





You can also add reactions to the Analysis.

conc.,(CS)comp. steel,(O)ther      Density = 78.6 kN/m<sup>3</sup>  
E = 200000 MPa

	DL	LL	
FB02	1.1	3.2	: L L
Σ	1.1	3.2	

Point loads (kN)

	FB02	PL 2	PL 3
Dead load (pdI) =	1.13		
Live load (pll) =	3.20		
Pos. from LHS (mm) =	1000		
Ultimate load (p*) =	6.16		

Include S.Wt = Y (Yes),  
Loadcase = C (Default)

Position of result (x) = 2400 mm

1.20\*G+1.50\*Q analysed

Max	At	Min	At
28.23	2250	0.00	0
25.75	0		
3.91	2400	0.00	0
5.39	2400	0.00	0
7.93	2400	0.00	0

Context menu options:

- Cut
- Copy
- Paste
- Paste Special...
- Clear Contents
- Insert Comment
- Insert Custom Comment
- Edit Comments
- Hide All Comments
- Recalc Reactions
- Track (Hover to Show)
- Add Reaction**
- Reset to Default:
- Reset All

After the right click, the Add Reaction dialog box will appear from which you can select the member the reaction is to come from, along with the member end (right, left or centre for double span timber beams, or the maximum or minimum reaction). Note the maximum excludes a centre reaction if it is a double span timber beam.

**Add Reaction**

Member: Roof Beam RB01

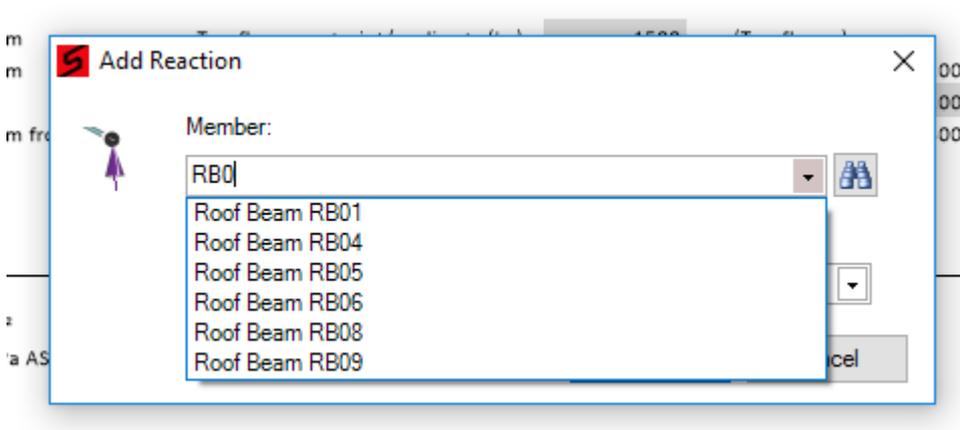
Loadcase: DL/LL/WL

End:
 

- Left (36.0/5.9/-19.8)
- Left (36.0/5.9/-19.8)
- Right (36.0/5.9/-19.8)**
- Max (36.0/5.9/-19.8)
- Min (36.0/5.9/-19.8)



You can search for a member by typing part or all of the member name in "Member" section and selecting the beam from the dropdown list.



Once you have selected the member and end to insert as a point load, press [OK] and the reaction will be inserted along with an automatically formatted comment showing the make-up of load with the end used.

Ult. wind load (Wu) = 0.75 kPa \* 8000 mm  
 Cp,e = 0.7 Cp,i = 0.5

**Point loads**

	DL	LL	WL	
Dead load (pdl) = 36.0 kN	RB01 36.0	5.9	-19.8	: L L L
Live load (pll) = 5.9 kN	Σ 36.0	5.9	-19.8	

Wind load (pwl\*) = -19.8 kN (up) (Point load position within span)

w\* = 1.2\*wdl + 1.5\*wll = 7.22 kN/m Rdl.max =  
 p\* = 1.2\*pdl + 1.5\*pll = 52.13 kN Rll.max =  
 w up\* = 0.9\*wdl up + wwl\* = 3.57 kN/m (up) Rwl\* max =

The above process can be repeated to add the reaction from as many members as required.

Additional point loads can be added by double clicking in the load cell and typing "+ <additional load>" after the formula within the cell. Do not alter this formula as this will cause an error within your reactions. You can also subtract, multiply or divide a load. These changes will automatically appear as an "Extra" in the comment.

Cp,e = 0.7 Cp,i = 0.5 w.wl\* = -6.74 kN/m (up)

**Point loads**

	DL	LL	WL	
Dead load (pdl) =	RB03 4.9	2.7	-9.3	: L L L
Live load (pll) = 23.7 kN	FB01 7.2	15.0	-	: L L L
Wind load (pwl*) = -29.1 kN	Σ 48.1	23.7	-29.1	

w\* = 1.2\*wdl + 1.5\*wll = Rdl.max = 43.11 kN  
 p\* = 1.2\*pdl + 1.5\*pll = 93.18 kN Rll.max = 21.74 kN  
 w up\* = 0.9\*wdl up + wwl\* = 3.57 kN/m (up) Rwl\* max = -35.29 kN

Point load description: "DL","Left")+5  
 Combinations: 0.9/1.0/0.0  
 Gravit  
 Wind uplift  
 Wind down

A custom comment can be assigned to the Extra, which will remain if you alter the additional loads. Take care not to modify text elsewhere (extra comments are recorded after the colon to the end of the line).



wind load (w<sub>w</sub>) = 0.75 kPa      8000 mm  
 C<sub>p,e</sub> = 0.7      C<sub>p,i</sub> = 0.5

**Point loads**

Dead load (p<sub>d</sub>) = 53.1 kN  
 Live load (p<sub>l</sub>) = 23.7 kN  
 Wind load (p<sub>w</sub>) = -29.1 kN

w\* = 1.2\*w<sub>d</sub> + 1.5\*w<sub>l</sub>  
 p\* = 1.2\*p<sub>d</sub> + 1.5\*p<sub>l</sub>  
 w.up\* = 0.9\*w<sub>d</sub>.up + w<sub>w</sub>.up = 3.57 kN/m (up)

	DL	LL	WL	
RB01	36.0	5.9	-19.8	: L L L
RB02				: L L L
FB01	7.2	15.0	-	: L L L
Extra	5.0	0.0	0.0	: Girder
Σ	53.1	23.7	-29.1	

## Refreshing the reaction database

The management of reactions is quite complex, and on occasions it may be necessary to refresh all reactions. This may be necessary if you get a circular reference message, or the tracking on the reactions summary or context [Track] appears incorrect. It may also be required if loading an older version that did not support reactions.

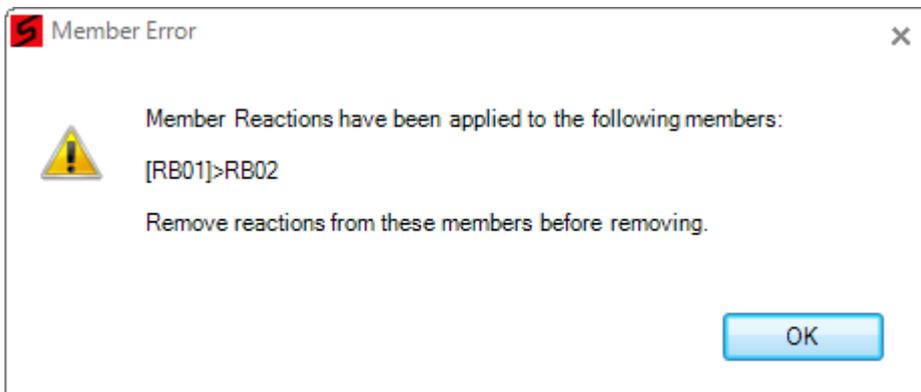
To do this, select the [Project] > [Recalc Reactions].



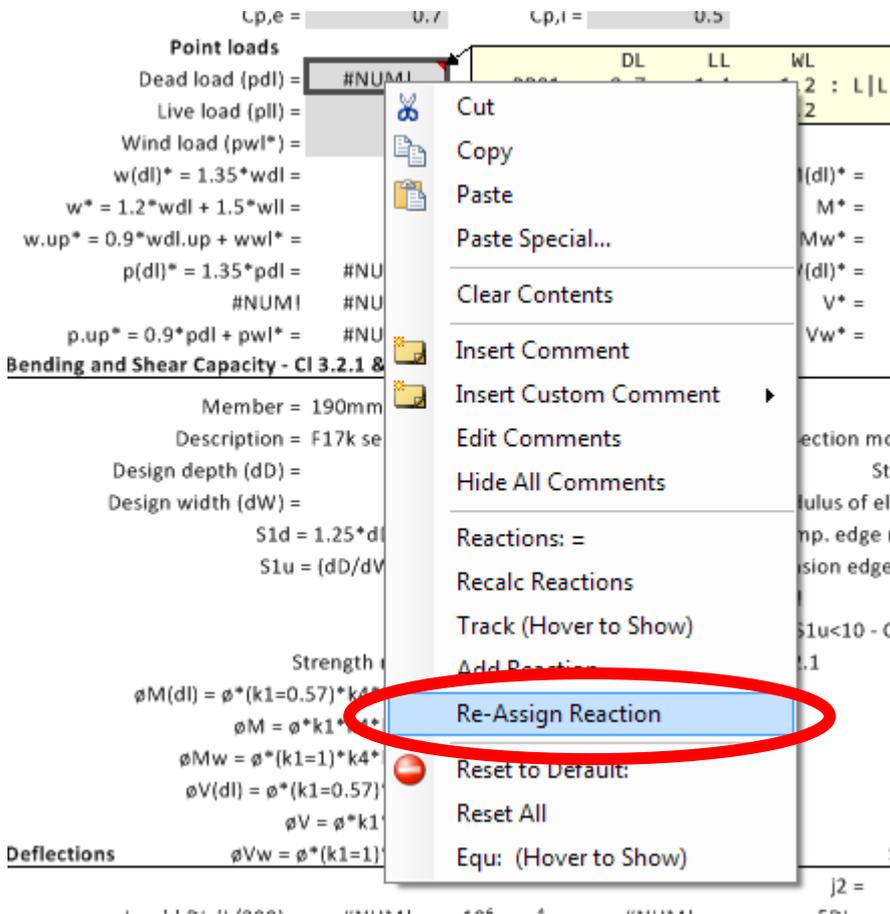
## Removing dependent members

If you try and remove a member that is dependent on another member, you will get a dialog box advising that this can not be done.

To remove the member, the referenced reactions must be removed from the dependent member designs first.







## Deleting a reaction comment

Reaction comment can be deleted if you do not want to have it displayed. Select the comment frame, and select the [Delete Comment] from the context menu.

## Reinserting a reaction comment

To re-insert the comment associated with a reaction, select the cells for commenting ie. the DL/LL/WL fields and select [Reinsert Reaction Comment] from the context menu.

## Reaction Summaries

Summaries of the reactions and tracking (ie. What load goes to where) can be produced in landscape, portrait, or excel formats.

The summary includes the reactions at each end (Dead, Live and Wind (ult.)), if applicable. Combination reactions are not displayed.

In the second section of the summary, reactions are tracked showing the path of reactions from other members and to other members.



# Structural Toolkit

The Essential Design Tool For Australian Structural Engineers



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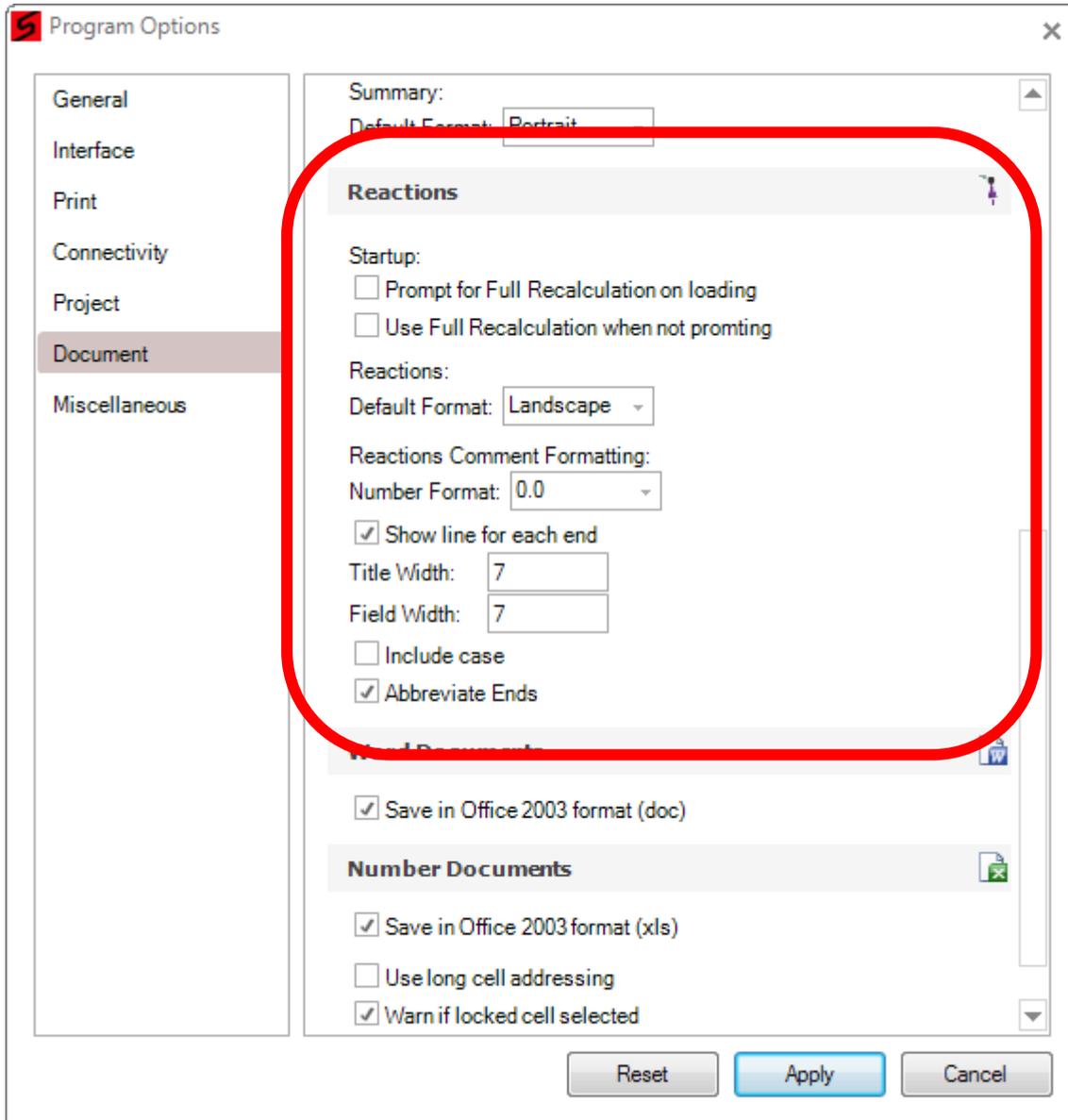
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## Options

Options for the Reactions are found in [File] > [Options] > Documents > Reactions and enables customising of the automatic reaction comment.



To use the full recalculation method on loading (a little slower), select the "Use Full Recalculation when not prompting".



## Tips

### Naming members

When naming members, avoid adding text after the member designation. Use a bracketed small entry if necessary, but preferably use the following:

Roof Beam RB01a > Shows as "RB01a"

Roof Beam RB01b > Shows as "RB01b"

Try to avoid text after the member as this will not format the reaction summary properly

Roof Beam RB01 Alt > Shows as "Alt"

Roof Beam RB01 Steel > Shows as "Steel"

Note that text within the brackets is abbreviated as:

Roof Beam RB01 (Alt) > Shows as "RB01\*"

Roof Beam RB01 (Steel) > Shows as "RB01\*" (also!)

### Renaming members

If you rename a member used by another member design, the referenced name will not automatically update. To update the referenced names, either re-insert the reaction comment, or perform a Recalculation of reactions (see Refreshing the reaction database).