SPACE GASS to IDEA StatiCa Checkbot
Webinar

BuildingPoint Australia
February 2026

IDEA StatiCa®
Authorised Reseller

BuildingPoint

UPG

SITECH

ALLTERRA

Trimble
Authorised Distribution Partner

Presenters

BuildingPoint Australia

Your authorised IDEA StatiCa & Trimble distribution partner in ANZ

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Technical Account Manager

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Sales & Technical Support Consultant

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Agenda

Overview

Introduction to Checkbot

SPACE GASS – IDEA StatiCa workflow

Q&A session

Please post questions in the Q&A tab, and we'll do our best to answer at the end!

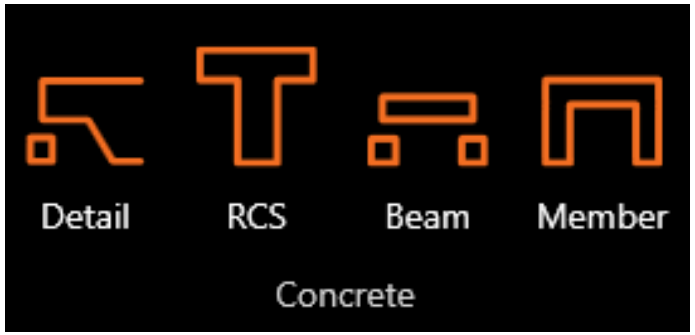
IDEA StatiCa Apps - Overview

Steel

- **Connection**
- Member
- Connection Library

Concrete

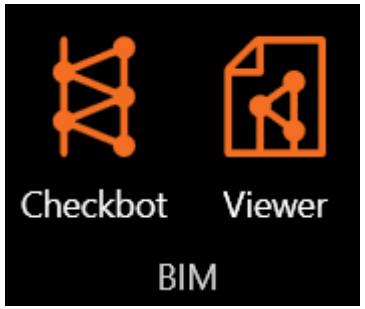
- Detail
- RCS
- Beam
- Member



BIM

- **Checkbot**
- Viewer

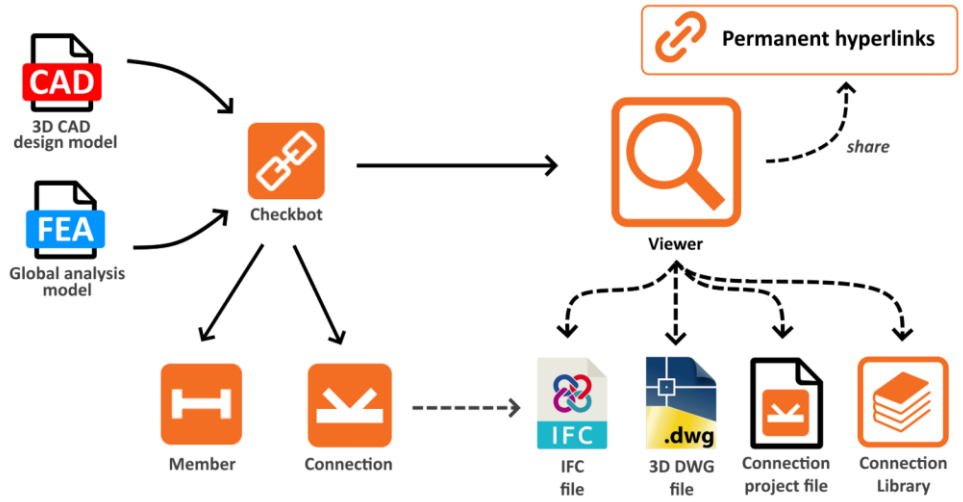
Webinar focus

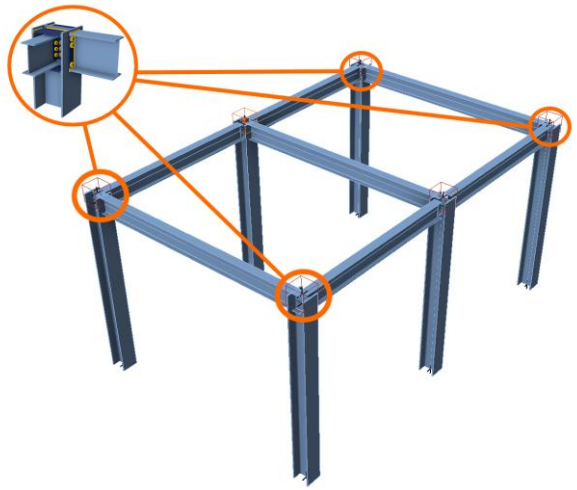


IDEA StatiCa Checkbot

- **Management of BIM or Global Analysis workflows**
  - Complete control over all your imported connections, members and loads
  - 40+ integrations available
  - Analyse multiple connections or members directly from your global analysis model

- Please use latest SPACE GASS and IDEA StatiCa version available





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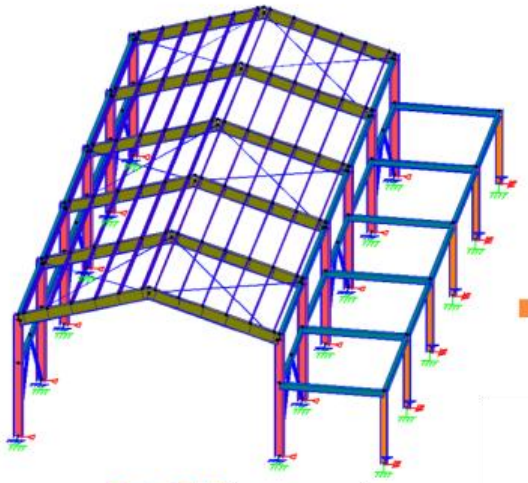
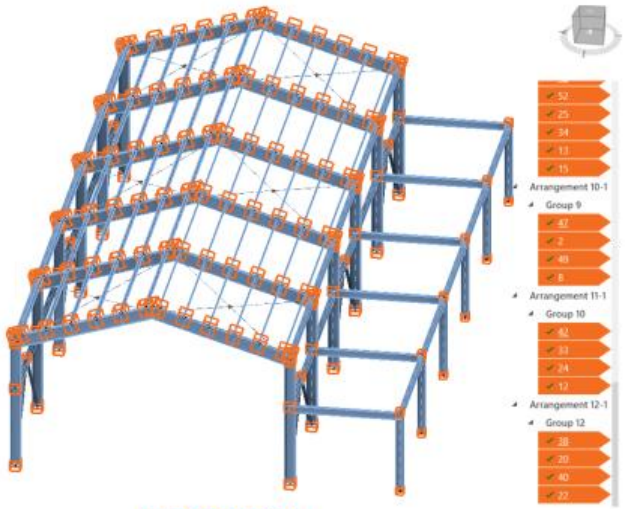
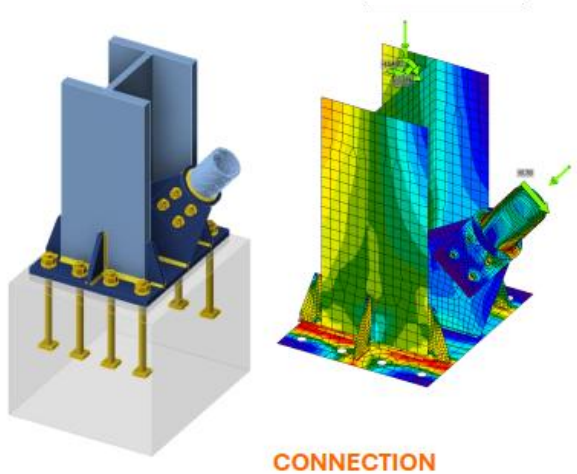
Typical Workflow – Global analysis



Global FEA

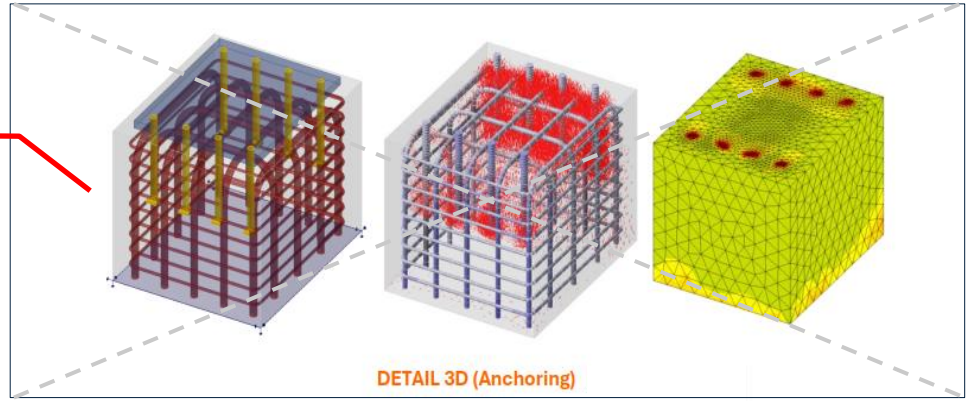


IDEA STATICA CHECKBOT

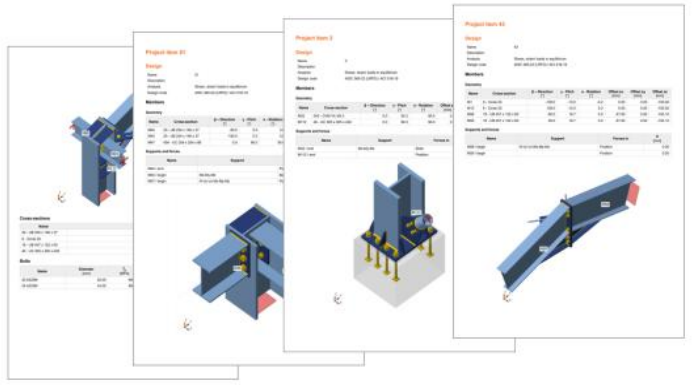


CONNECTION

Detail 3D workflow will not be covered in today's webinar



DETAIL 3D (Anchoring)



BULK CALCULATIONS & REPORT

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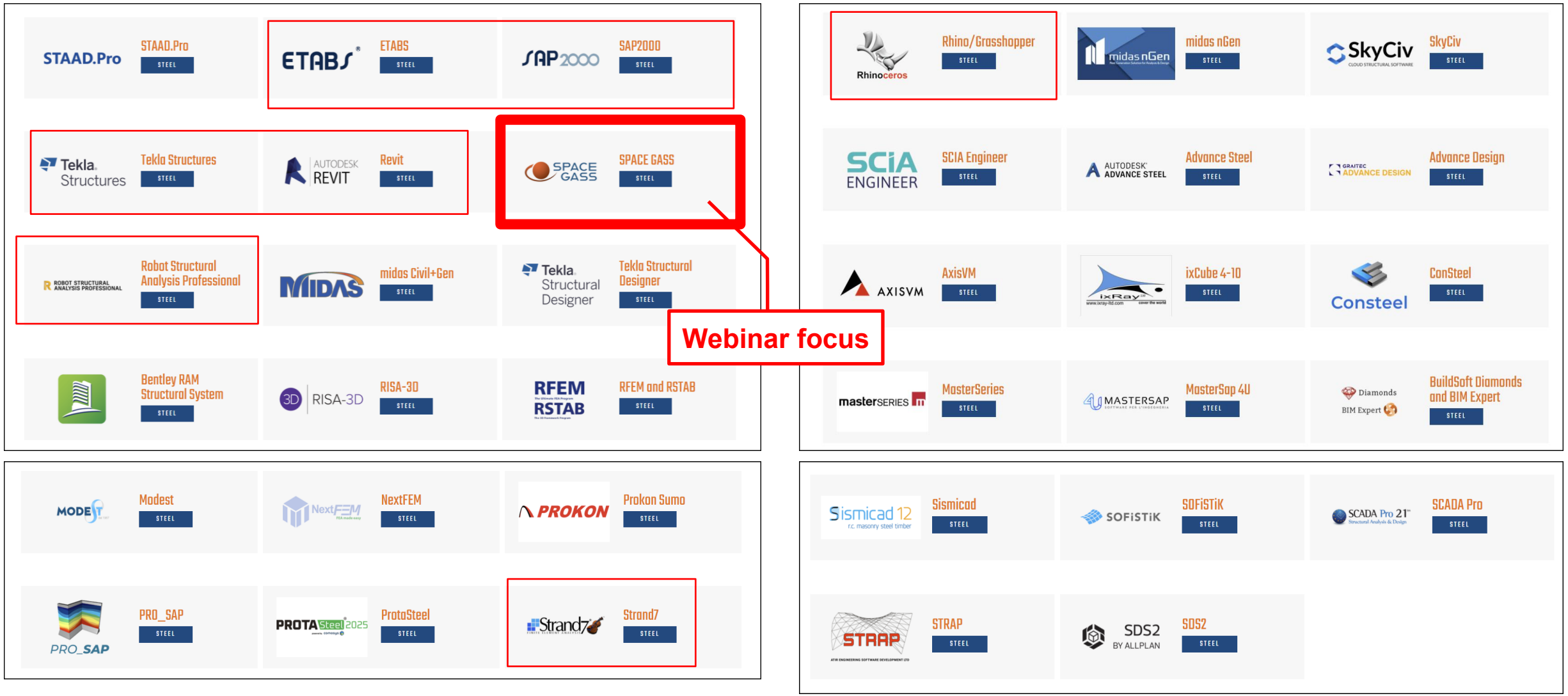
Supported Checkbot Integrations - Steel



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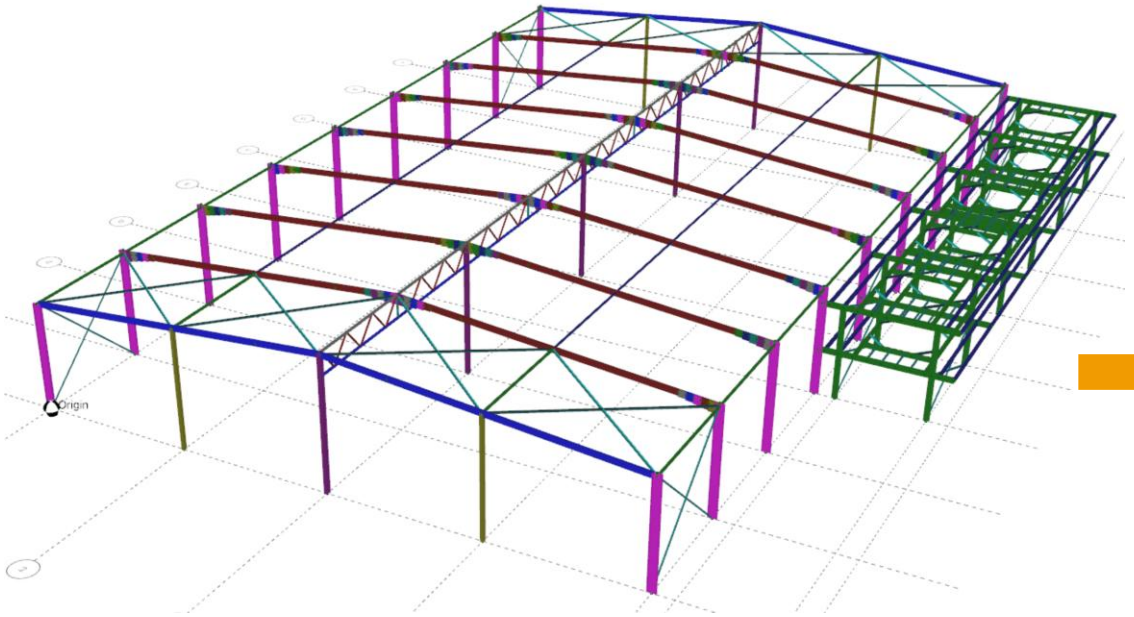
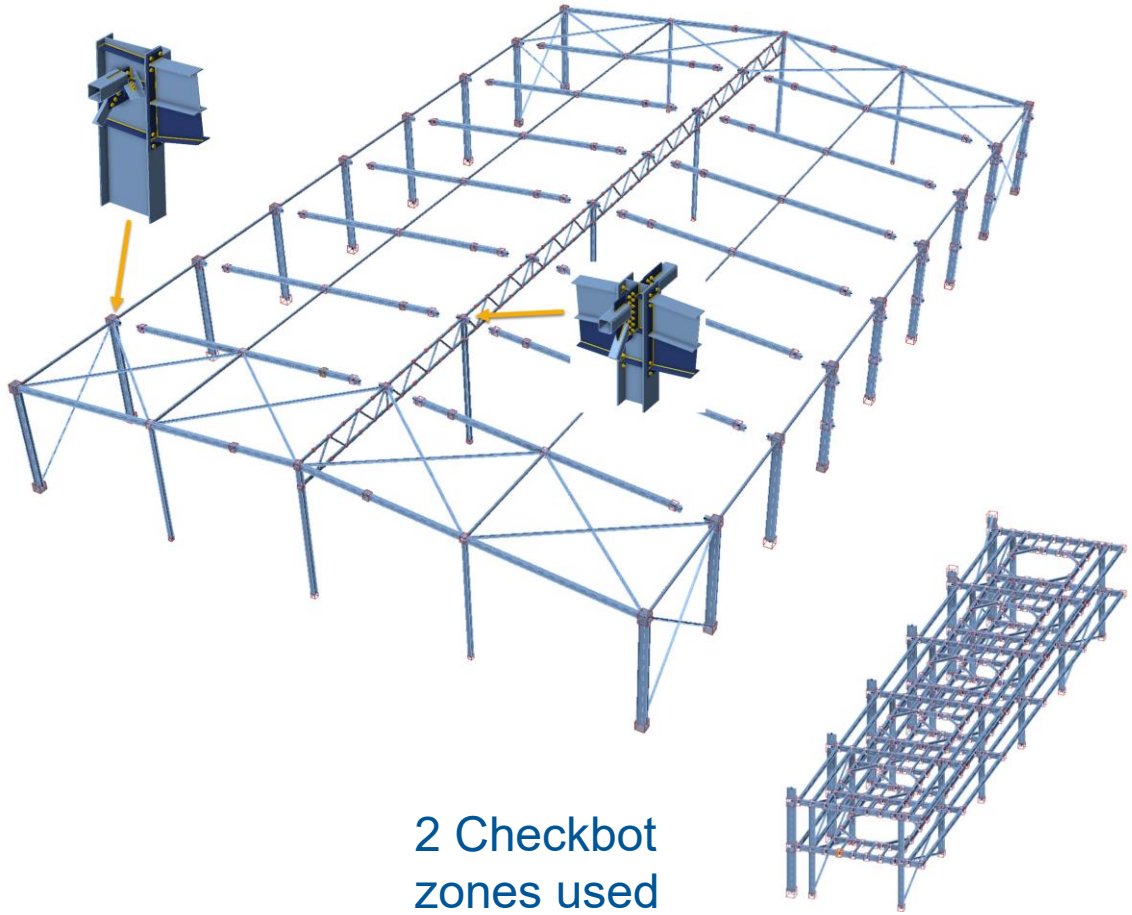
Linking via Checkbot

Objectives: Link the following SPACE GASS frame to IDEA StatiCa via Checkbot.

Design connections for strength and produce design reports.

Generate IFC files to assist the modeller for fabrication.





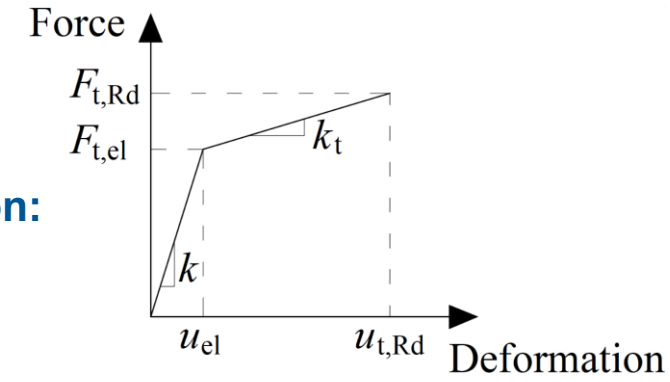
2 Checkbot zones used

IDEA StatiCa Steel

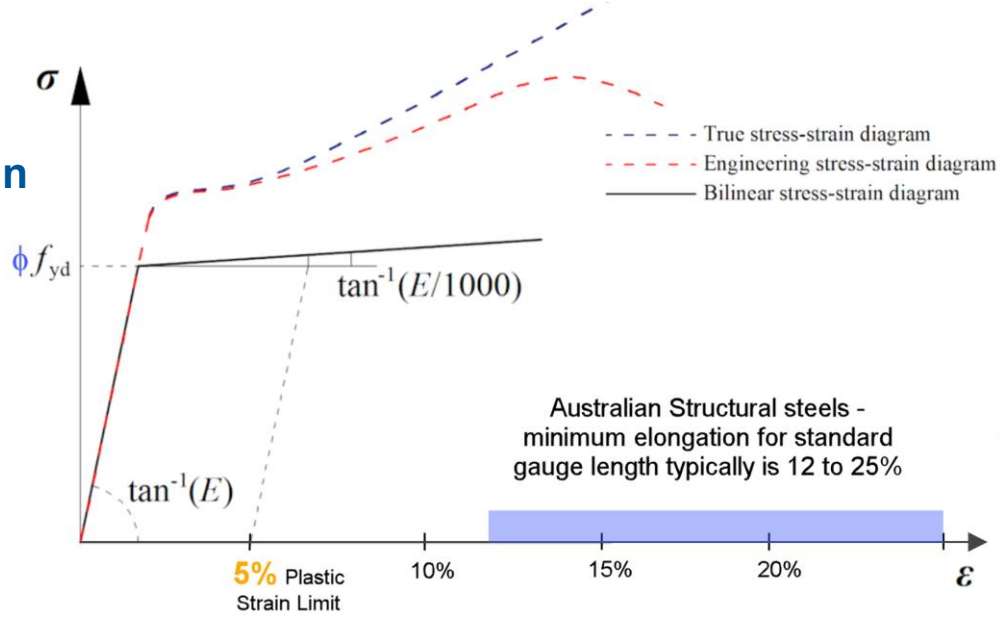
‘Steel Connection’ module of IDEA StatiCa:

- Dedicated connection design software catering for **general geometry and loading.** (Hence links from other software.)
- Automated FE modelling during analysis (mesh size, material models, boundary conditions etc).
- Strength checks utilise code expressions combined with appropriate limits for plastic strain and buckling load factors.

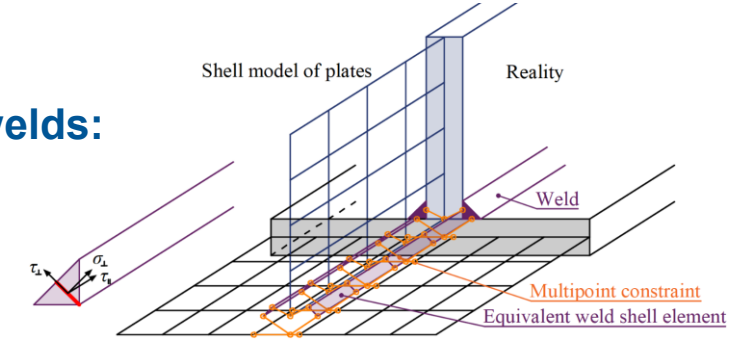
Bolt tension:



Plastic strain limit (for plate type elements):



Fillet welds:



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Buckling in IDEA StatiCa (Engineering decision required)

Run buckling analysis

- Review buckling modes and buckling load factors
- Ensure buckling load factors are high enough

  Where buckling is outside the connection and is not significantly influenced by local effects of the connection, the mode can be ignored in IDEA StatiCa. This assumes design section and member capacities of incoming members are checked using code provisions.

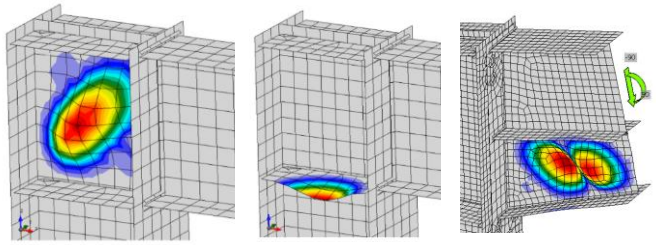
https://www.ideastatica.com/support-center/buckling-analysis

https://www.ideastatica.com/support-center/global-buckling-vs-local-buckling-what-does-it-mean

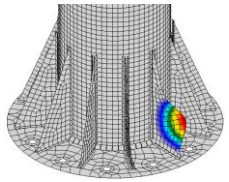
https://www.ideastatica.com/support-center/learning-module-buckling

https://www.ideastatica.com/support-center/stability-of-bracket-plates-using-local-buckling-analysis-and-material-nonlinear-analysis-aisc

Plate connected edges laterally restrained



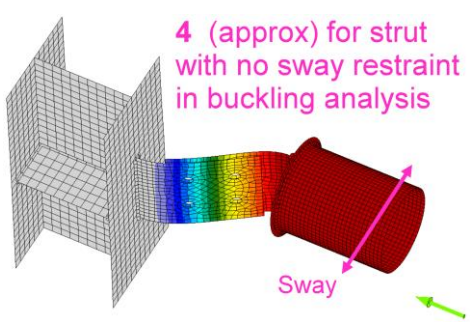
Recommended minimum buckling load factor: **3**

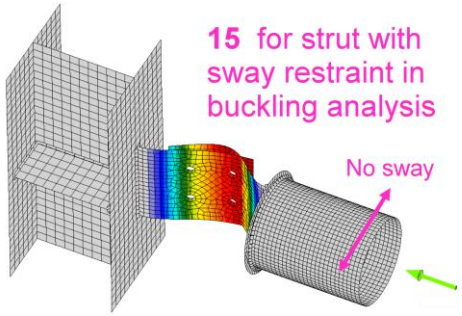


2 edges connected

4

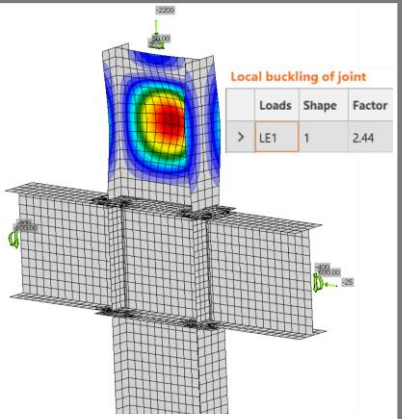
Member sway possible (in structure)





~4 or **15**

Buckling outside connection

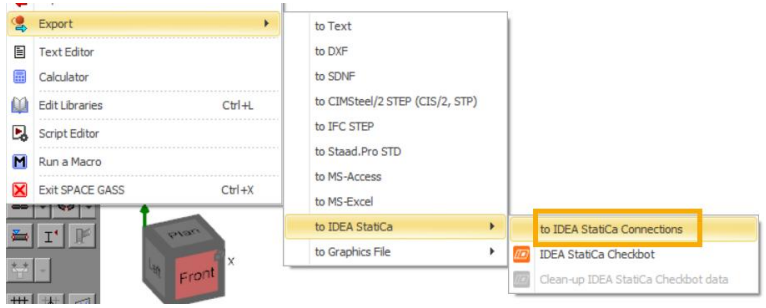


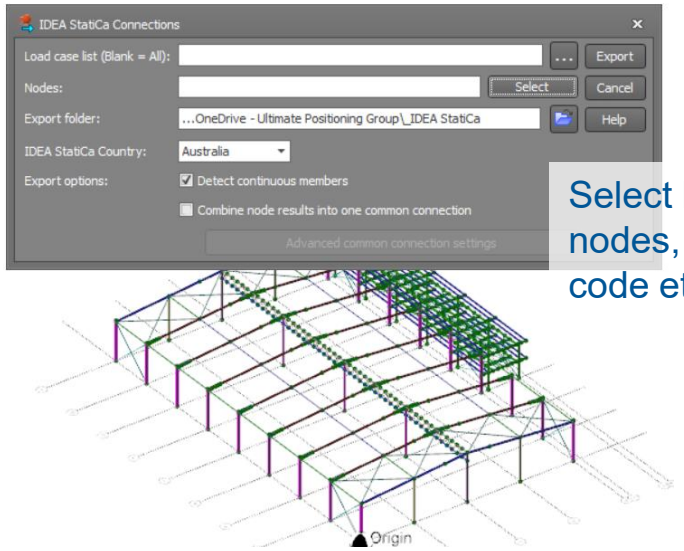
Ignore mode if incoming members checked separately

Linking SPACE GASS to IDEA StatiCa Connection

First method of Export: File / Export:

Created .ideacon files. The files are not linked to the SG model.





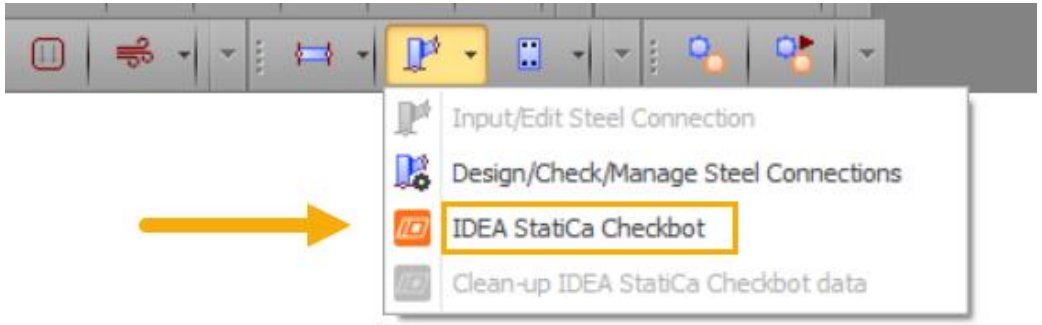
Select load cases, nodes, design code etc

Second method of Export: Export via Checkbot.

Continuing link to SG model, plus Checkbot functionality available.

On closure, Checkbot data was zipped up and contained within the SG file.

For large models, particularly if connection results were saved in Checkbot, this could increase file size greatly.



Creation of backups required the closure of Checkbot, saving of the SG file, from which backups could be made. The Checkbot data could be removed from the SG model using the option ‘Clean-up IDEA StatiCa Checkbot data’.

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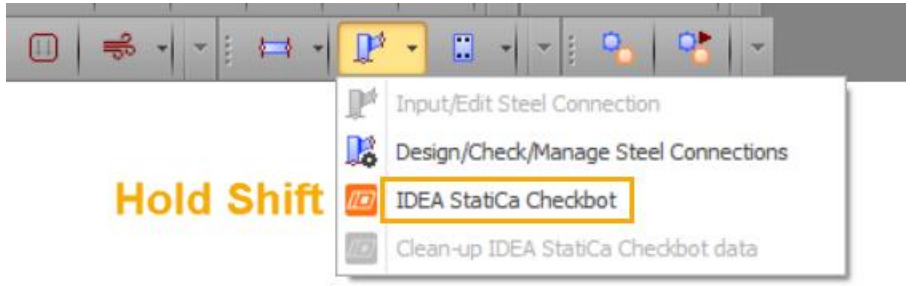
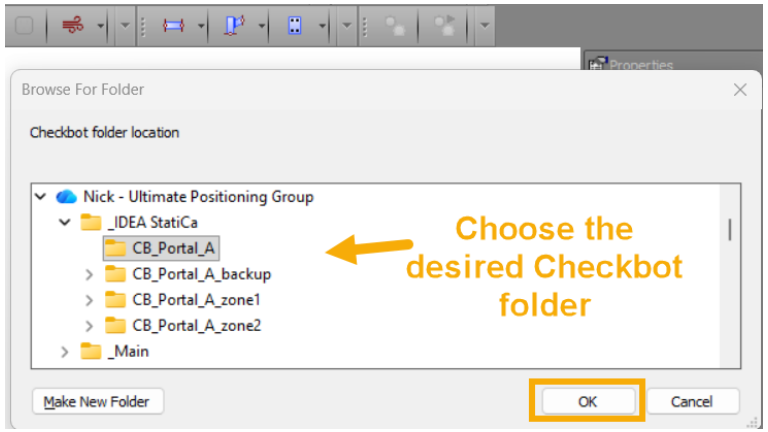
Linking SPACE GASS to Connection via Checkbot

Third and latest method of Export:

Export via Checkbot with separate (persistent) Checkbot folder (or folders) – Standalone mode.

Hold Shift when selecting ‘IDEA StatiCa Checkbot’, then ‘Make new Folder’ or select the desired Checkbot folder.





This provides some excellent benefits.

Periodically, close Checkbot, then Copy, Paste to create a backup of the entire Checkbot folder

Name	Status	Type	Size
CB_Portal_A		File folder	
CB_Portal_A_backup		File folder	
CB_Portal_A_zone2		File folder	
CB_Portal_A_zone1		File folder	
Portal_A.SG		SPACE GASS File	16,586 KB

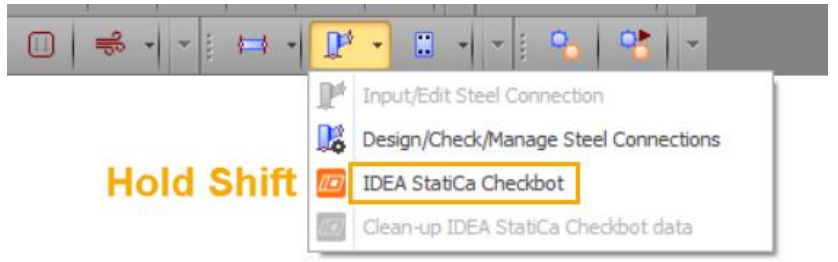
For larger SG models (which often have many load combinations), utilising two or more Checkbot folders for different portions of the structure is recommended (eg zone1 and zone2 above).

Consider ‘design groups’ in Checkbot, so similar connection types are in the same Checkbot model.

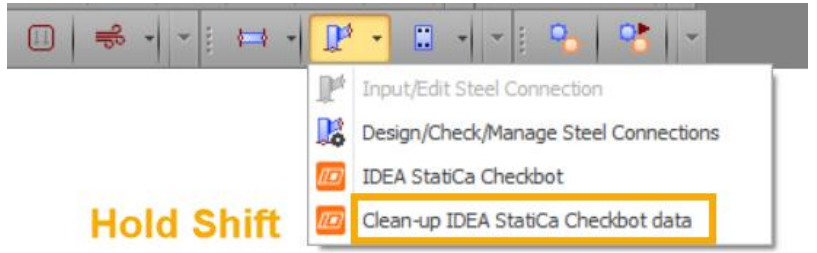
Create backups - if there are issues with the current Checkbot model, you can close it. Then from SG you can start the link again using a backup folder, and continue working.

Summary of New Options from SPACE GASS

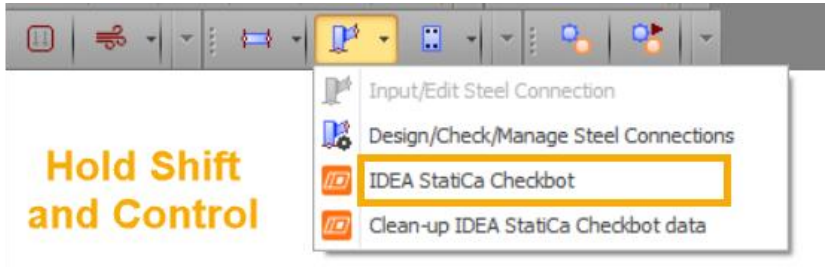
1. To run Checkbot in standalone mode (with separate / persistent folder): Hold Shift when launching Checkbot, then browse for a Checkbot data folder. This method is recommended, particularly for large models and those with many load combinations.



2. If you have embedded checkbot data in your SG file - to extract and create a standalone Checkbot data folder: Hold shift as you click “Clean-up Checkbot data”.



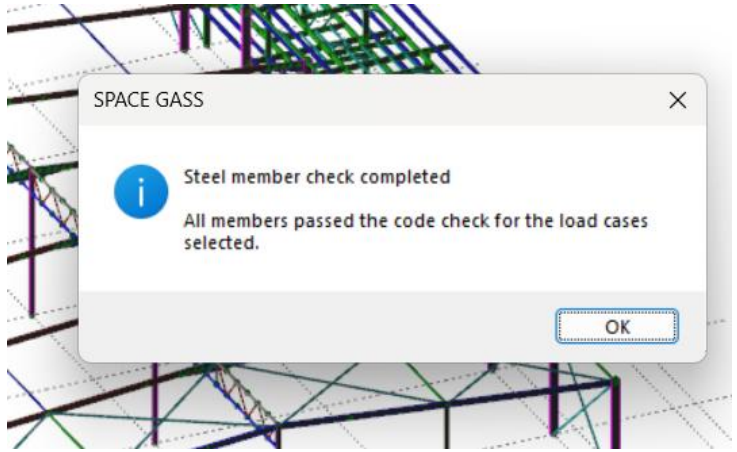
3. To embed a folder into a SG file: Hold shift and control as you launch checkbot.



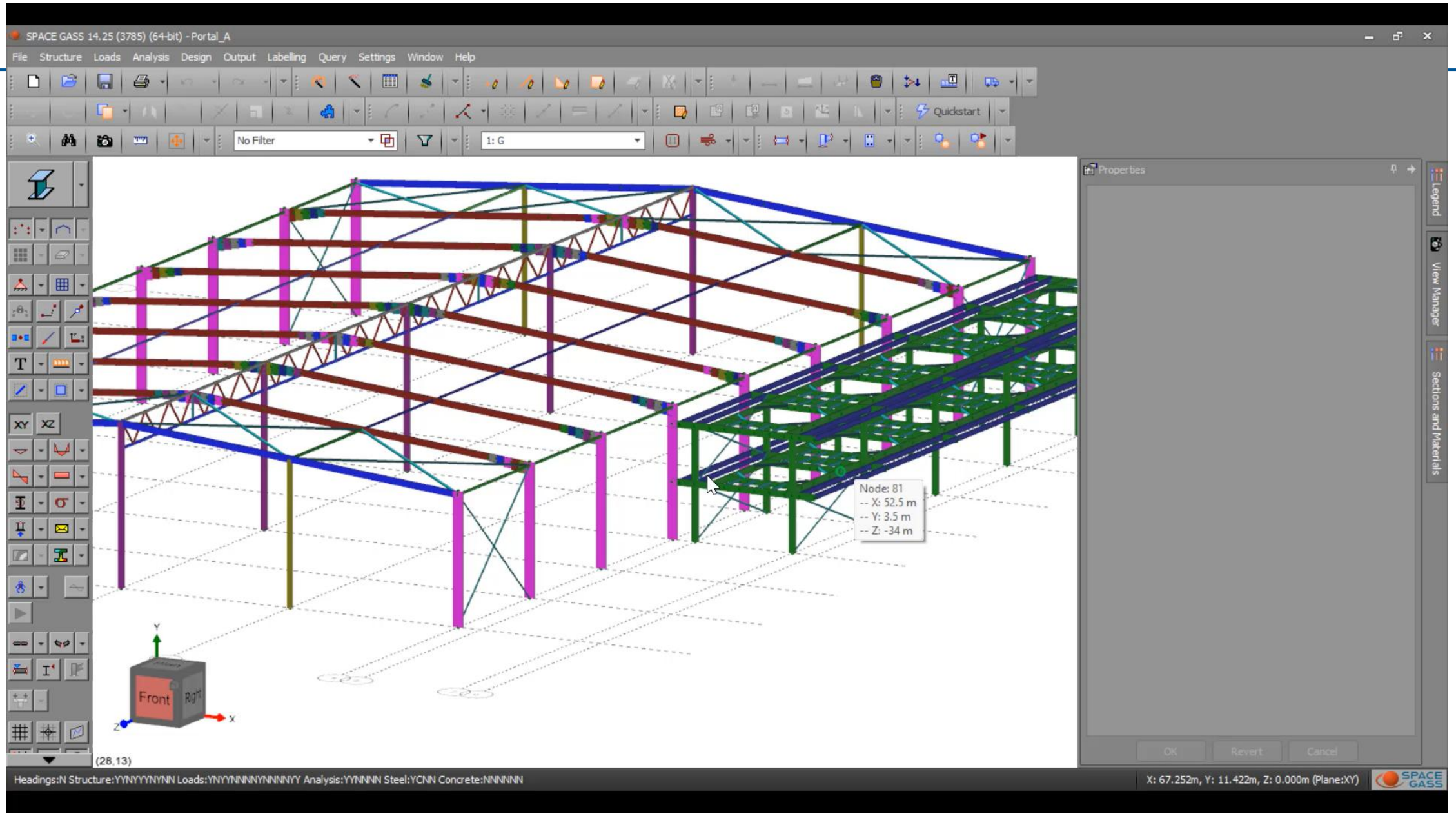
Linking Steps

In SPACE GASS, complete analysis and design of members

- Non-linear static analysis (usually)
- Buckling analysis
- Steel member check for all members



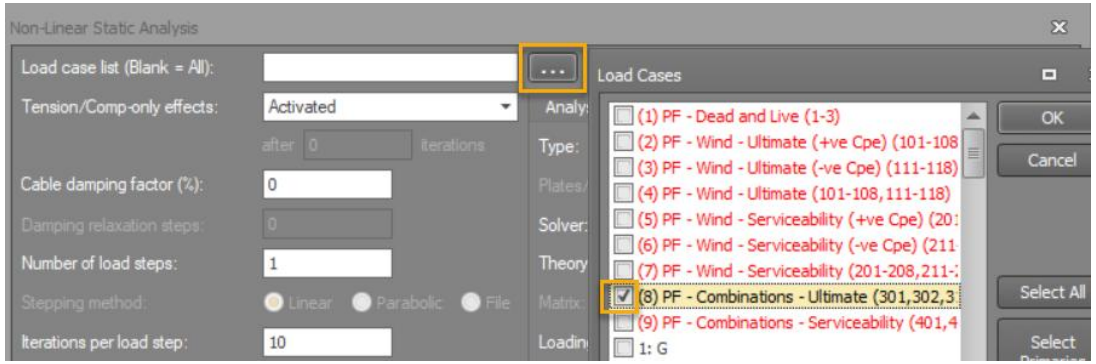
- First attempt at linking …



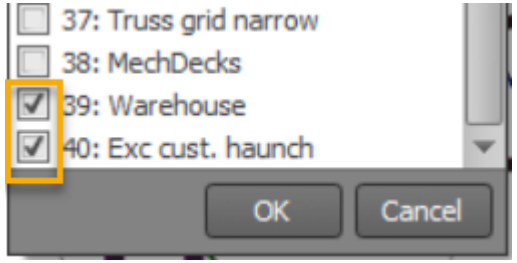
Strategies to Improve Processing Speed

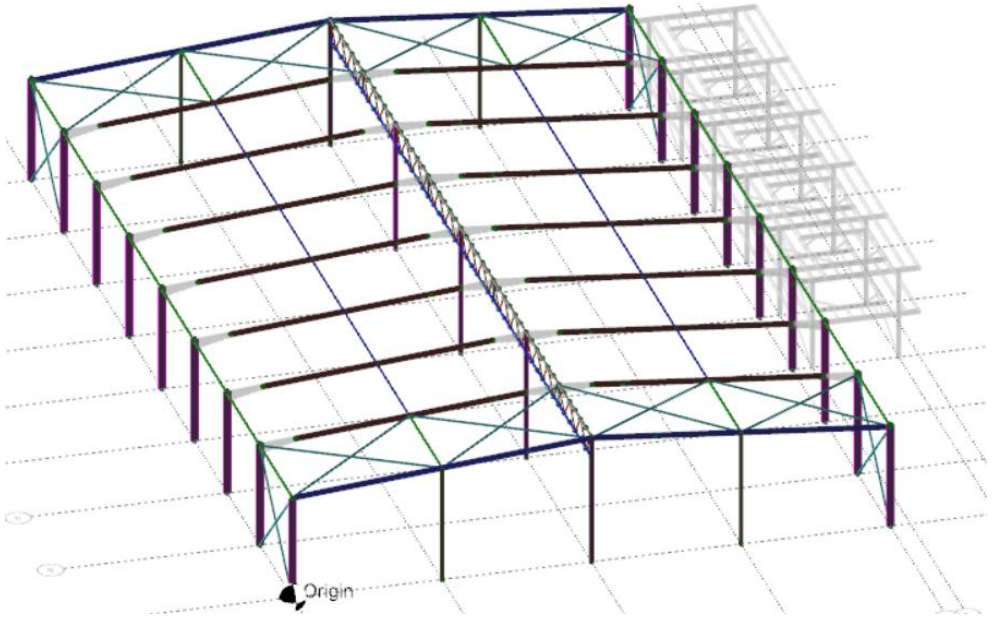
Try to minimise data, computation and re-work

- Select only design combinations required for connection design. Typically this will be just ULS combinations. Best to limit this in SG, so we don't have to delete in Checkbot.



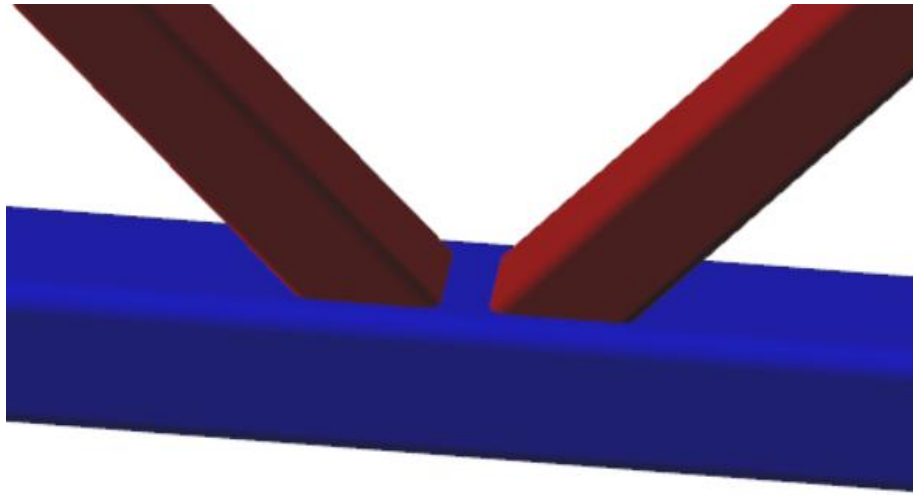
- Use Filters in SG so unnecessary nodes don't get imported to Checkbot.

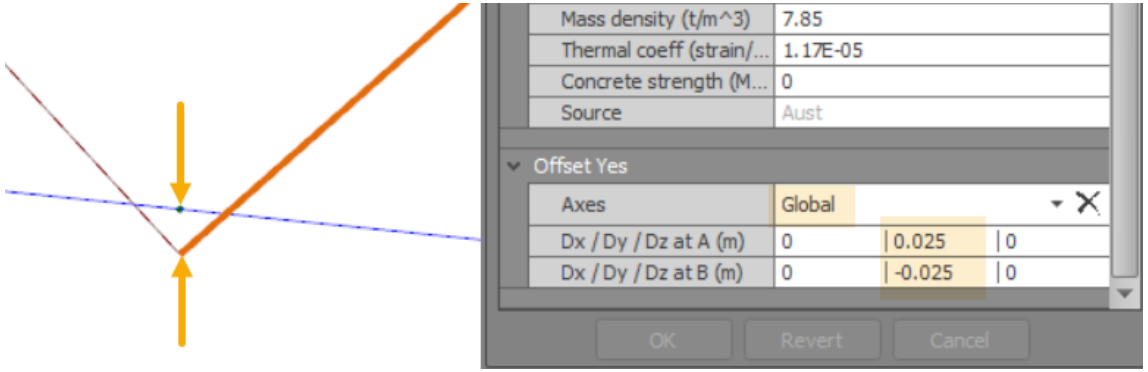




Offsets

- Offsets can be important, to allow practical fabrication. Truss nodes are a typical case. Ideally, leave a reasonable gap between web members for welding.
- In SPACE GASS, offsets influence the analysis results – they are not just cosmetic.
- Best to include offsets (if present) in the SG model.
- The analysis results and the physical offsets come through to the connection models, so we have the ideal situation of consistency between frame and connections.
- Offsets can instead be created in Checkbot, but the analysis results then won't reflect the offsets. Plus, they will have to be re-entered after each export from SG or sync.

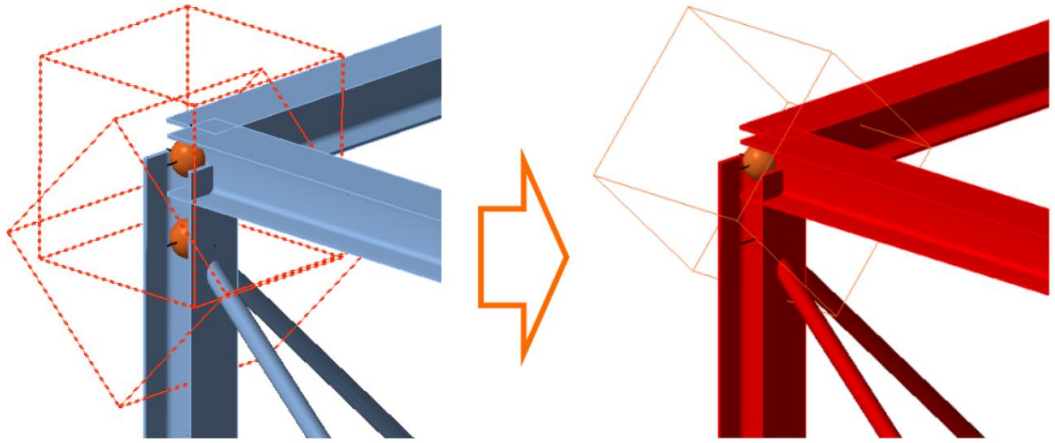


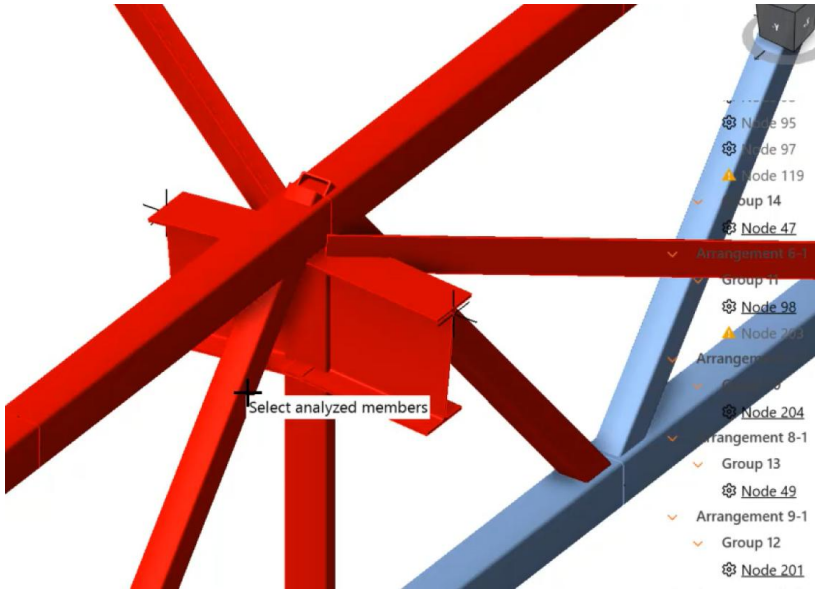


Merge Members into Nearby Nodes

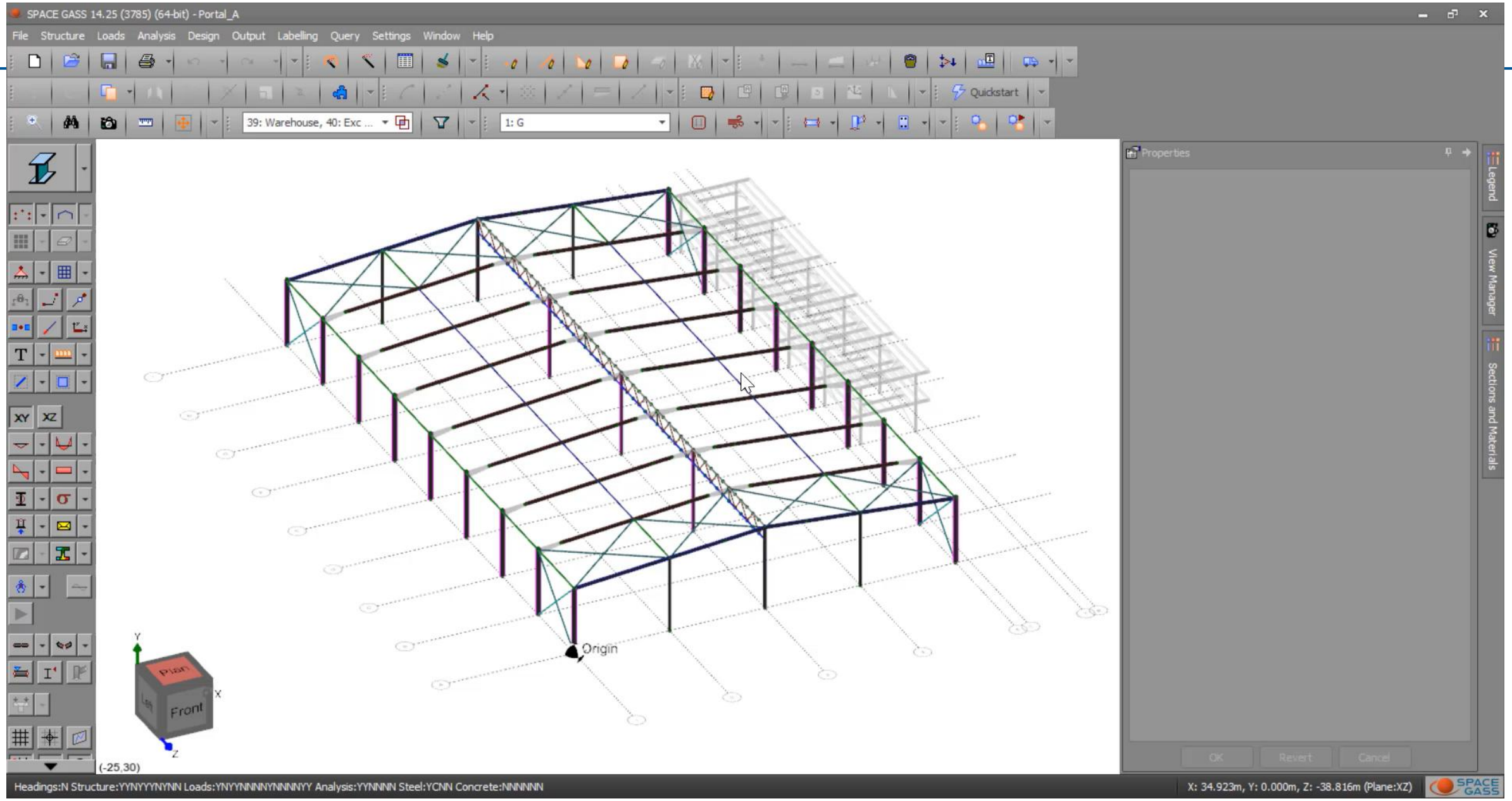
It may be desirable at times to merge members from multiple nearby nodes into one node – allowing all members near the connection to be including in the one connection model.

https://www.ideastatica.com/support-center/add-or-merge-nodes-of-connections-and-members-in-checkbot





This function was used to add truss members into the rafter apex nodes.

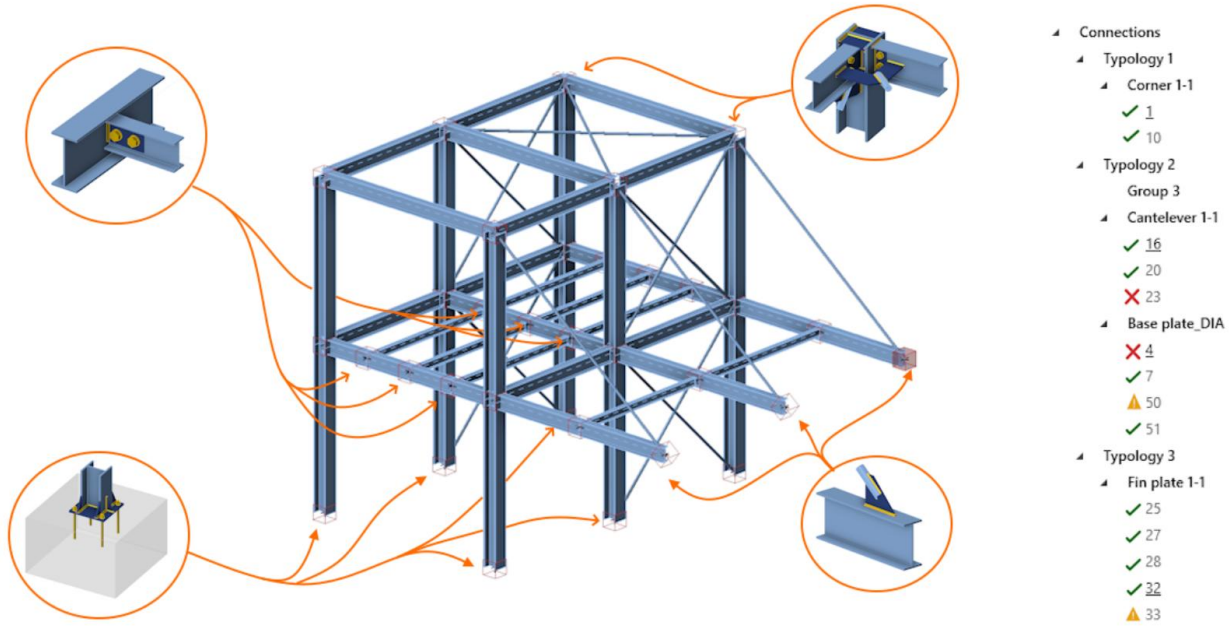


Design Groups in Checkbot

Checkbot creates design groups automatically, but the grouping can then be changed as required.

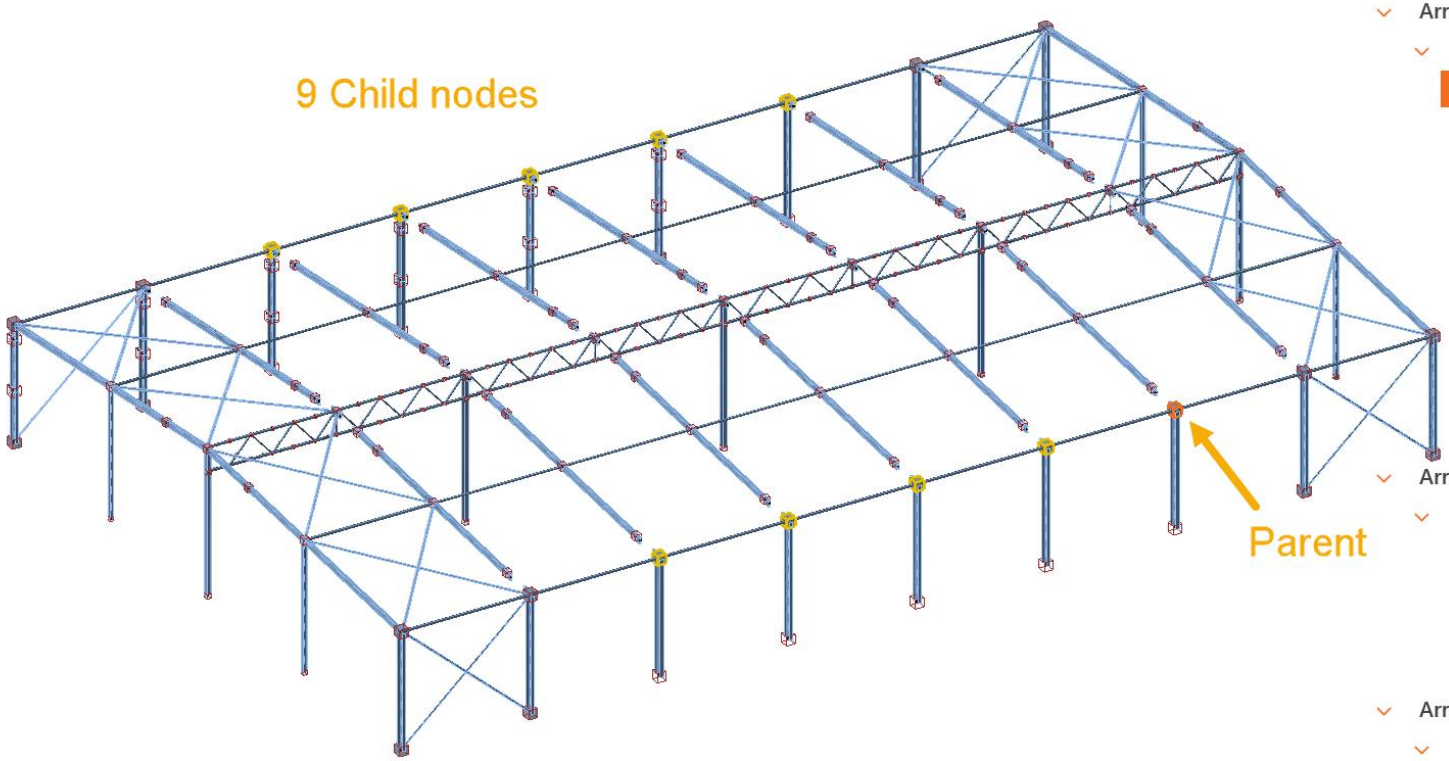
The underlined node is the Reference (or parent) connection in the group. We should edit that node.

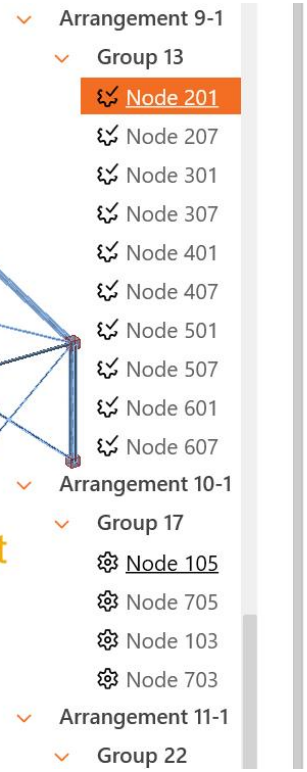
Connection details are automatically shared to child connections in the group. Otherwise child connections are not editable.

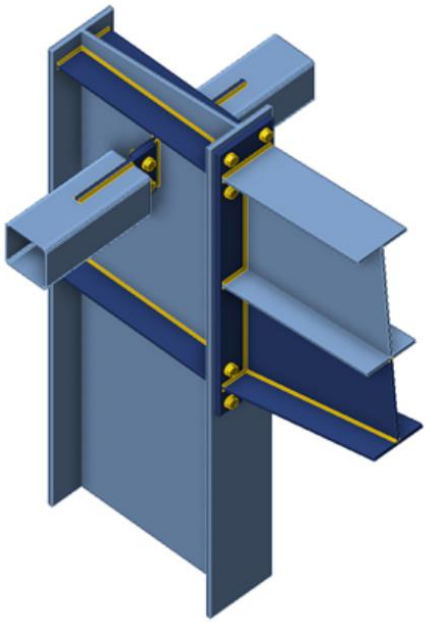


https://www.ideastatica.com/support-center/multi-management-tools-in-checkbot

Design Groups in Checkbot



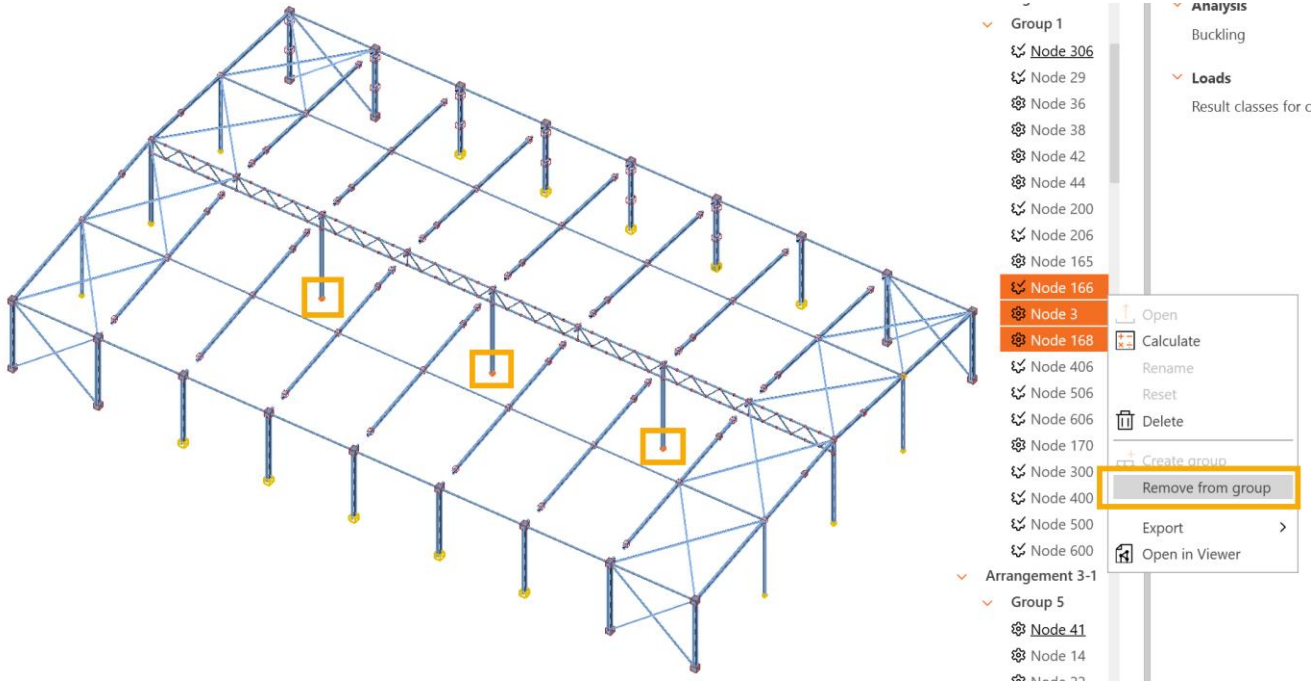


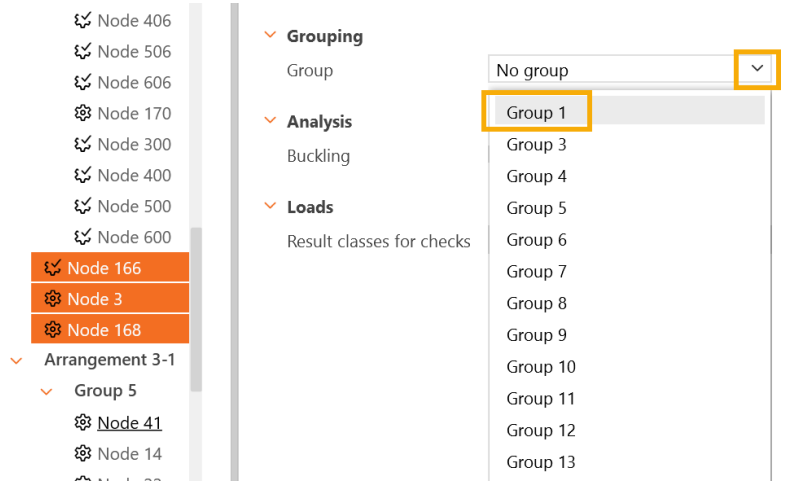


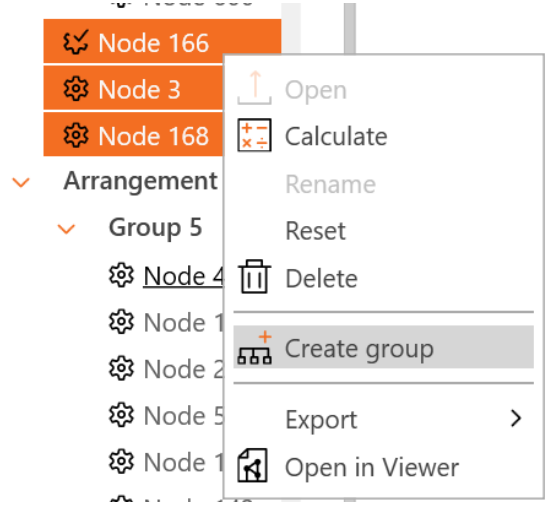
Design Groups in Checkbot

The 3 interior column baseplates may require different details compared the parent. Select the nodes, right click and remove from the group. Assign back to the same or to other group, or create new group as appropriate.

Right click on a design group title to explode – removing all from a group.







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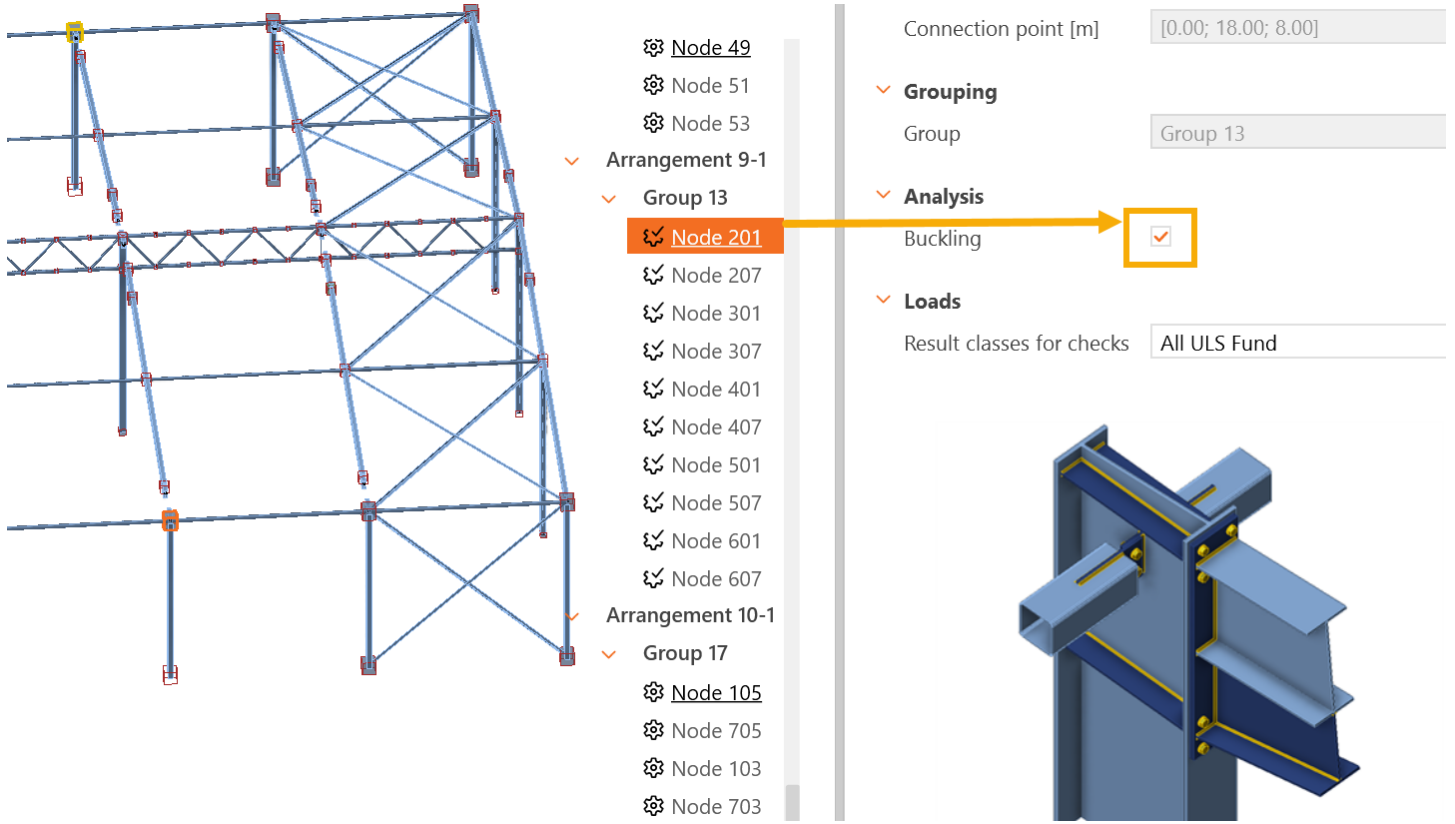
Design Groups in Checkbot

If the connections might be governed by instabilities, tick on buckling analysis for the reference connection.

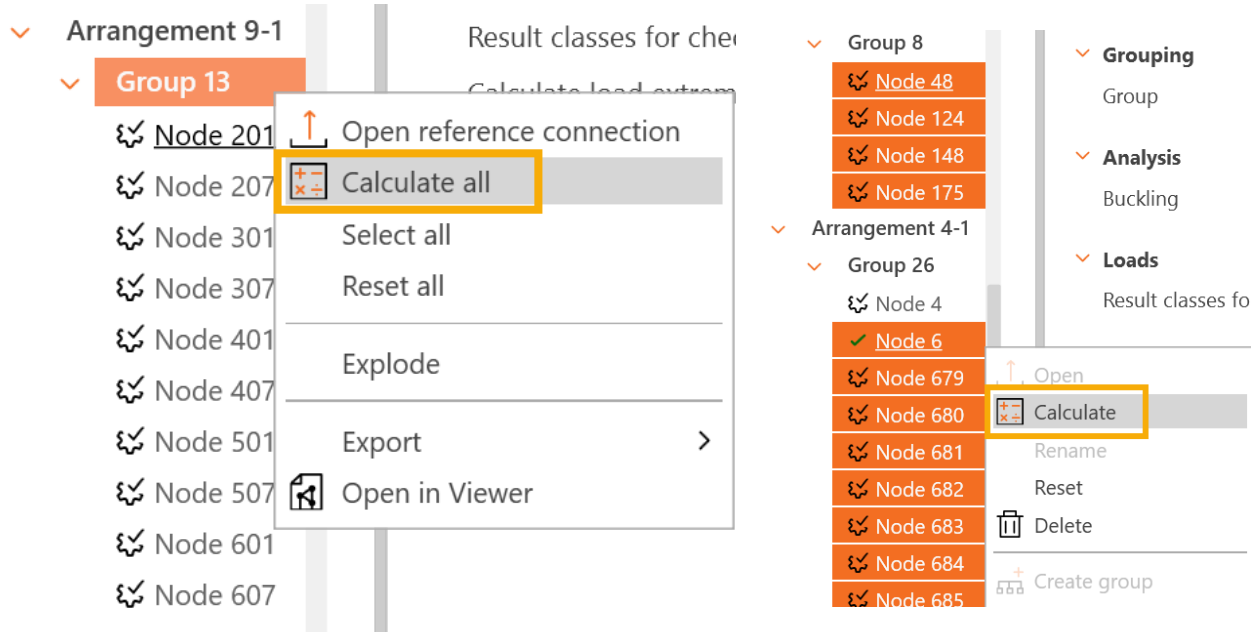
This will increase analysis time, but to help, the default number of buckling modes could potentially be reduced in Project settings (then save as default).

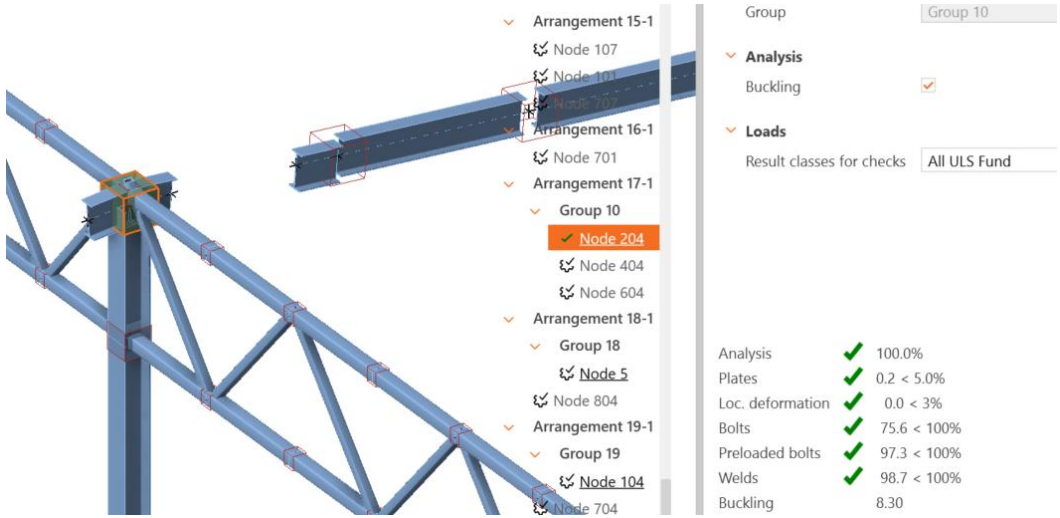
The minimum buckling load factor given in the Checkbot design summary may be sufficient for the Designer to quickly decide if it's OK.



Design Groups in Checkbot

Calculate all on the group title, or multi-select connections from the full list, right click and Calculate. Design summary given in Checkbot. Open connection to review in detail or select design report.





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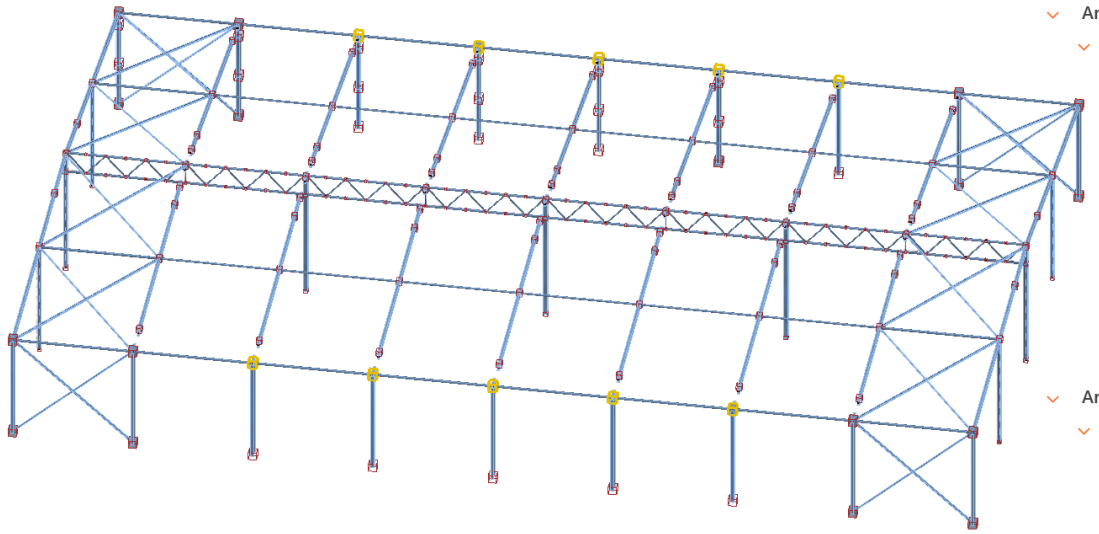
Linking via Checkbot

‘Calculate load extremes’ utilises an algorithm to untick load combinations deemed to be non-critical.



- Node 49
- Node 51
- Node 53
- Arrangement 9-1
  - Group 13
    - Node 201
    - Node 207
    - Node 301
    - Node 307
    - Node 401
    - Node 407
    - Node 501
    - Node 507
    - Node 601
    - Node 607
- Arrangement 10-1
  - Group 17
    - Node 105
    - Node 705
    - Node 103
    - Node 703
- Arrangement 11-1

Loads

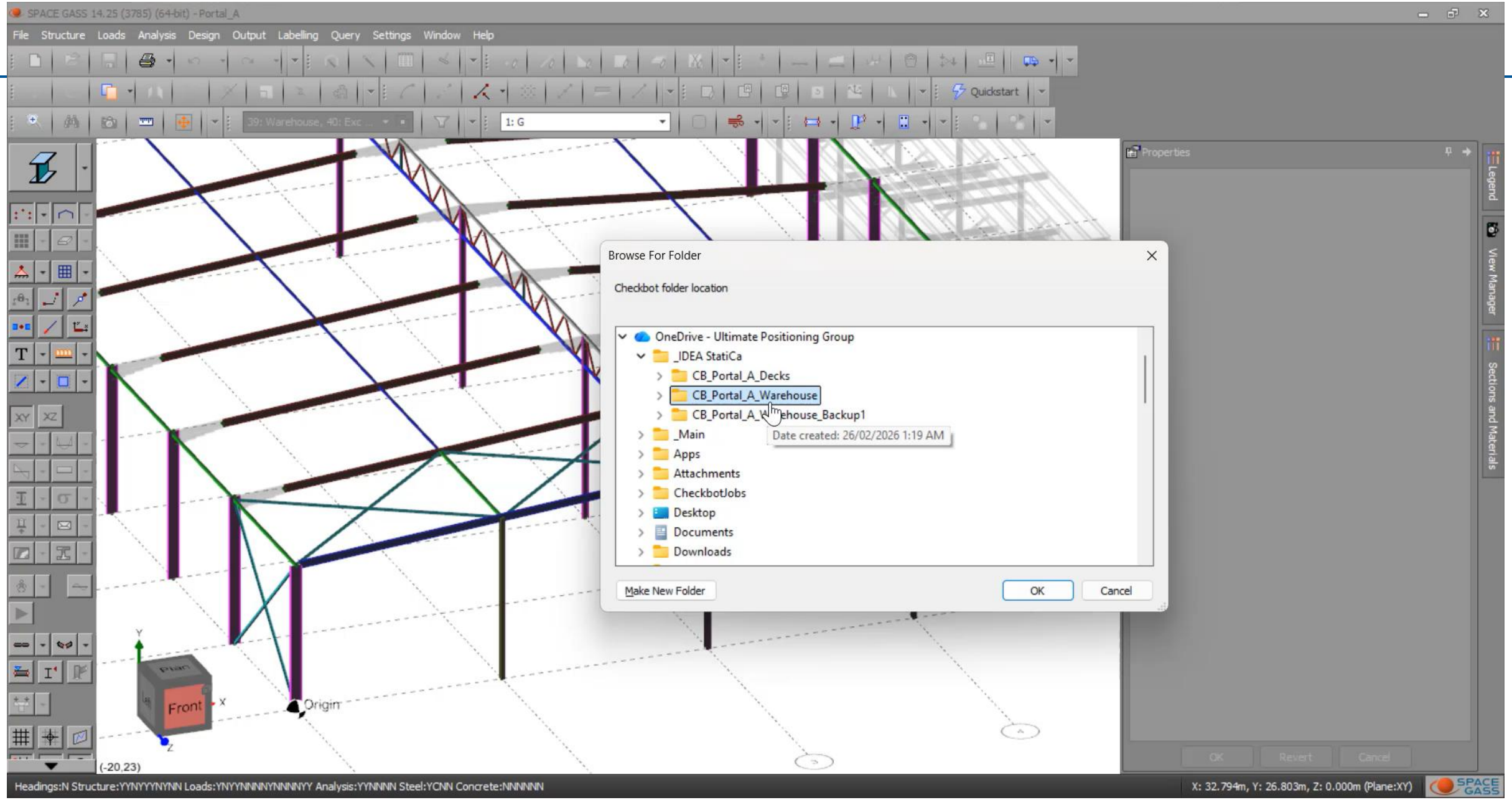
Result classes for checks	Reference connection
Calculate load extremes	☑
Critical connections	10
Load sub-groups	10

	Load sub-group	Critical connection	Critical load effects	
›	[1]	Node 201	15	
	[2]	Node 301	12	
	[3]	Node 401	11	
	[4]	Node 501	12	
	[5]	Node 601	12	
	[6]	Node 207	11	
	[7]	Node 307	12	
	[8]	Node 407	10	
	[9]	Node 507	11	
	[10]	Node 607	13	

Details

Load effects

- ☑ 1.35G
- ☐ 1.2G + 1.5Q
- ☑ 0.9G + Wu Front (Int...
- ☑ 0.9G + Wu Front (Int...
- ☑ 0.9G + Wu Left (Int...
- ☑ 0.9G + Wu Left (Int...
- ☑ 0.9G + Wu Rear (Int...
- ☐ 0.9G + Wu Rear (Int...
- ☐ 0.9G + Wu Right (Int...
- ☑ 0.9G + Wu Right (Int...
- ☑ 0.9G + Wu Front (Int...
- ☐ 0.9G + Wu Front (Int...
- ☐ 0.9G + Wu Left (Int...
- ☐ 0.9G + Wu Left (Int...
- ☑ 0.9G + Wu Rear (Int...
- ☐ 0.9G + Wu Rear (Int...
- ☐ 0.9G + Wu Right (Int...
- ☐ 0.9G + Wu Right (Int...
- ☑ 1.2G + Wu Front (Int...
- ☑ 1.2G + Wu Front (Int...
- ☐ 1.2G + Wu Left (Int...
- ☑ 1.2G + Wu Left (Int...
- ☑ 1.2G + Wu Rear (Int...
- ☑ 1.2G + Wu Rear (Int...
- ☐ 1.2G + Wu Right (Int...
- ☑ 1.2G + Wu Right (Int...

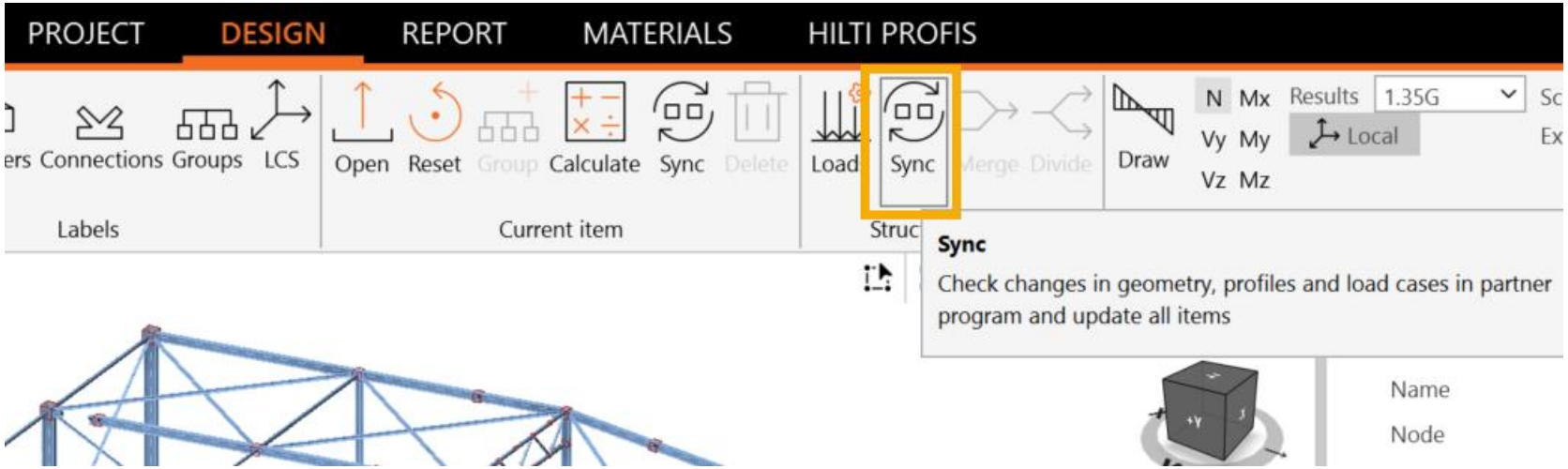


Linking via Checkbot

If design changes occur – for example loading and section sizes change in the SG model, analyse again and Sync the Checkbot models.

Connection details are retained.

Re-check connection design for the updated data.

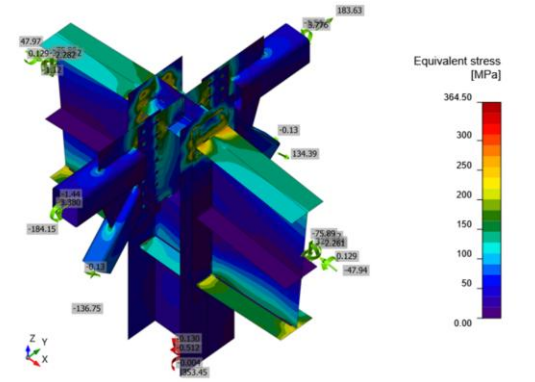


Example Outputs – Design Reports and IFC files

Check

Summary

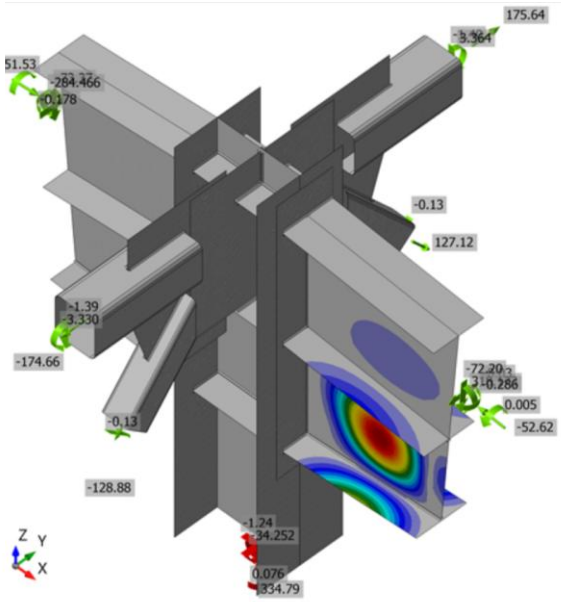
Name	Value	Check status
Analysis	100.0%	OK
Plates	0.2 < 5.0%	OK
Loc. deformation	0.0 < 3%	OK
Bolts	75.6 < 100%	OK
Preloaded bolts	97.3 < 100%	OK
Welds	98.7 < 100%	OK
Buckling	8.30	



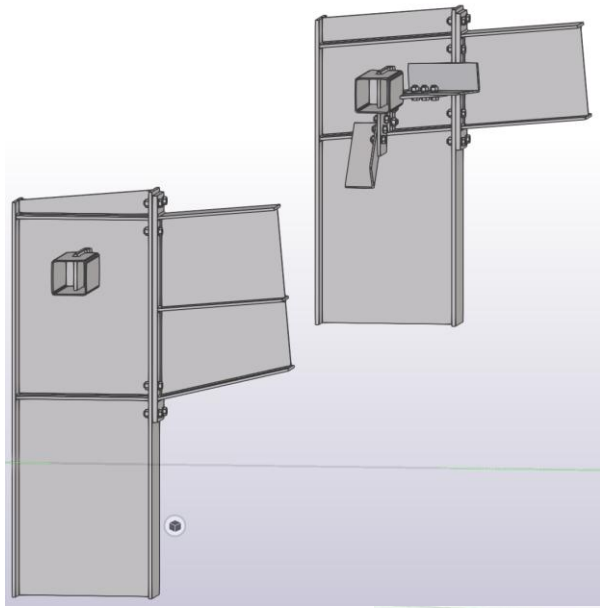
Equivalent stress, 1.2G + Wu Rear (Int + Ext Min) (-ve Cpi)

Bolts

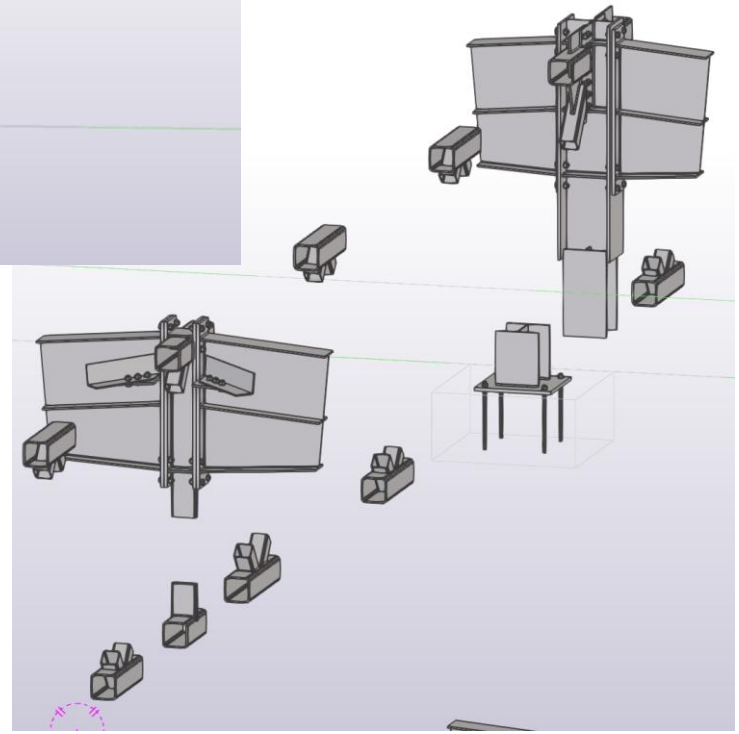
Shape	Item	Grade	Loads	N*tf [kN]	V*f [kN]	ϕVb [kN]	Ut [%]	Uts [%]	Utb [%]	Detailing	Status
	B1	M20 8.8 - 1	1.2G + Wu Rear (Int + Ext Min) (-ve Cpi)	111.52	9.41	255.18	68.5	10.2	48.0	OK	OK
	B2	M20 8.8 - 1	1.2G + Wu Right (Int + Ext Min) (-ve Cpi)	103.53	8.09	256.53	63.6	8.7	41.3	OK	OK
	B3	M20 8.8 - 1	1.2G + Wu Rear (Int + Ext Min) (-ve Cpi)	122.94	5.41	390.30	75.6	5.8	57.5	OK	OK
	B4	M20 8.8 - 1	1.2G + Wu Right (Int + Ext Min) (-ve Cpi)	116.20	4.11	390.30	71.4	4.4	51.2	OK	OK
	B5	M20 8.8 - 1	0.9G + Wu Right (Int + Ext Max) (+ve Cpi)	85.44	11.57	252.20	52.5	12.5	29.1	OK	OK
	B6	M20 8.8 - 1	0.9G + Wu Right (Int + Ext Max) (+ve Cpi)	85.73	11.63	252.02	52.7	12.6	29.4	OK	OK
	B7	M20 8.8 - 1	0.9G + Wu Right (Int + Ext Max) (+ve Cpi)	110.22	7.15	390.30	67.8	7.7	46.5	OK	OK
	B8	M20 8.8 - 1	0.9G + Wu Right (Int + Ext Max) (+ve Cpi)	109.50	7.20	390.30	67.3	7.8	45.9	OK	OK
	B9	M20 8.8 - 1	1.2G + Wu Rear (Int + Ext Min) (-ve Cpi)	99.57	9.31	256.29	61.2	10.1	38.5	OK	OK
	B10	M20 8.8 - 1	1.2G + Wu Rear (Int + Ext Min) (-ve Cpi)	112.57	9.31	255.40	69.2	10.1	48.9	OK	OK



First buckling mode shape, 1.2G + Wu Right (Int + Ext Min) (-ve Cpi)



IFC used as reference files in Tekla Structures



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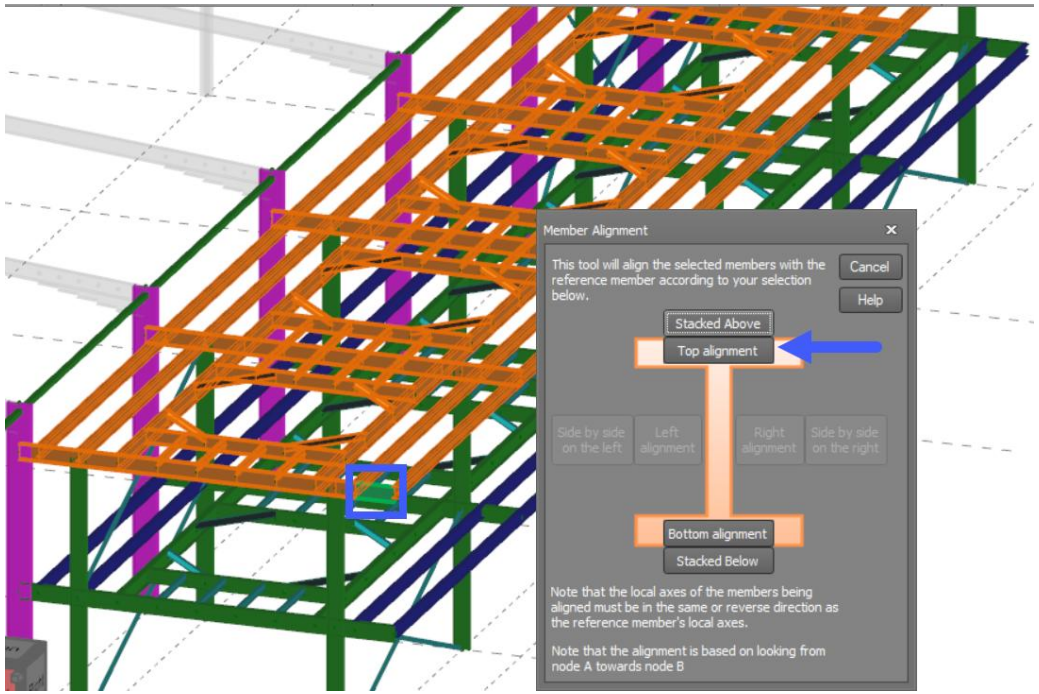
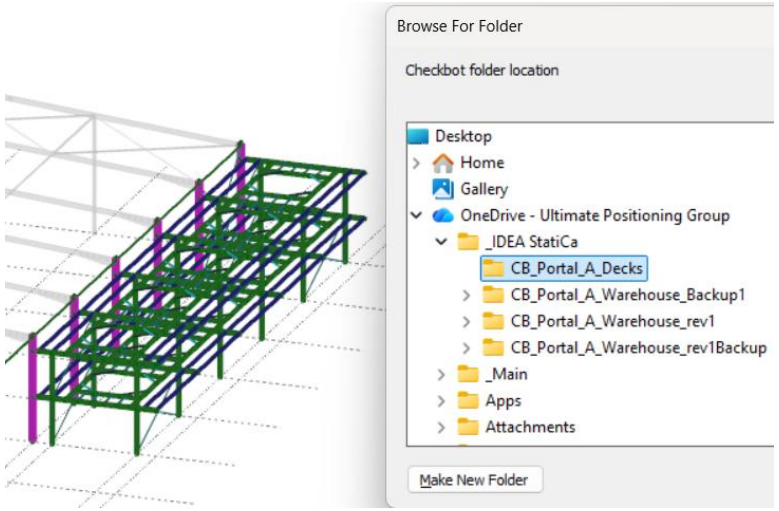
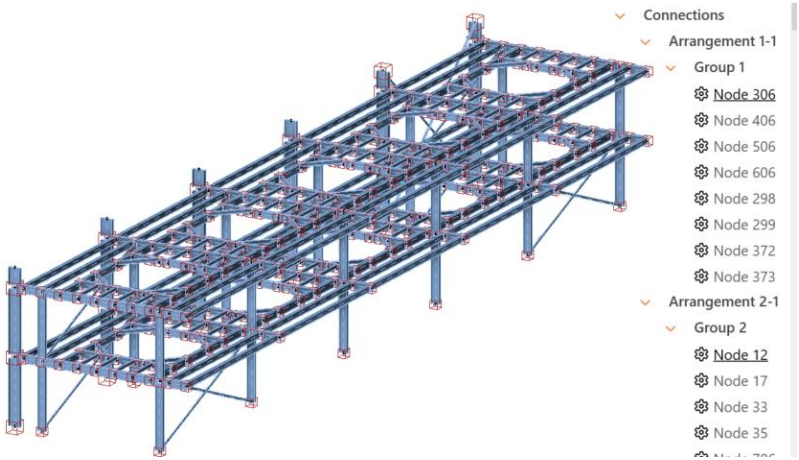
Additional Zones

Separate zone or portion of SG structure – use similar procedure to import connections for design. Use a different Checkbot folder for each zone.

A very helpful feature in SG - Set all beams at a level to top flange alignment of a selected beam.







Summary

1. New feature - link via a separate (persistent) folder. Multiple folders may be used for larger SG models.
2. Prepare the SG model - use filters and offsets as appropriate. Limit load combinations to those req'd (strength typ).
3. Design groups (with automatic sharing of connection details).
4. 'Calculate load extremes' option, at least for preliminary checks.
5. Export of connections from Checkbot to separate fully editable .ideacon files.
6. Templates (publish and propose).
7. Group calculation within Checkbot, including buckling analysis if applicable.
8. Synchronization – update connections if the source application changes.
9. Export of connections in IFC format to assist the modeller for fabrication.

Thankyou!

Q&A

QUESTIONS?

~10 minutes

W: buildingpoint.com.au
P: 1800 900 272
E: is_support@buildingpoint.com.au

What version of spacegass onwards has this functionality?

we're using the latest version of SPACE GASS available on the website. Build 14.25.3785 (Feb 17, 2026). But the Checkbot link has been available to SPACE GASS since 2023

How should the mesh be done at the plate contact surface in IDEA StatiCa. Was the mesh refined, or how was it handled?
A: IDEA StatiCa automatically refines the mesh in the contact region using its internal contact modelling rules. The user-defined minimum and maximum mesh sizes set the allowable element size range, and the solver performs additional local refinement within those limits around plate-to-plate and bolt-bearing contact surfaces, etc.

The IDEA checkbox in Connections is deactivated even after a full buckling analysis. Also, do we need to install IDEA if we export a file in order to open it in IDEA?
I'll need to check regarding the checkbox. If you're referring to deactivated operations within the connection. If so, the reason is that you are working with a predefined parametric connection. In these templates, operations are locked by default. To make them editable, simply explode the connection, and all operations will become active.
As for IDEA StatiCa files, that can be shared to other stakeholders in the IDEA StatiCa cloud viewer. This is a free app and doesn't require a commercial license.

Can we please get a recording of this session and the slidedeck?
The recording will be uploaded to our Youtube channel. We will send links and the pdf after at some point after the meeting

SpaceGass has built-in connection design. How does IdeaStatiCa differ to SpaceGass connection design?
Good question, I'll get Nick to comment this but in short, the SG inbuilt connection design is empirical methods only, so you're limited by connection topology, but IDEA is a general tool that combines empirical methods with FEA allowing a general connection design.

After the Webinar

Watch the Recording

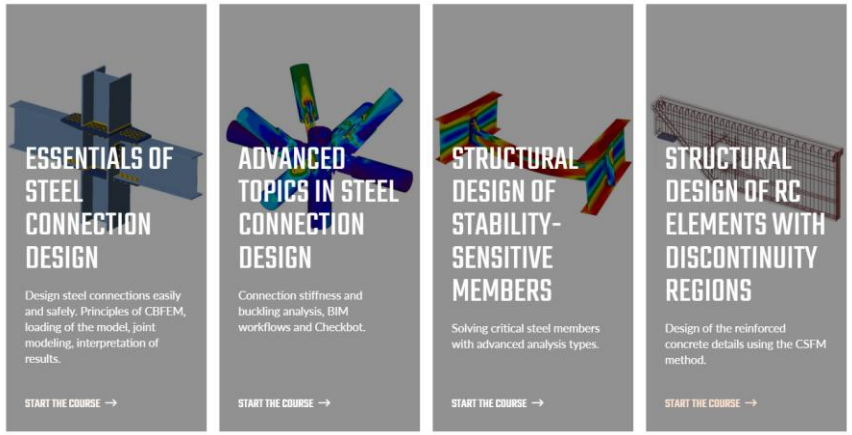
Available on our YouTube channel
https://www.youtube.com/@BuildingPointAustralia

Try IDEA StatiCa

14-day free trial version
https://www.ideastatica.com/free-trial

Learn IDEA StatiCa

https://www.ideastatica.com/campus



Support Centre

https://www.ideastatica.com/support-center

Case Study

Worked on something cool lately?
Contact us to get featured!

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Licensing

IDEA StatiCa Steel

- Get in touch for pricing options

Special offers

- Sole trader
- Early-stage engineering firm (<2 years)
- Enterprise customers – Tiered discounts

What apps does each product have?				
Application	Steel	Detail	Concrete	Complete/Enterprise
Connection	✓	✗	✗	✓
Member	✓	✗	✓	✓
Detail	✗	✓	✓	✓
Beam	✗	✗	✓	✓
RCS	✗	✗	✓	✓
Checkbot	✓	✓	✓	✓
Viewer	✓	✗	✗	✓

What’s next

IDEA StatiCa Steel – Classroom training

- Sydney, Melbourne, Brisbane OR Perth
- 13-17 April 2026
- Limited spaces
- IDEA StatiCa representatives will be on-site

What’s New

- IDEA StatiCa v26 release next quarter
- AS3600:2018 compliance in Detail 3D