td>Z (ft)</td>
<td>Rigging (ft)</td>
</tr>
<tr>
<td>Crane Height (ft)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Back | Update | Next
After creating your jobsite with the Quick Lift Setup feature or by manually adding jobsite obstructions, you can search your entire fleet of cranes to determine which ones can perform the lift.

**Crane Search Setup**

The Crane Search Setup page lets you set the position of the load at a critical point in the lift, and lets you set a range of possible locations for the crane.

<table>
<thead>
<tr>
<th>Crane Location</th>
<th>Load Location</th>
<th>Clearances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. Setup Distance (ft) 15</td>
<td>X (ft) 20</td>
<td>Carrier (ft) 5</td>
</tr>
<tr>
<td>Max. Setup Distance (ft) 60</td>
<td>Y (ft) 30</td>
<td>Boom (ft) 5</td>
</tr>
<tr>
<td>Z (ft) 0</td>
<td>Z (ft) 0</td>
<td>Rigging (ft) 5</td>
</tr>
<tr>
<td>Crane Height (ft) 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Load Location X and Z represent the center point of the load, relative to the jobsite origin. Load Location Y is the distance from the ground to the bottom of the load.

The Clearances box allows you to set minimum clearance requirements for various parts of the crane. A Carrier Clearance of 5 ft will ensure that the carrier of the crane is at least 5 ft away from all jobsite obstructions. A 5 ft Boom Clearance will keep the boom at least 5 ft away from all jobsite obstructions. Setting the Rigging Clearance to 5 ft will keep the Load and Rigging components at least 5 ft away from the boom or jib.

Setup Distance is the distance from the jobsite origin to the center pin of the crane. As an example, if you set the Minimum Setup Distance to 20 ft, the crane center pin will be positioned at least 20 ft from the primary obstruction.
The 3D image helps represent the Crane Search parameters. The white line represents the range of the crane center pin location. The red area represents the allowable area for the crane carrier. In other words, the crane center pin will be placed somewhere on the white line, and the entire carrier of the crane will be placed inside the red area.

When you have set all the Crane Search Setup values, click Next to choose which cranes to search.

**Search Cranes**

The Search Cranes page lets you choose which cranes to search. You can also use the filters to narrow down which cranes and charts to search. In the Search Options box, there are two options to choose from...

1) "Find best result for each crane" - This option will find the optimal configuration for each crane, which typically means the least amount of counterweight and shortest possible boom and jib.

2) "Find multiple results for each crane" - Select this option if you would like to see multiple configurations for each crane.

When you are done selecting which cranes to search, click Next to perform the search.

**Results**

The results page lists all the cranes that can perform the lift. Information about the load chart and crane configuration are provided in the table. Click the "Use This Chart" button next to the chart you would like to use. The crane will be automatically set up and you will be sent to the Lift Simulation page.

If you don't see any results, go back through the Search Setup steps to try to broaden your search. Try searching more cranes, selecting fewer filters, decreasing clearance requirements, and increasing the range of possible setup distances.
Select the cranes you would like to run crane selection on.

Select whether you would like to include or exclude different charts.

Select the minimum percentage of chart you want to use.

Select whether you want to find the best result for each crane that can perform the lift or find multiple results from each crane.
Search Result Page

If you don’t find a crane below or crane selection did not find any cranes left click on the back button and select different cranes, change clearances or change the location you selected for the center pin.

If at any point you want to go back and make changes to your load, obstructions, or search setup simply click on the link you want.

****If you have not added cranes to your account there will be no cranes listed. Please make sure you return to the My Account page and open the Add Cranes link****
Select the Load Type you want to use. You can select the 3D object to access all our custom objects like wind turbines, trees, beams and more. Once you left click on a load you will be taken to the next page where you can enter all the dimension information for the load.
Load Dimensions Page

Enter the weight of your load

Select the color you want the load to be

Rotate the load under the hook or angle your load. Then select whether you want the boom to stay at that angle when you swing the boom.

Select whether you want the load to rotate with the boom while you are swinging the boom. Or uncheck to keep load at the angle of the building you are setting it on.

Enter the Dimensions for the load
Choose the rigging configuration that best represents your rigging setup.
Rigging Offset Page

Introduction

By default, the load is centered directly below the hook. If you want to offset the load, you will need to modify the Rigging Offset values on the Rigging Properties page.

<table>
<thead>
<tr>
<th>Rigging Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Set to</strong>...</td>
</tr>
<tr>
<td>X (ft): 0</td>
</tr>
<tr>
<td>Y (ft): 0</td>
</tr>
<tr>
<td>Z (ft): 0</td>
</tr>
<tr>
<td>Rotation (°): 0</td>
</tr>
</tbody>
</table>

Rigging Offset

The easiest way to offset the load is to choose a point from the "Set to" drop down box, such as "Top Right", "Top Back", or "Bottom Center". This will automatically position the load so the hook is directly above the point you choose. If you select a "Top" point, the pick points will be level with the top of the load. If you select a "Bottom" point, the pick points will be level with the bottom of the load.

To offset the load to a different point, you will need to modify the X, Y, and Z values in the Rigging Offset box. To move the load forward or backward, modify the X value. A positive X value will move the load forward. A negative X value will move the load backward.
To move the pick points down to the side or bottom of the load, modify the Rigging Offset Y value.

If you change the load angle or rotation (on the Load Details page), the coordinate axes also rotate. For instance, if you rotate the load 90 degrees, changing the Rigging Offset X value will now move the load left and right instead of forward and back. If you change the Load Angle to 90 degrees, the X-axis will be oriented vertically, so adjusting the Rigging Offset X value will move the pick points up and down.

**Load Rotation and Rigging Rotation**

When you change the Load Rotation (on the Load Details page), the rigging also rotates with the load. To rotate the rigging objects without rotating the load, you should change the Rotation value on the Rigging Details page.
Select how many parts of line you need. When you select 1 you will have a headache ball. When you select multiple parts of line you will get a hook block and the total parts of line you selected.

Use our sling calculator to determine the length of your slings, the leg height or the angle of your slings. 3D Lift Plan will also calculate the sling tension.

Enter in the weight of the rigging you are using.

You will notice the load that you selected and sized on the previous pages.

Offset your rigging on the load. Refer to the previous page for instructions.

Enter the length of the slings you want to use and the distance between where you are planning on attaching your rigging to the load.
Spreader Bar Rigging Details

Enter the dimensions for the spreader bar you are using. Then select the distance you need between where your slings attach to the upper and lower part of your spreader bar.
Advanced Rigging Feature

Select what rigging you want to work with.
Hook- You can enter in the weight and capacity of your hoist line, hook and block. You can put rigging under your hook one at a time.
Slings- You can enter size of wire rope, capacity and weight. Y can add rigging to each end of the slings you have. If you have 2 slings it will add 2 rigging items at a time when you select to add them. 4 slings will add 4 rigging items at a time to either the upper or lower end of the slings.
Spreader Bar- You can enter weight, dimensions and capacity of your spreader bar.
Load- will add rigging items to the load.
I have selected to add rigging to the upper part of my upper slings. You can select to add a shackle, pick between Crosby or Columbus McKinnon or customize your own. As you select the model and size of the shackle you will notice that 3D Lift Plan has added 2 shackles to the upper part of your slings.

You will notice as you add rigging that all the information is added to the above info box, and the weights of all the rigging is added to the load weight.
You will notice that you have 2 places you can select rigging, above and below. On the previous page rigging was added to the upper part of the sling and the rigging that was selected was above the Sling.

To add rigging to the lower part of the sling add rigging below the Sling section.
Adding Obstructions

3D Lift Plan Coordinate System

The 3D Lift Plan Coordinate System is oriented as shown in the image below. X and Z values represent a location on the ground. Y values represent a vertical distance above the ground. Grid lines are drawn every 10 ft or 10m if you are using metric units.

Adding an object to the Jobsite

You build and edit your jobsite from the Jobsite Obstructions page, which can be reached by clicking the "Obstructions" link on the left-side menu when you are creating a lift plan.

To add a new object to the jobsite, press the "Add New Object" button.

![Diagram of 3D Lift Plan Coordinate System]

A simple box will be created. If this is the first object you are adding to the jobsite, the front edge of the box will be placed at the jobsite origin.

In 3D Lift Plan, the Length of an object always corresponds to it's size in the X-direction. The Width always cooresponds to the Z-dimension.
To change the dimensions of the object, edit the "Length", "Width", and "Height" values in the Object Properties box, then press the "Update" button.

To change the location of the object, edit the "Center X", "Center Z", and "Bottom" values. For instance, to position the default box so the front edge is 20 ft from the jobsite origin, set "Center X" to 25 ft, accounting for the 10 ft length of the object.

Note: When only one object exists on the jobsite, the program will keep it's front edge at the jobsite origin by default. To move the object in the x-direction you will need to uncheck the "Keep object edge at origin" checkbox.

**Selecting a 3D Object**

You can change the shape of the object in the "Shape" dropdown list.

<table>
<thead>
<tr>
<th>Jobsite Object</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Object Name:</strong> Obj001</td>
</tr>
<tr>
<td><strong>Object Name:</strong> Obj001</td>
</tr>
<tr>
<td><strong>Shape:</strong> Box</td>
</tr>
<tr>
<td><strong>Color:</strong> Gray</td>
</tr>
</tbody>
</table>

You can choose from the pre-defined objects like Box, Cylinder, and Text, or you can select "3D Object" to display one of many detailed custom 3D objects that are included with 3D Lift Plan. After selecting "3D Object" from the list, you will be transferred to the 3D Object Selection page. Choose one of the Categories on the left, then select which object you want to use. Some objects are free to use, but some require purchase.
To place objects on the jobsite use the controls in the center column. Center X is the placement on the jobsite lengthwise. If you building is 10’ long and you want your building to start at 0 then the number you put in Center X is 5. You will use positive and negative numbers to move the objects into place.

To place an object like a power line you will want to put the height in the Bottom cell. So if you want a power line to start at 100’ in the air, put 100 in the Bottom cell.
Cylinder Object

Enter the dimensions of the Cylinder, and location you want to place it on the jobsite.
Sphere Object

Enter the diameter of the sphere, and the location.
Enter the dimensions of the building, how many floors the building has, and where you want it on the jobsite.
Rope Object

X1 represents the starting point in the x direction of your rope; X2 represents the ending point of your rope in the x direction. Same applies with the Y1 and Y2, Z1 and Z2. The sag represents how far down you want the rope to sag in the middle.
Adding Text to your Jobsite

Enter the X, Y, Z coordinates for where you would like to place the text on the jobsite.

Select Text from the Shape dropdown box.

Type in the text you would like to appear, Enter the Font Size.
Select the category of the object you want to add. Some categories also have a sub category.

You will need credits in your account to purchase some of the objects. Some objects are free. To purchase credits you can return to the My Account Page and purchase credits.
Choose Crane Page

You can also select the exact crane you would like to use for the job. Choose the manufacture, and model you would like to use. You can also select the exact configuration you want to use.

Select any of the links above to make changes to your load, jobsite or choose cranes from your list of cranes or from the crane search results.

Find the list of configurations and select the one you would like to use.
Lift Simulation Page

Select any of the links above to make changes to your load, jobsite or choose cranes from your list of cranes or from the crane search results. You can also select to add Dimensions to your jobsite or view the load chart.

Monitor the radius, tip height and chart capacity as you simulate the lift.

Use these controls to change the location of the crane on the jobsite, change carrier, swing angle and hook height. Change the boom length, boom angle, jib length and offset or set your lift radius.

Click the button next to boom length for intermediate boom lengths. Click the button next to boom angle to lay the boom and jib down flat to determine the setup area needed.

To print your lift plan left click on the Print button.

Add additional cranes to the website by clicking on Add Crane link.

Position your crane by entering your center pin location. You can also change the height of your crane to put it on top of a mat or up a hill.

Change the Load Location, or change the angle or rotation of the load.

If you don't see a 3D image, click here to install the flash player.
Select which dimensions you want to show on your lift plan.

If you want to place an arc in the air to show where tower cranes may intersect, simply enter the height you want the arc to be.

Use the dropdown box to select the Obstruction you want to turn dimensions on for. Place a check in box next to the dimension you want to show for the Load and Obstructions.

Click the Add New Dimension link to use our custom dimension feature.

Click one of these links to turn on any of these dimensions.
**Custom Dimension Feature**

With the custom dimension feature you can draw a dimension from any 2 points on the jobsite. You can use the coordinate system to select 2 points on the grid. Or you can select any point or edge on the crane, load or any obstruction. Use the dropdown list to determine the starting and ending point.

Click the link Add New Dimension

Select the direction your dimension will run.

**XYZ Distance** - Diagonal dimension that measures distances between 2 points that 1 point is higher than the other and at an angle, not straight up and down.

**XZ Distance** - Diagonal dimension that is at the same height but is at an angle

**X Distance** - A dimension that runs straight in the X direction

**Z Distance** - A dimension that runs straight in the Z direction

Flipped distances flip the text in the opposite direction
If we want to measure the distance between the right front outrigger and the tree I will first select an XZ distance because the dimension will run in both the X and Z direction. Next select your starting point for the dimension.

Point #1- Select the crane from the dropdown list then select the Rear Right Outrigger. This will be the starting point for the dimension.

Point #2- Select Tree then Center. This will draw a diagonal dimension between the Front Outrigger and the Center of the Tree.
View the Load Chart for the configuration you are using.

You can enter in for a stowed jib deduction, wind, etc.
Click on this link to launch the 3D Lift Plan Publisher to print out your plan.

You can also print out our critical lift worksheet.

***If this is the first time you have tried to print, you might have to install the .net framework. You will see a grey box in this area that will tell you. Installing the .net framework takes some time to install. Most computers already have this installed from the manufacture.***
3D Lift Plan Publisher

Select the layout format and resolution you want for your lift plan. You can select up to 4 images on the plan.

Enter a title, description and customer name for your lift plan.

Add your company logo by clicking on the “Browse for Image” button and point to the file you want to use.

Click the Select 3D Position button to select the angle you want to print at.

Select the Print or Preview button to print out your plan.

Add general notes to your lift plan; enter ground bearing pressure info, or anything you want to show on your plan.

Select the 3D view you want to use in your lift plan using the flux controls located on the grey bar at the bottom of the image.

Select whether you want to print a rigging plan or a lift plan.
Printing Lift Plans to Paper or for Emailing to a Customer

To print your lift plans on paper simply select the printer you want to use.

To email lift plans to your customers you will need a program like Adobe Acrobat Professional, PDF Printfactory, Snagit, etc. Simply select the program from your list of printers (like Adobe PDF below) and name and save the pdf.
Critical Lift Plan Worksheet

Lift Plan Worksheet

Title: Critical Lift Plan Worksheet
Date: 3/27/2009

Project: [Project Name]
Job Number: [Job Number]

Description: [Description]

Owner: [Owner Name]
Customer: [Customer Name]

Site Address: [Site Address]

Rig Inspection: [Yes/No]
Load Calculation: [Yes/No]

Crane Information

<table>
<thead>
<tr>
<th>Crane</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Crane Type]</td>
<td>[Capacity]</td>
</tr>
</tbody>
</table>

Lift Information

<table>
<thead>
<tr>
<th>Capacity</th>
<th>[Capacity Value]</th>
</tr>
</thead>
</table>

Crane Configuration

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Configuration Details]</td>
<td>[Value]</td>
</tr>
</tbody>
</table>

Load Configuration

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Configuration Details]</td>
<td>[Value]</td>
</tr>
</tbody>
</table>

Pre-Lift Checklist

- [Checklist Items]

Signatures

[Signatures]

http://www.3dlifplan.com/PrintWorksheet.aspx
Tower Crane Planning

Choose the tower crane you want through the choose crane page. Then configure your tower crane using our Edit Tower feature.
Ground Bearing Pressure

If we have ground bearing pressure information you will notice on the lift simulation page under results a link for Ground Bearing Pressure. Click on that link to access the ground bearing pressure.

You will notice the information for the configuration and load you have selected.

***We are working on adding as many cranes we can find information on for ground bearing pressure. If we don’t have your crane please let us know. ****
Crane Setup

Put a check mark in the box and click update. 3D Lift Plan will draw your boom and jib flat on the ground to calculate the area you need to setup the crane.

Put a check mark in the box and click update. 3D Lift Plan will draw your boom and jib flat on the ground to calculate the area you need to setup the crane.

No lines of the load chart match the current configuration.

Put a check mark in the box and click update. 3D Lift Plan will draw your boom and jib flat on the ground to calculate the area you need to setup the crane.
Click on the Export Link to export your lift plan to load into AutoCAD.
CAD Export Cont’d

Click the link to Download Lift Plan. You will be asked how and where you want to save the file.

Depending on the program you are loading the program into you may need to use a program like AccuTrans 3D to convert the exported file into the format your CAD program needs.
Multi-Crane Lift

Configure the Cranes

Set up the primary crane just like you would for any other lift. First, create the load and set up the rigging. Then build the jobsite, choose the crane configuration, and position the crane where you want it on the jobsite from the Lift Simulation page. You should also set the load angle and rotation so the load is in the correct position for the beginning of the lift.

Next, click the "Add Crane" button in the top-right corner of the screen. Select and configure the secondary crane and choose the load chart you want to use. From the Lift Simulation page, position the crane where you want it on the jobsite. If you would like to modify the rigging configuration for the secondary crane, click the "Rigging Type" link from the menu on the left. Don't worry about connecting the secondary crane to the load yet. That will be done in the next step.

At this point your lift plan should show the primary crane holding the load in it's initial position, and a secondary crane sitting nearby. My sample lift plan looks like this...

Set up the Multi-Crane Lift

Click the "Multi-Crane" link from the menu on the left. Choose your primary crane from the "Primary Crane" dropdown list:

<table>
<thead>
<tr>
<th>Primary Crane:</th>
<th>Pick Points (ft)</th>
<th>Set pick point:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>X   Y   Z</td>
<td>Set to...</td>
</tr>
<tr>
<td>None</td>
<td>0    0   0</td>
<td>Set to...</td>
</tr>
<tr>
<td>1) Link-Belt 298 HSL</td>
<td>Load Rotates with Boom</td>
<td>Set to...</td>
</tr>
<tr>
<td>2) Liebherr LR 1280</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Secondary Cranes</th>
<th>Lift Mode</th>
<th>Pick Points (ft)</th>
<th>Set pick point:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Link-Belt 298 HSL</td>
<td>None</td>
<td>X   Y   Z</td>
<td>Set to...</td>
</tr>
<tr>
<td>2) Liebherr LR 1280</td>
<td>None</td>
<td>X   Y   Z</td>
<td>Set to...</td>
</tr>
</tbody>
</table>

If you haven't done so already, position the pick points of the primary crane using the "Set pick point" list box or by manually setting the X, Y, and Z points. Now set the Lift Mode of the secondary crane by selecting one from the "Lift Mode" list box. Then position the pick points of the secondary crane using the "Set pick point" list box or by manually setting the X, Y, and Z points.
**Lift Modes**

**Tandem - Boom**
The secondary crane will hoist up or down to keep the load at its current angle. If the primary crane travels or booms up or down, the secondary crane will boom up or down to follow the load. The secondary crane carrier will not move.

**Tandem - Travel**
The secondary crane will hoist up or down to keep the load at its current angle. If the primary crane travels or booms up or down, the secondary crane will travel to follow the load.

**Trail - Boom**
The secondary crane will keep its hook at the same height, tilting the load. If the primary crane travels or booms up or down, the secondary crane will boom up or down to follow the load. The secondary crane carrier will not move.

**Trail - Travel**
The secondary crane will keep its hook at the same height, tilting the load. If the primary crane travels or booms up or down, the secondary crane will travel to follow the load.
Simulate the lift

When you are done setting the Lift Mode and pick points for all cranes, click the "Lift Simulation" link from the menu on the left. Before simulating the lift, make sure the primary crane is selected in the multi-crane selection box at the top-right of the screen.

Now when you move the primary crane, the secondary crane will automatically adjust to follow the load. 3D Lift Plan will calculate the load on each crane throughout the lift and display it on the Lift Simulation page. You can position your mouse cursor over the Capacity field to see the current lift radius for any crane involved in the lift.

<table>
<thead>
<tr>
<th>Crane</th>
<th>Load (lbs)</th>
<th>Capacity (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Link-Belt 298 HSL</td>
<td>6,744</td>
<td>238,000</td>
</tr>
<tr>
<td>2) Liebherr LR 1280</td>
<td>5,006</td>
<td>30,200</td>
</tr>
</tbody>
</table>

Refer to in-cab chart before lifting 47.8' radius

To reposition the secondary crane, select the crane in the multi-crane selection box at the top-right of the screen, then modify the Center Pin coordinates. Because the secondary crane is set up to automatically adjust to the primary crane, you will not be able to modify some values for the secondary crane.

Setting up the load and pick points tends to be the trickiest part of multi-crane lifts, so I thought some examples would be helpful...

Box Load

The first sample is a long box object. This example will apply to box, lattice, and custom 3D load objects. Our primary crane's pick points are 10' from the center of the load, so we set Rigging Offset to 10' on the Rigging Details page...
After adding the second crane, we position it in front of the primary crane by setting Center Pin X to 50' on the Lift Simulation page. To lift over the rear end of the crane, set the Carrier Angle to 180 degrees. Then, on the Multi-Crane page, we select the primary crane and set the secondary crane lift mode as described above. Then set the secondary crane Pick Point X to 10' and your lift will look like this...

### Box Load positioned sideways

In 3D Lift Plan, all multi-crane lifts need to occur along the length of the load. In order to set up a lift where the cranes are set up next to each other, you will need to rotate the 90 degrees on the Load Details or Lift Simulation page.
Cylindrical Load

When lifting a cylindrical load, you will often need to set the Load Angle to 90 degrees to lay it sideways. This rotates the load's coordinate system so the X dimension moves pick points up and down, and the Y dimension moves the pick points towards and away from the crane. Some examples are shown here...

When setting up the secondary crane, you will typically need to set the Pick Point Y value to a negative number to move the pick points down towards the bottom end of the load...
Center Pin $X = 70'$
Carrier Rotation = $180^\circ$
Share Feature

Send customers an electronic 3D version of the lift plan so they can look at the lift plan at any angle using the flux player controls.
Share Feature Cont’d

<table>
<thead>
<tr>
<th>Job Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company: A1A Software</td>
</tr>
<tr>
<td>Job Description:</td>
</tr>
<tr>
<td>Crane: Link-Belt HTC-8690</td>
</tr>
<tr>
<td>140' Main Boom (Mode EM1)</td>
</tr>
<tr>
<td>35' Offset Fly</td>
</tr>
<tr>
<td>Counterweight: 14500 lbs</td>
</tr>
<tr>
<td>6,700 lbs capacity at 100'</td>
</tr>
<tr>
<td>Load: 5,000 lbs</td>
</tr>
<tr>
<td>75% of chart capacity</td>
</tr>
</tbody>
</table>

Type Notes here for customer to read.

If you don’t see a 3D image, click here to install the Flux Player.

If you have problems viewing the 3D image, please visit our Troubleshooting Page.
Snapshot Feature

Configure your crane to the location radius and load location you would like using the Lift Simulation controls.

Type a Name for Snapshot (like Set Point).

Click “Save Snapshot” button

Re-Configure the crane for the next moment you would like to save in the lift.
Snapshot Feature Cont’d

You can edit the name of the snapshot or delete them by clicking on the Snapshots link.

From the dropdown menu you will see the different snapshots you saved. When you select one the crane will be setup to the configuration you saved.
Manual Lift Video

To create a video you will need a couple other programs. Movie making software and a screen capture program. We use Windows Movie Maker software and Snagit screen capture software.

Steps to make a movie using Snagit and Windows Movie Maker:

1. Use the Snapshot feature to configure the crane throughout the lift you want to make the movie of.
2. Use Snagit to take screen captures of the images and save them into a folder. Make sure you name them in a series so you know where each image fits in the video.
3. Open Windows Movie Maker and drag each image into the slide show.

Save your screen captures from Snagit as BMP or JPEG. Make sure to save them in a series like snapshot 1, snapshot 2, snapshot 3 etc or something similar. Click the button Save As.
Manual Lift Video Cont’d

Click the link to import Pictures

Find the file you saved all your images from Snagit to.

Select all of the images and click the Import button
Manual Lift Video Cont’d

Hold your left mouse button down on each picture and drag them into the video clip below.

Hold your mouse over the end of each image and hold you left mouse key down and drag to the time that you want each slide to play.
Manual Lift Video Cont’d

You can add text to your video by clicking on Titles and Credits link.

Select whether you want a title page at the beginning of your movie, place text over an image, add a page with text during the movie or add a credits page at the end of the movie.

When you are done with making the video click the link to publish the video, usually you would use This Computer link. Give it a name and save it. That’s all there is to it.
Technical Support FAQ’s and Information

Q. I can’t see any images of the crane or jobsite
A. Make sure you have the minimum requirements (refer to page 6), make sure you have installed the flux player correctly, allow ActiveX controls to run (you will see a yellow bar at the top of your screen), make sure you are using internet explorer.

Q. When I run crane selection no cranes are found to do the lift.
A. Make sure you have added cranes to your account (refer to page 11-12.) If that is not the issue, go to the Search Setup page and make sure you have the information filled out correctly (refer to page 29.)

Q. I can’t get the printing program to open.
A. Double check to see if there is a yellow bar towards the top of the screen that asks you to install and ActiveX control. Make sure the security settings on your computer are not set higher than medium high. Make sure you are using Internet Explorer. If you are still having issues with printing contact us at support@3dliftplan.com.
Upcoming Features

- Tower Crane Erection/ Dismantle Wizard
- Collision Detection
- Additional Rigging Types
- Ground Bearing Pressures under Your Timber Mats
- Multiple Load Pickup and Drop Off
- Parts of Line Calculator
- Lift Video
- Project Management
Thank you for using 3D Lift Plan. If you have any comments or suggestions or you need help at any time please feel free to contact us by phone at (904) 430-0355 or by email at support@3dliftplan.com.