

Center of gravity case can include assigned load patterns in addition to selfweight of elements modeled. In almost all situations you would have no more than one load pattern with a Self Weight Multiplier of 1. Otherwise you would double count or triple count the selfweight of the elements modeled. By default, a DEAD load pattern is included with a selfweight multiplier of 1.

**Define Load Patterns**

Load Patterns

Load Pattern Name	Type	Self Weight Multiplier	Auto Lateral Load Pattern
PIPING	DEAD	0	
DEAD	DEAD	1	
EQUIPMENT	DEAD	0	
CLADDING	DEAD	0	
PIPING	DEAD	0	

Click To:

- Add New Load Pattern
- Modify Load Pattern
- Modify Lateral Load Pattern...
- Delete Load Pattern
- Show Load Pattern Notes...

OK

Cancel

Go to Define>Load cases and define a center of gravity case as shown below to include selfweight and selected assigned load patterns. In this example, we assigned the weight of equipment, cladding and piping as loads.

The image shows two software dialog boxes. The top dialog, 'Define Load Cases', has a table of load cases:

Load Case Name	Load Case Type
DEAD	Linear Static
MODAL	Modal
EQUIPMENT	Linear Static
CLADDING	Linear Static
PIPING	Linear Static

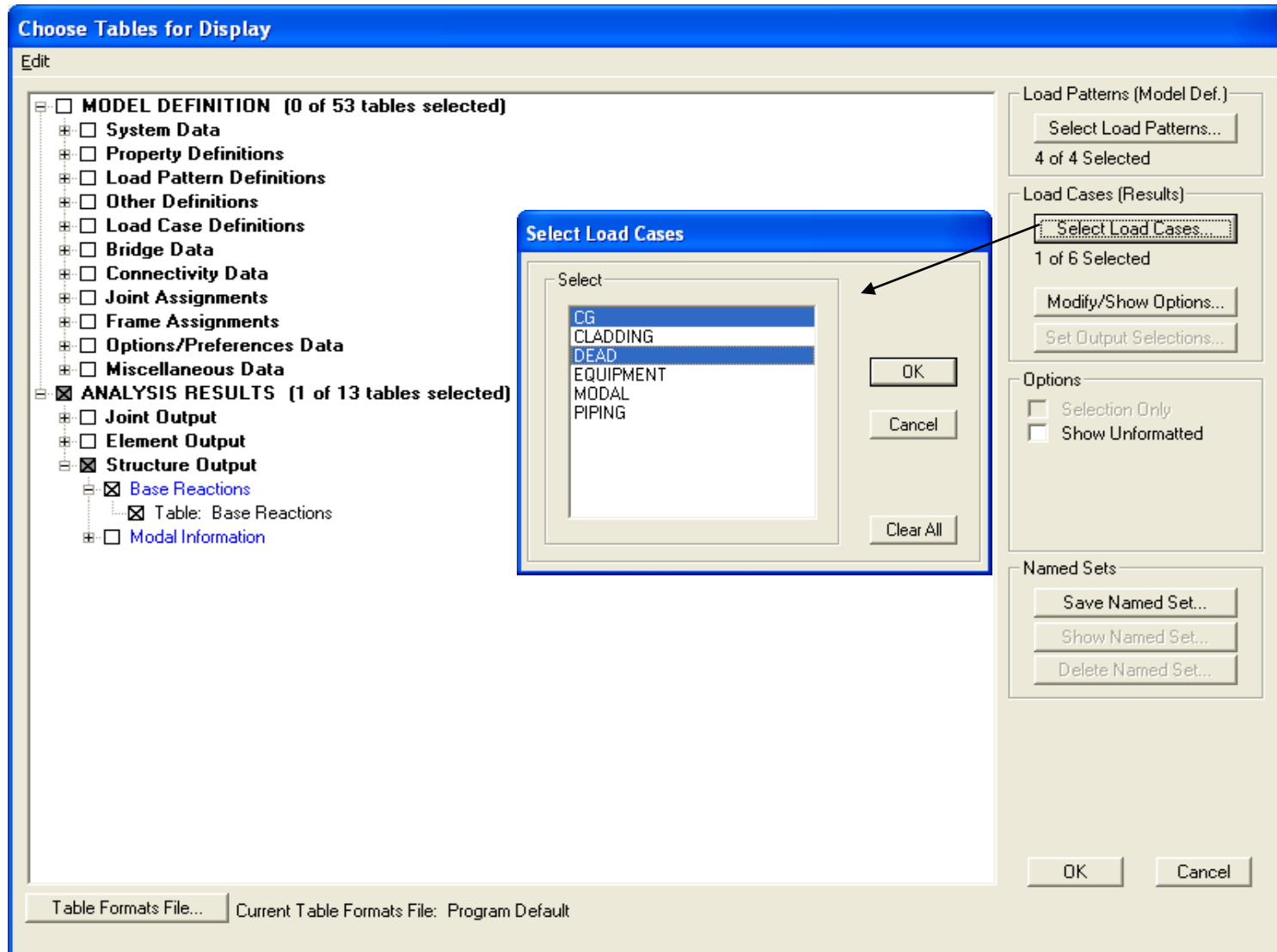
The bottom dialog, 'Load Case Data - Linear Static', is for a case named 'CG'. It shows the following settings:

- Load Case Name: CG
- Load Case Type: Static
- Stiffness to Use:  Zero Initial Conditions - Unstressed State
- Analysis Type:  Linear
- Loads Applied table:

Load Type	Load Name	Scale Factor
Load Pattern	PIPING	1
Load Pattern	DEAD	1
Load Pattern	EQUIPMENT	1
Load Pattern	CLADDING	1
Load Pattern	PIPING	1

An arrow points from the 'Add New Load Case...' button in the top dialog to the 'Add' button in the bottom dialog.

Run the analysis then go to Display>Show tables and select 'Base reactions' table as shown below. Use 'Select Load Cases' button to select your center of gravity case. For comparison purposes, we will also select the DEAD selfweight case. Press OK to generate the table.



This report contains a lot of information that you may not want. Go to Format-Filter-Sort menu and select the Format tab to customize the view

Base Reactions

File View **Format-Filter-Sort** Select Options

Units: As Noted Base Reactions

	OutputCase Text	CaseType Text	GlobalFX Kip	GlobalFY Kip	GlobalFZ Kip	GlobalMX Kip-ft	GlobalMY Kip-ft	GlobalMZ Kip-ft	GlobalX ft
▶	DEAD	LinStatic	1.381E-15	6.69E-15	26.812	-47.52	-893.9364	-3.175E-14	0
	CG	LinStatic	-2.637E-16	-8.185E-14	142.012	233.88	-4561.1364	000000004176	0

Record: 1 of 2

Add Tables... Done

When a table is generated, you can use the Format tab and double click items marked 'Printed' in order to toggle them to 'Not Printed' status in order to customize the display of the report. In this example, only FZ total vertical reaction and XCentroidFZ, YCentroidFZ, and ZCentroidFZ are activated for viewing as you will see in the next slide

**Modify/Show Database Table Format**

Format | Filter | Sort

Format for GlobalFZ Field

General

- Include Field in Report
- Repeat Field if Table is Split
- Force a Table Split After this Field

Field Alignment and Width

Field Alignment: Right

Units for Field Width: Inches

Field Width: 0.8

Reset to Program Default Field Format

Selected Field | All Fields

Display Order and Field Visibility

Double-Click Row to Toggle Visibility

	Item	Field Name
5	Printed	GlobalFZ
6	Not Printed	GlobalMX
7	Not Printed	GlobalMY
8	Not Printed	GlobalMZ
9	Not Printed	GlobalX
10	Not Printed	GlobalY
11	Not Printed	GlobalZ
12	Not Printed	XCentroidFX
13	Not Printed	YCentroidFX
14	Not Printed	ZCentroidFX
15	Not Printed	XCentroidFY
16	Not Printed	YCentroidFY
17	Not Printed	ZCentroidFY
18	Printed	XCentroidFZ
19	Printed	YCentroidFZ
20	Printed	ZCentroidFZ

Reset Display Order to Default

Apply Format to Table

Apply Format from File

Apply Program Default Format

Save to DB Table Formats File

Save Table Format to File

OK

Cancel

Consideration of assigned loads to the Center of Gravity (CG) case can make a significant difference in the CG location. CG is the X and Y Centroid of FZ. In this example, the center of gravity location for the CG case is Global Y 32.1181 ft. and Global X 1.6469 ft. Units can be changed before generating this report. GlobalFZ is vertical load.

The screenshot shows a software window titled "Base Reactions". At the top, there is a menu bar with "File", "View", "Format-Filter-Sort", "Select", and "Options". Below the menu bar, it says "Units: As Noted" and a dropdown menu showing "Base Reactions". The main area contains a table with the following data:

	<b>OutputCase Text</b>	<b>CaseType Text</b>	<b>GlobalFZ Kip</b>	<b>XCentroidFZ ft</b>	<b>YCentroidFZ ft</b>	<b>ZCentroidFZ ft</b>
▶	DEAD	LinStatic	26.812	33.3414	-1.7724	0
	CG	LinStatic	142.012	32.1181	1.6469	0

At the bottom of the window, there is a "Record:" label followed by navigation buttons (back, forward, first, last) and the text "1 of 2". On the right side, there are two buttons: "Add Tables..." and "Done".