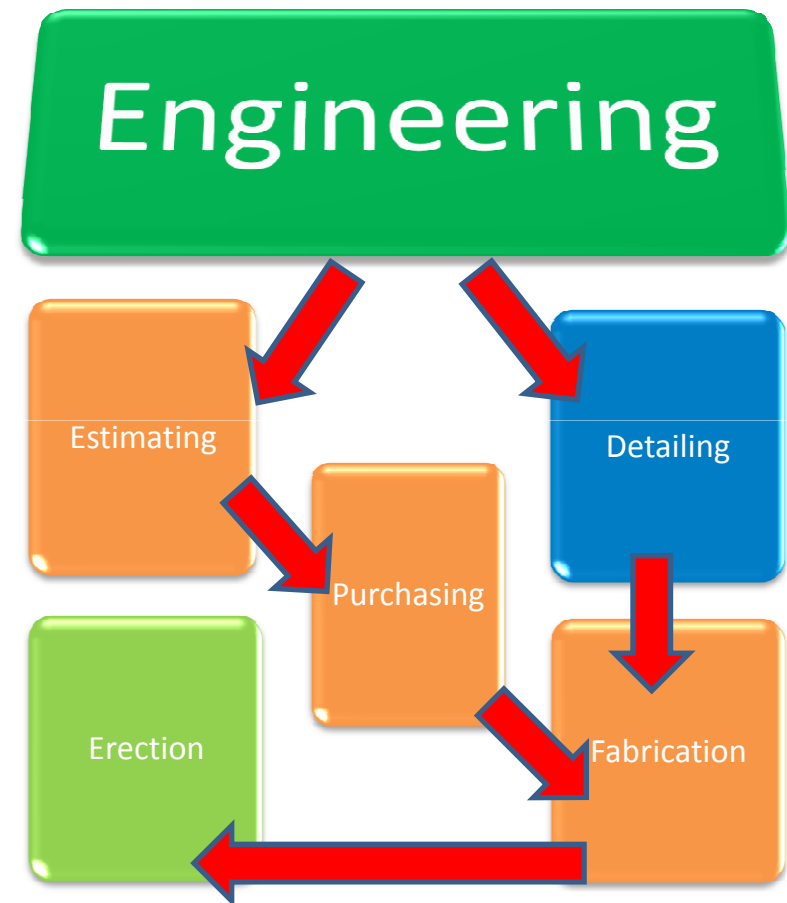


# Communication with Structural Steel Sub-Contractors?

- Drawings (Paper /Electronic)
- E-mail
- Telephone
- Web Document Hosting
- Meetings



**Common collaboration, 3D project review and integration platform:**

- Document & RFI Management
- Project Management; 4D and 5D 'model' planning
- Enquire, Language Mark-up, Data grids,

**Enquiry Management and Knowledge based Estimates**

**Contract Management Portal:**

Estimate review hosting  
Contracts Review

**Fabrication Management (MRP/MIS/ERP)**

- Procurement, Supplier EDI & Stock Management
- Real-time Production Control & Scheduling
- Capacity Planning\*
- Project and Production Status
- Bar code/Rfid tracking/logistics/shipping
- Member, Bevel and Plate Nesting
- Budgets & Cost Performance monitoring
- Delivery/Logistics

**Construction Structural Management**

- Delivery/Logistics to Site and on Site Tracking
- Contract Management & Project Review
- Constructability Reviews
- Erection Sequencing
- Change Impact Analysis
- Structural FIWP and Planning

**Structural Modeling & Detailing**

- Parametric
- GA drawings
- Cutting Sheets
- Typical joint details
- Bulk steel MTO

- GA drawings
- Cutting Sheets
- Typical joint details
- Bulk steel MTO

**Fabrication Deliverables**

- Fab Drgs & Cutting Sheets
- Sub-assembly/Assembly drawings
- Detailed steel MTO
- Bolt & Weld MTO

**Structural  
Modeling**

**Structural  
Detailing**

Structural  
detailing  
model data

**Enquiry & Estimate**

**Contracts Management**

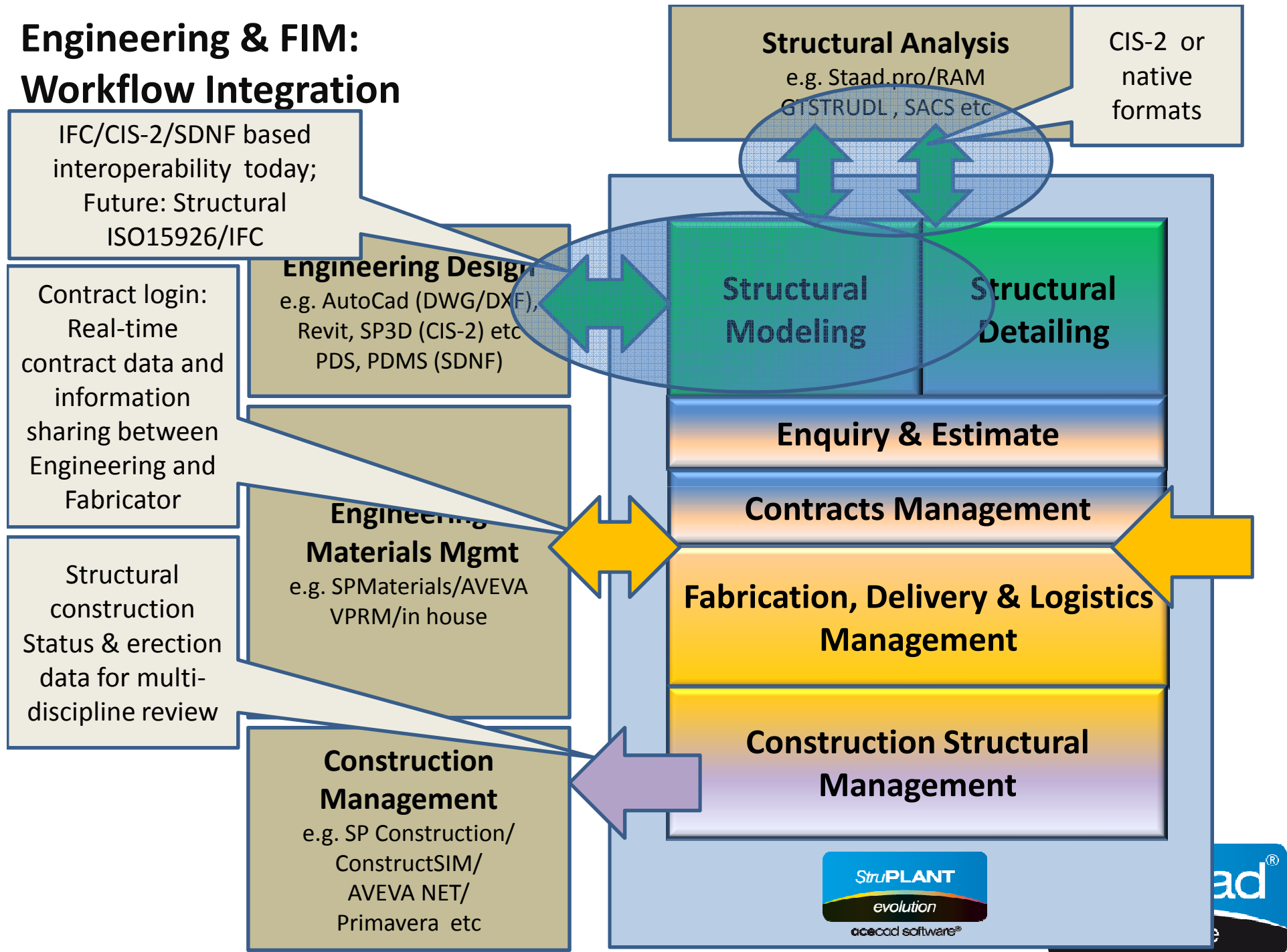
**Fabrication, Delivery & Logistics  
Management**

**Construction Structural  
Management**

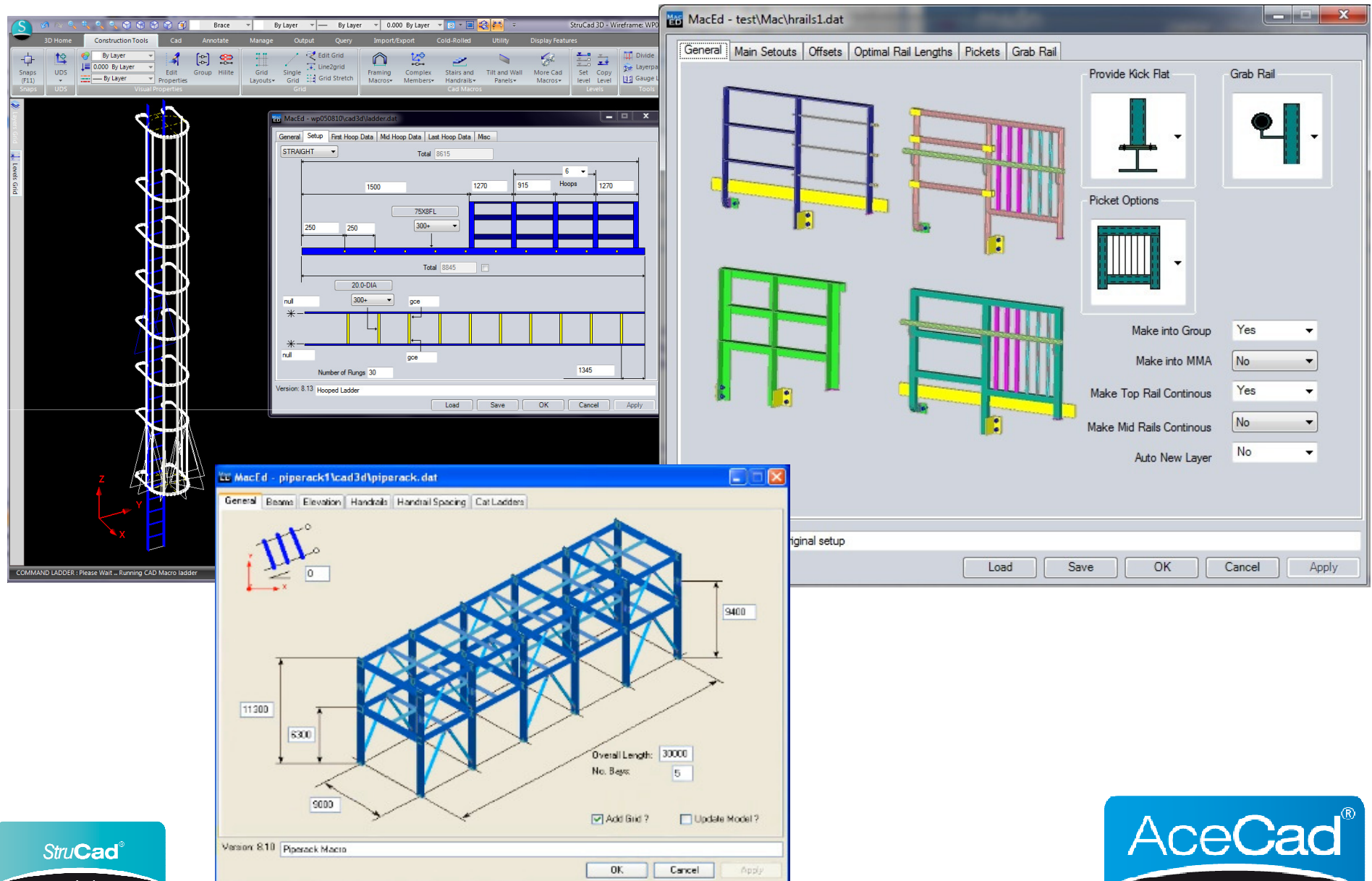
StruPLANT  
evolution  
ascad software®

ad®

# Engineering & FIM: Workflow Integration

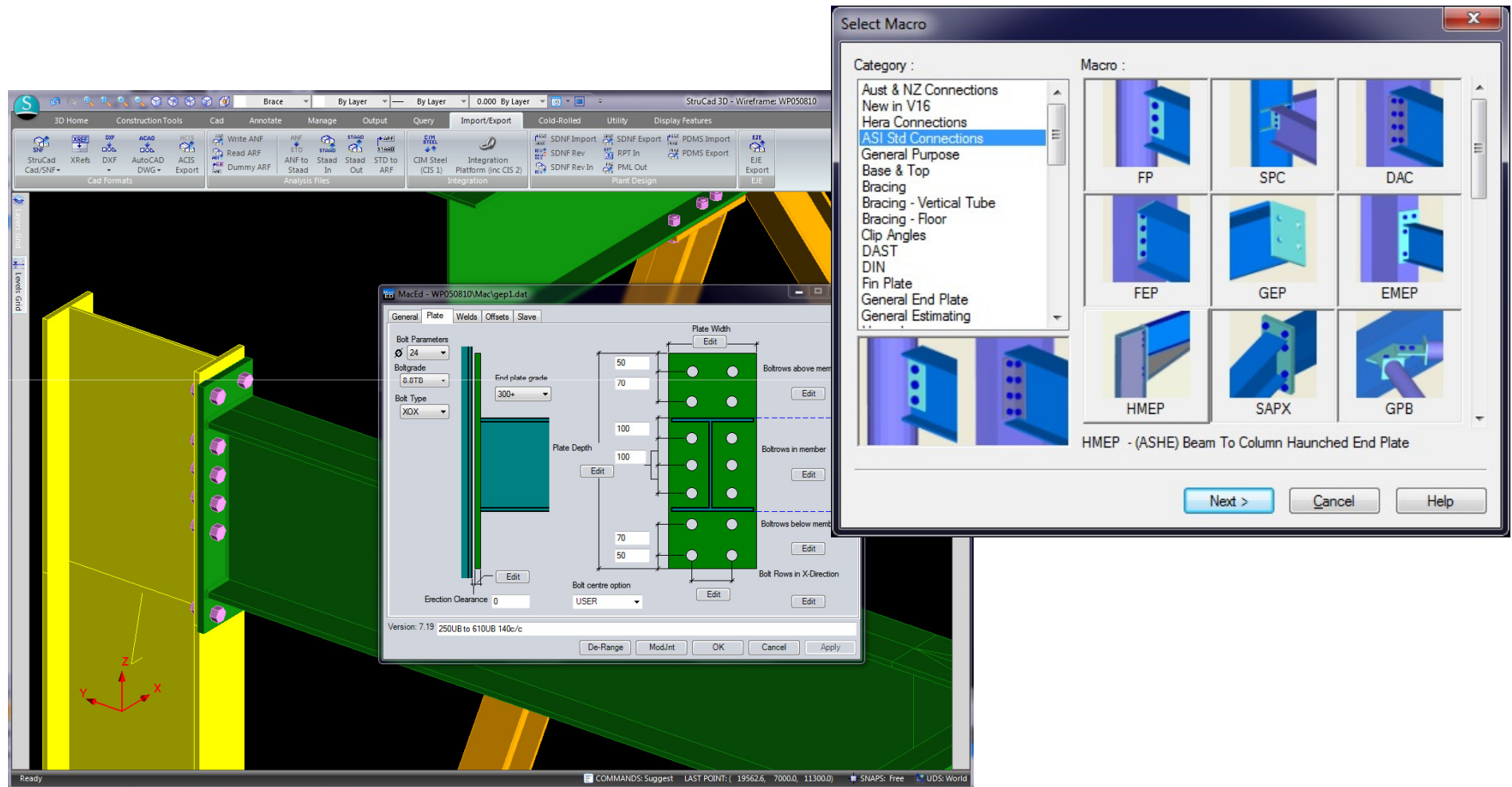


# Productivity Design Macros

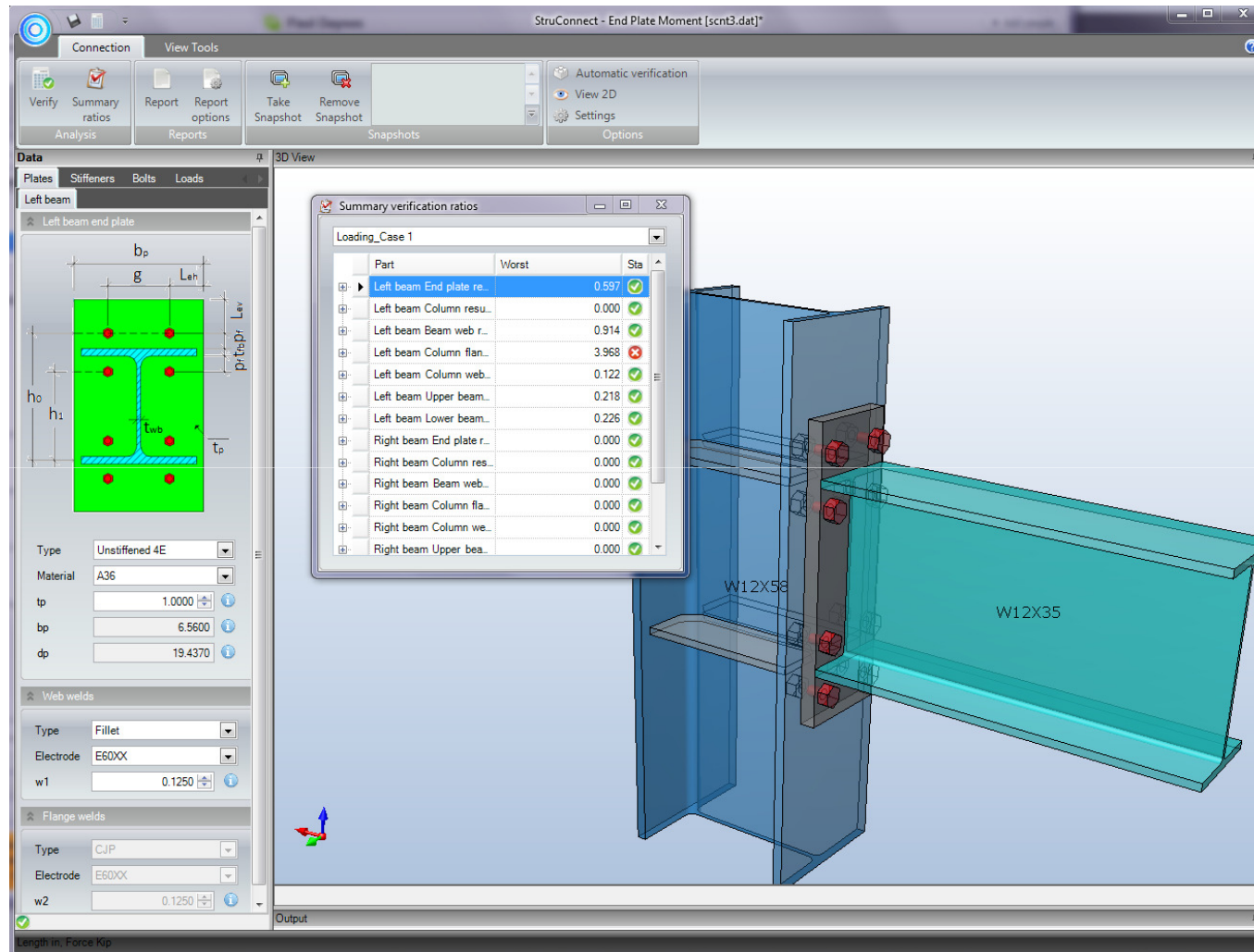




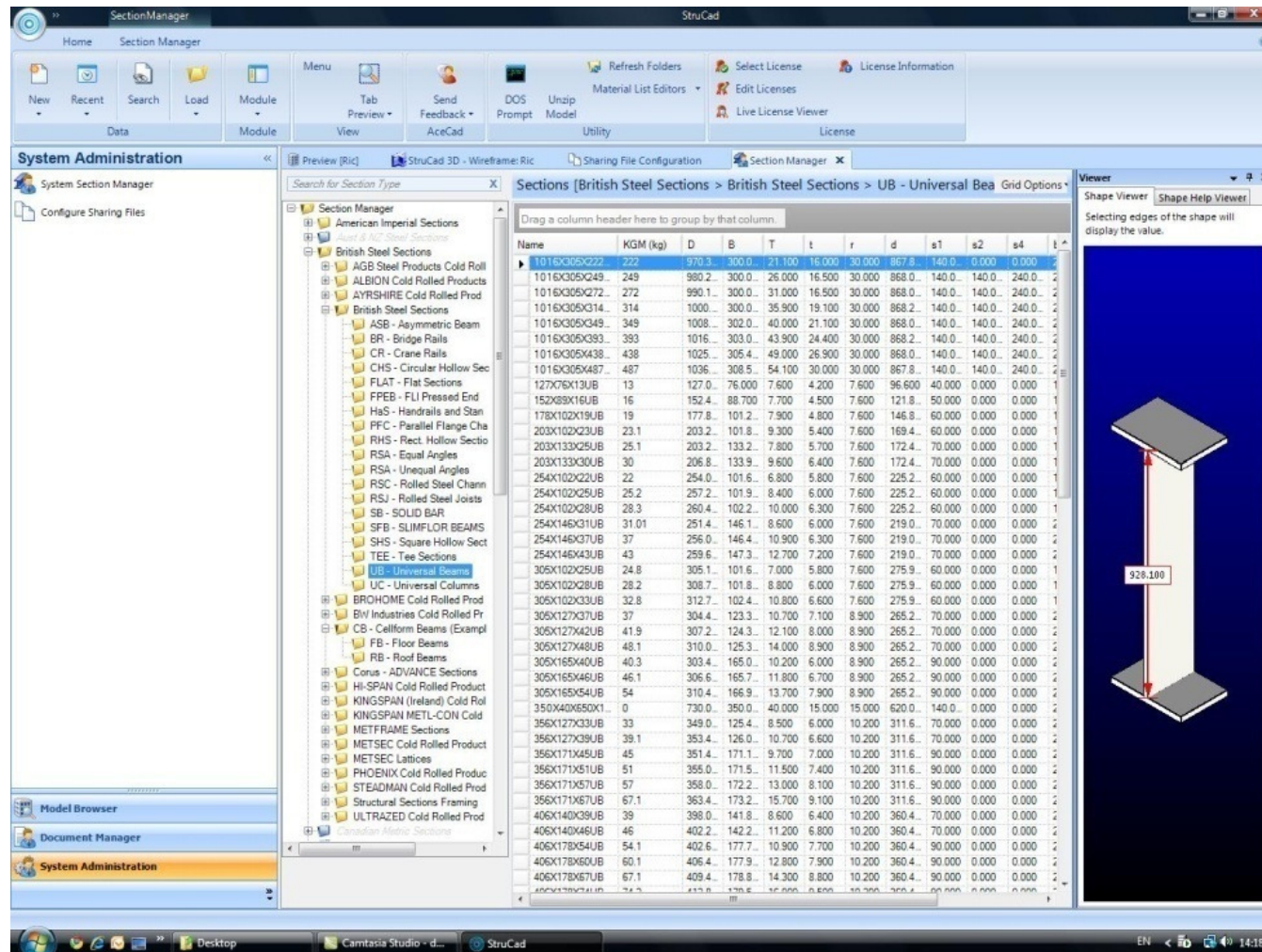
# Productivity Connection Macros



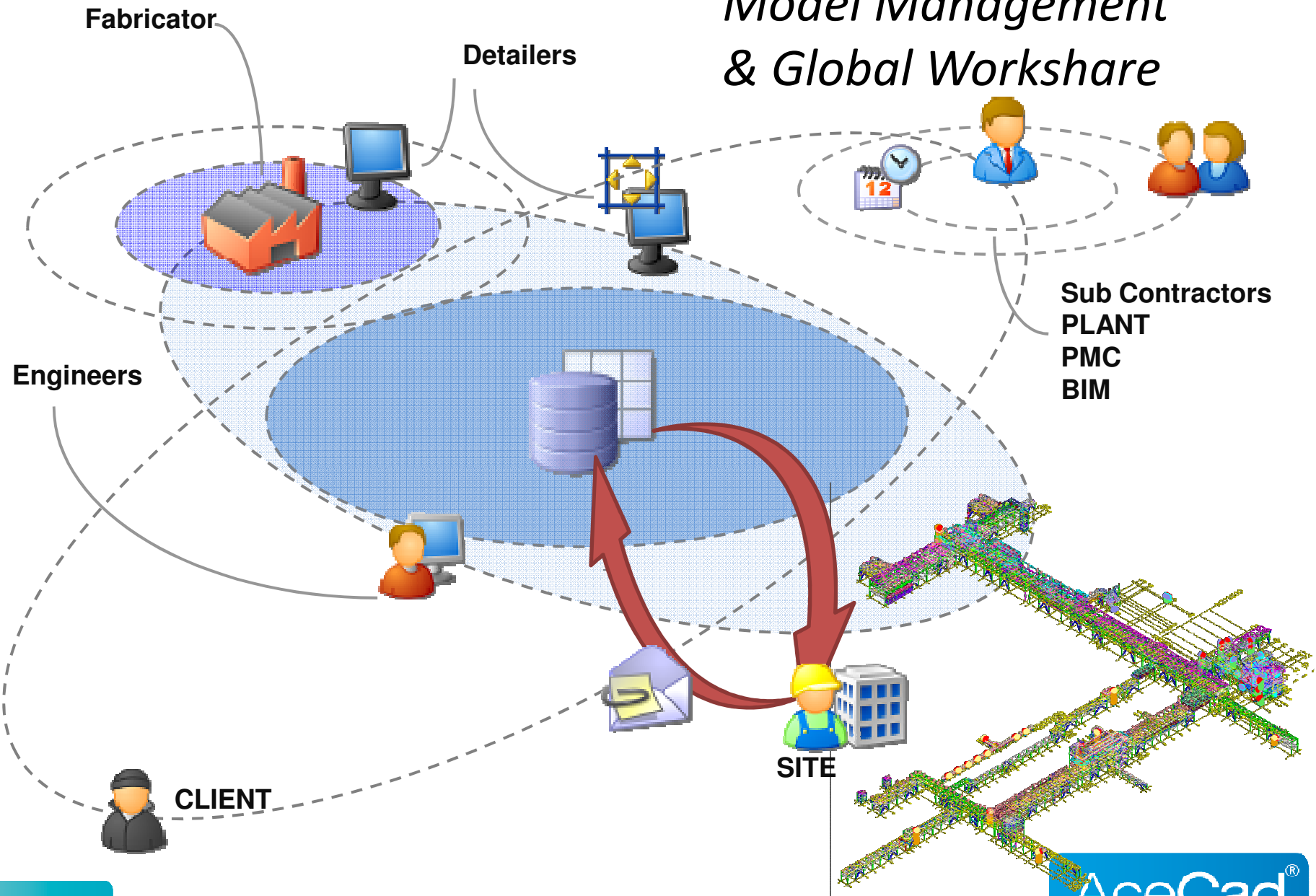
# Connection Design, Detail and Signoff



# Catalogue Section Manager



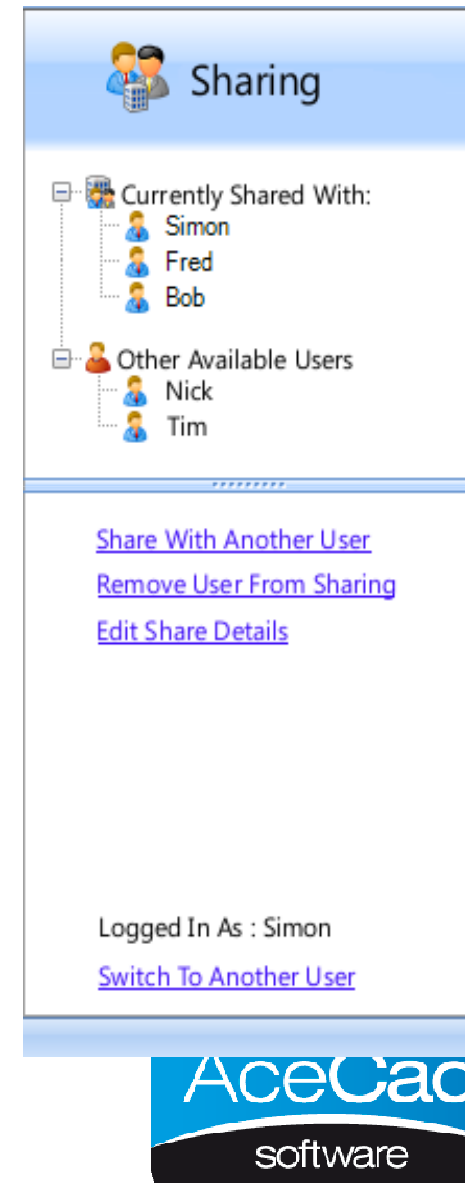
# *Model Management & Global Workshare*





# ***Model Management***

- **Model types**
  - **Local** – local single user model
  - **Shared** – local and shared model
  - **Remote** – remote shared model
- **Model Control**
  - **Version/ Session history**
  - **Version / sessions comparison / differences**
  - **Version rollback function**
  - **Managed issue control**
- **Communication:**
  - **Low bandwidth requirements LAN/WAN**
  - **“Right Click” and “Share”**





# Model Management

StruCad 3D - Wireframe: stru\_plant

3D Home Construction Tools Cad Annotate Manage Output Query Import/Export Cold-Rolled Utility Display Features

Mark Model Mark Issue User Status Model Manager Helpshape Shapes and Stocks Clash Check Clash Autonest Ednest Putfit Autolib StdDraw

0 By Layer By Layer 0.000 By Layer

Check In  
Check items into the Model Manager server  
Abbreviation: CHECKIN

Member Grid

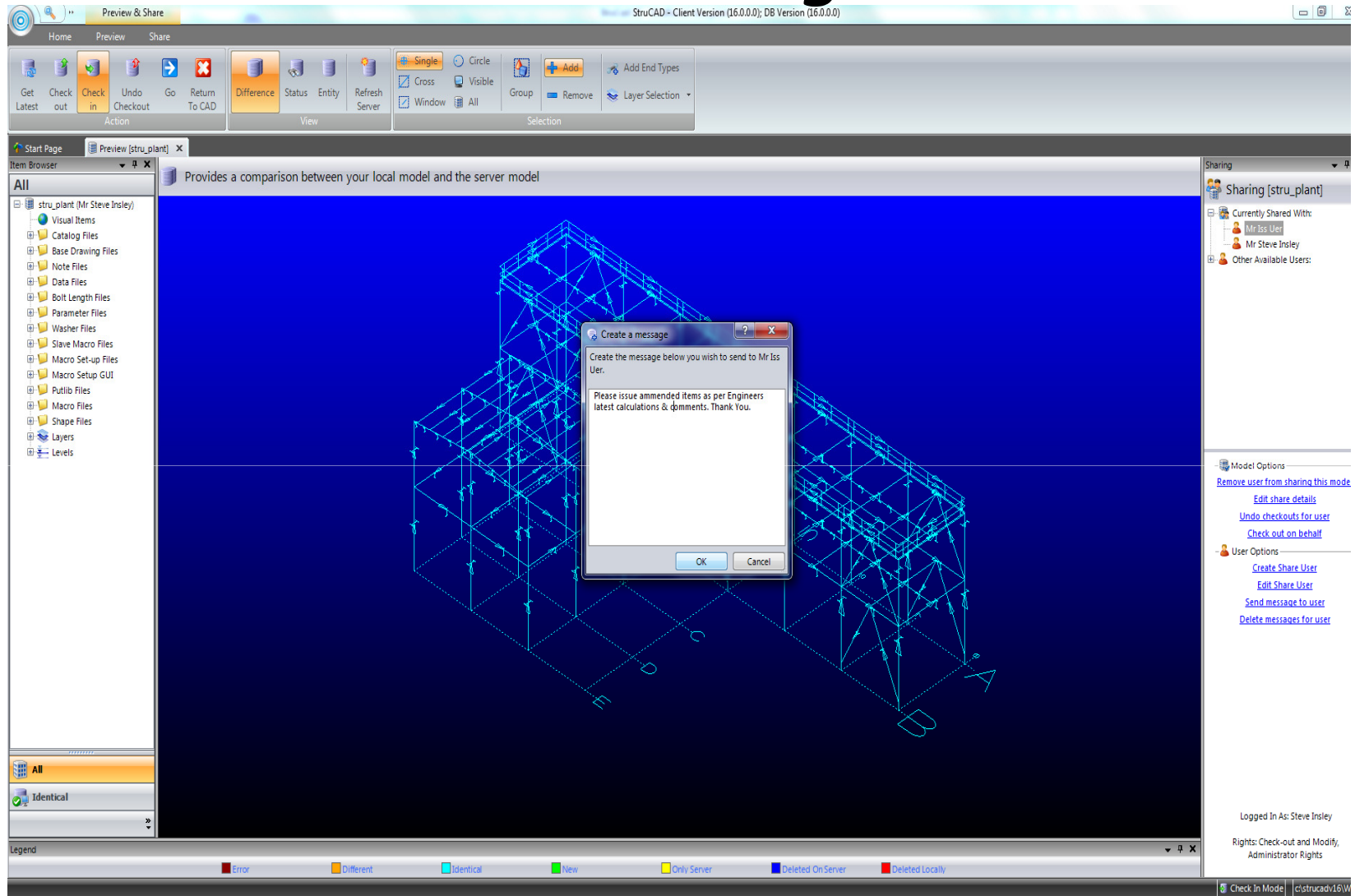
Grid Options Batch Update

Mark	Assembly Mark	Layer	Stock Size	Mark Category	End Type A	End Type B	Grade	Dummy	Compound ID	Net Weight (kg)	Gross Weight (kg)	Net Assembly Weight (kg)	Gross Assembly Weight (kg)	Net Area (m²)	Gross Area (m²)	PHASE	PRELIM	DESC	FINISH	PREFIX
		Columns	610X305X149UB	1	\$sch75a2	\$sp1b	S275JR			1 1396.396	1396.396	1736.946	1760.259	22.706	22.706	1	null	null	null	null
		Columns	610X305X149UB	1	\$sch75a2	\$sp1b	S275JR			1 1396.396	1396.396	1736.946	1760.259	22.706	22.706	1	null	null	null	null
		Columns	610X305X149UB	1	\$sch75a2	\$sp1b	S275JR			1 1396.396	1396.396	1746.467	1770.886	22.706	22.706	1	null	null	null	null
		Columns	610X305X149UB	1	\$sch75a2	\$sp1b	S275JR			1 1396.396	1396.396	1746.467	1770.886	22.706	22.706	1	null	null	null	null
		Columns	610X305X149UB	1	\$sp1a	null	S275JR			1 307.519	307.519	369.191	370.863	5.030	5.030	1	null	null	null	null
		Columns	610X305X149UB	1	\$sp1a	null	S275JR			1 307.519	307.519	369.191	370.863	5.030	5.030	1	null	null	null	null
		Columns	610X305X149UB	1	\$sp1a	null	S275JR			1 307.519	307.519	378.711	381.489	5.030	5.030	1	null	null	null	null

Ready

LAST POINT: ( 114485, 113783, 0.0) SNAPS: Free UDS: Wo

# Model Management



# Model Management

The screenshot displays the StruCad software interface. The main window shows a 3D wireframe model of a building structure. A 'Check In' dialog box is open, displaying a summary of items to be checked in. The dialog includes a table with columns for Type, Quantity, and Changes. The table lists the following items:

Type	Quantity	Changes
Files	319	319 Identical
Layers	9	9 Identical
Levels	3	3 Identical
Members	356	2 Different, 9 Deleted Locally, 345 Identical
Grids	13	13 Identical

Below the table, there is a 'Comments' field and a 'Keep checked out' checkbox. The 'Check In' button is highlighted. The interface also shows a 'Sharing' panel on the right, indicating the model is shared with 'Mr Ios User' and 'Mr Steve Insley'. The bottom status bar shows the user is logged in as 'Steve Insley' and has 'Check-out and Modify, Administrator Rights'.

# Revision and Issue Control

The screenshot displays the StruCad software interface. Two Notepad windows, titled 'rev\_002.tmp - Notepad', are open side-by-side. The left window shows a 'Revision Report for Model iss Issue 2 - 12 May 2010' with categories for Hot Rolled, Cold Rolled, and Curved Member Marks. The right window shows a 'Revision Report for Model stru\_plant Issue 2 - 21 May 2010' with categories for Hot Rolled, Cold Rolled, Curved, Plate Fitting, Cleat Fitting, Multi-Member Assembly, and Nested Sheets. An 'Issue Revision Summary' dialog box is overlaid on the left, featuring a 'Revision Summary' section with input fields for Revised (2), New (2), Cancelled (0), and Restored (0). Below this is a 'Reports' section with 'View Revision Report' and 'View History Report' buttons. At the bottom of the dialog are '< Back', 'Next >', and 'Cancel' buttons.

**rev\_002.tmp - Notepad**

```
File Edit Format View Help
*** Revision Report for Model iss Issue 2 - 12 May 2010 ***
*** Mark categories: All ***

*** Revisions to Hot Rolled Member Marks ***
( 0) Mark 3          is now Revision A (Quantity 2 Decreased to 1)
( 0) Mark 4          is New (Quantity 1)

*** Revisions to Cold Rolled Member Marks ***
*****
* NO REVISIONS MADE *
*****

*** Revisions to Curved Member Marks ***
*****
* NO REVISIONS MADE *
*****
```

**rev\_002.tmp - Notepad**

```
File Edit Format View Help
*** Revision Report for Model stru_plant Issue 2 - 21 May 2010 ***
*** Mark categories: All ***

*** Revisions to Hot Rolled Member Marks ***
( 7) Mark 102        is now Revision A (Quantity 4 Decreased to 2)
( 7) Mark 108        is now Revision A (Quantity 2 Increased to 4)
( 7) Mark 109        is Cancelled (quantity 2)
( 7) Mark 110        is Cancelled (quantity 2)
( 7) Mark 111        is Cancelled (quantity 2)
( 6) Mark 112        is Cancelled (quantity 1)
( 7) Mark 117        is New (quantity 2)
( 6) Mark 85         is Cancelled (quantity 1)
( 6) Mark 93         is now Revision A (Quantity 1 Increased to 2)
( 6) Mark 94         is Cancelled (quantity 1)
( 6) Mark 95         is Cancelled (quantity 1)
( 7) Mark 98         is now Revision A (Quantity 3)
( 7) Mark 99         is Cancelled (quantity 2)

*** Revisions to Cold Rolled Member Marks ***
*****
* NO REVISIONS MADE *
*****

*** Revisions to Curved Member Marks ***
*****
* NO REVISIONS MADE *
*****

*** Revisions to Plate Fitting Marks ***
( 6) Mark PLT64       is now Revision A (Quantity 5 Decreased to 4)
( 7) Mark PLT70       is now Revision A (Quantity 10 Decreased to 4)
( 6) Mark PLT71       is Cancelled (quantity 1)
( 6) Mark PLT72       is Cancelled (quantity 2)
( 6) Mark PLT73       is Cancelled (quantity 1)
( 6) Mark PLT74       is Cancelled (quantity 1)
( 7) Mark PLT79       is Cancelled (quantity 2)
( 7) Mark PLT80       is Cancelled (quantity 4)
( 7) Mark PLT81       is Cancelled (quantity 2)
( 7) Mark PLT82       is Cancelled (quantity 2)
( 7) Mark PLT91       is New (quantity 4)

*** Revisions to Cleat Fitting Marks ***
( 6) Mark CLT19       is Cancelled (quantity 1)
( 7) Mark CLT22       is Cancelled (quantity 2)
( 7) Mark CLT23       is Cancelled (quantity 2)
( 6) Mark CLT24       is Cancelled (quantity 1)

*** Revisions to Multi-Member Assembly Marks ***
*****
* NO REVISIONS MADE *
*****

*** Revisions to Nested Sheets ***
*****
* NO REVISIONS MADE *
*****
```

**Issue Revision Summary**

Revision Summary

Revised:

New:

Cancelled:

Restored:

Reports

View Revision Report:

View History Report:

< Back 

**StruCad<sup>®</sup>**  
evolution  
acecad software

# Integrated Document Management

- Controlled document database
- Management of all document types
- RFI's Management
- Document version history
- Contacts list
- Electronic document transmittals
- Document workflow
- Status management
- Distribution Lists
- “Pending Transmittals” to ensure relevant people have the latest revisions of all documents.
- Screen capture and commenting tools for automatic RFI generation.

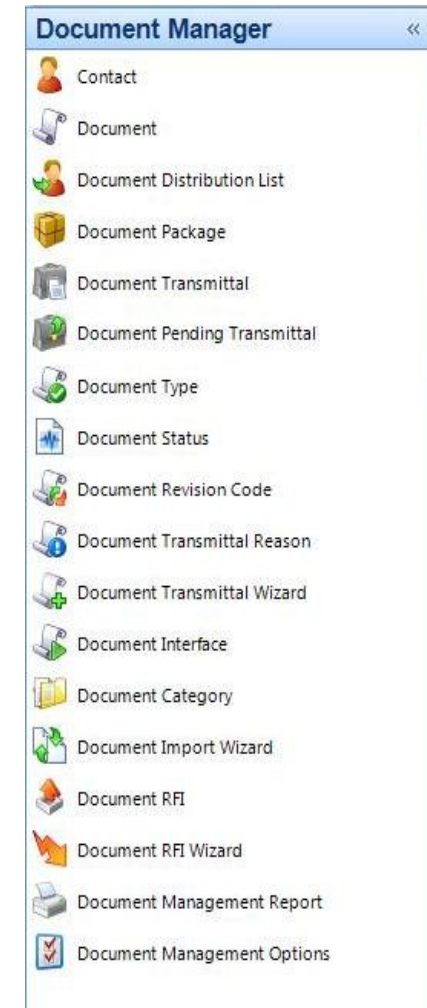
19/7/2008 12:43  
Richard Brotherton  
Summary of Document Status

Contract	<All>
Document Status	Count
Revised	11
Not Specified	0
Detailed	609
Accepted	1
Checked	128
Issue for Approval	9
Returned from Approval with Comments	2
Final Issue for Approval	12
Approved	118
Issued for Fabrication	1370

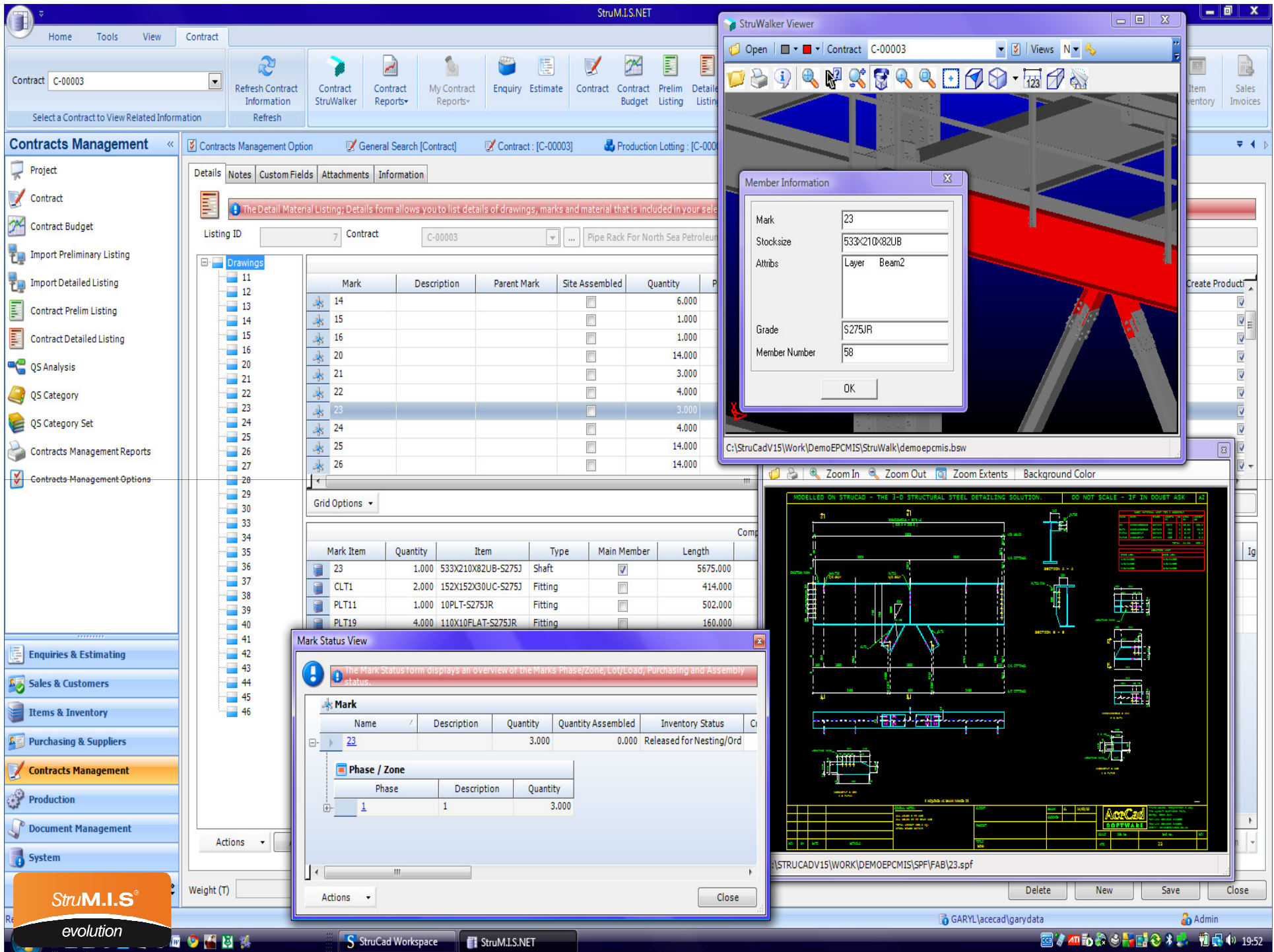
19/7/2008 12:44  
Richard Brotherton  
Overdue Response Document Transmittal Summary

**StruM.I.S**  
The Ultimate Management Information System  
for Steelwork Fabricators

Contract		<All>				
Transmittal Date:	Transmittal Name:	Transmittal Reason:	Transmittal Response:	Sent By		
03-Apr-2008	TRM-000000016	Issued For Approval	Please Find Attached Drawings For Approval	Mr Steve Watson AceCad Fabrications	<input checked="" type="checkbox"/> Response Required On: 16-Apr-2008	<input checked="" type="checkbox"/> Acknowledgement Required
18-Apr-2008	TRM-000000017	Issued For Approval	Please Find Attached Drawings For Approval	Mr Steve Watson AceCad Fabrications	<input checked="" type="checkbox"/> Response Required On: 24-Apr-2008	<input checked="" type="checkbox"/> Acknowledgement Required
25-Apr-2008	TRM-000000018	Issued For Fabrication	Please Find Attached Drawings For Fabrication	Mr Steve Watson AceCad Fabrications	<input checked="" type="checkbox"/> Response Required On: 30-Apr-2008	<input checked="" type="checkbox"/> Acknowledgement Required
25-Apr-2008	TRM-000000019	Issued For Fabrication	Please Find Attached Drawings For Fabrication	Mr Steve Watson AceCad Fabrications	<input checked="" type="checkbox"/> Response Required On: 30-Apr-2008	<input checked="" type="checkbox"/> Acknowledgement Required

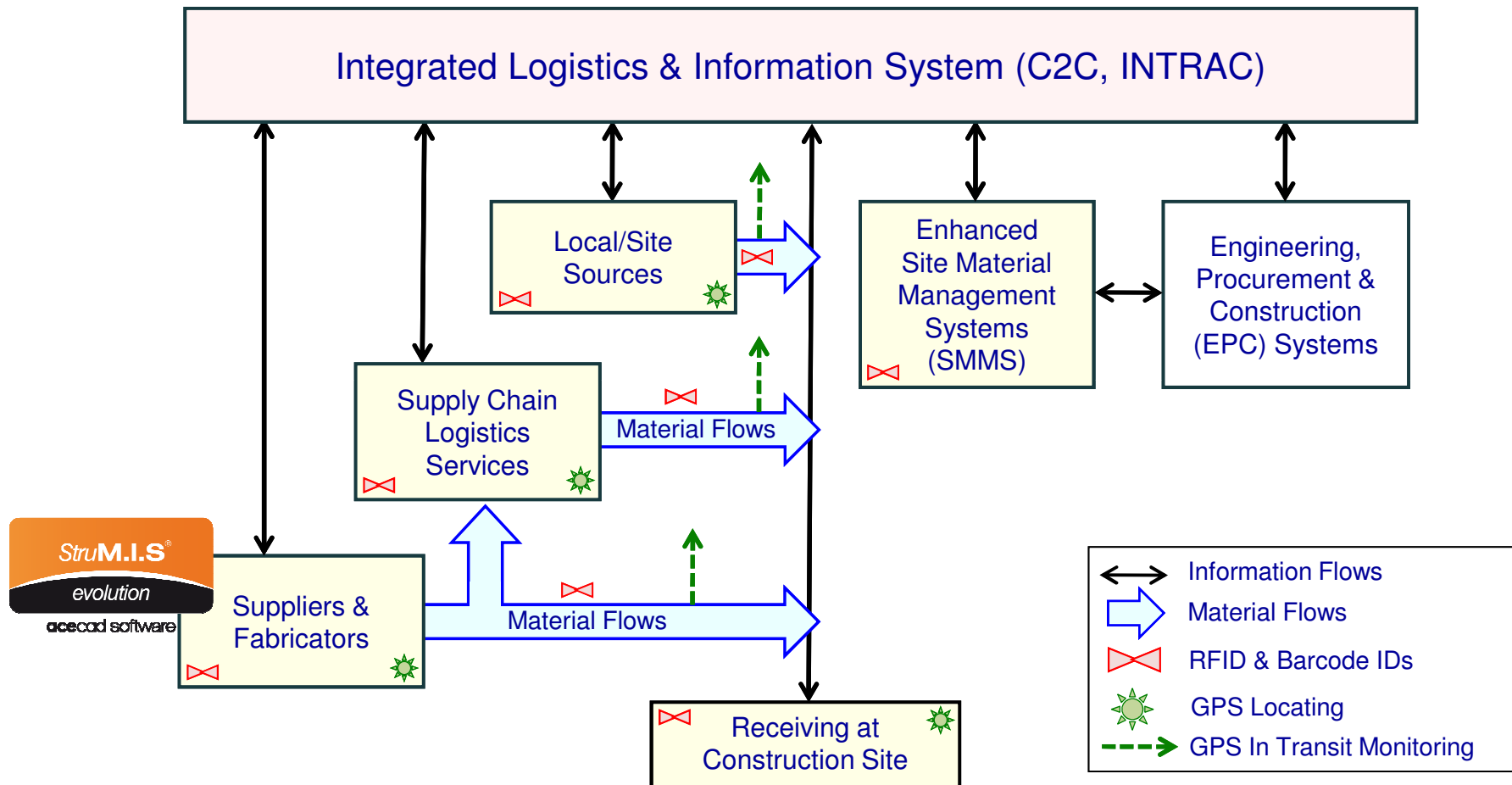






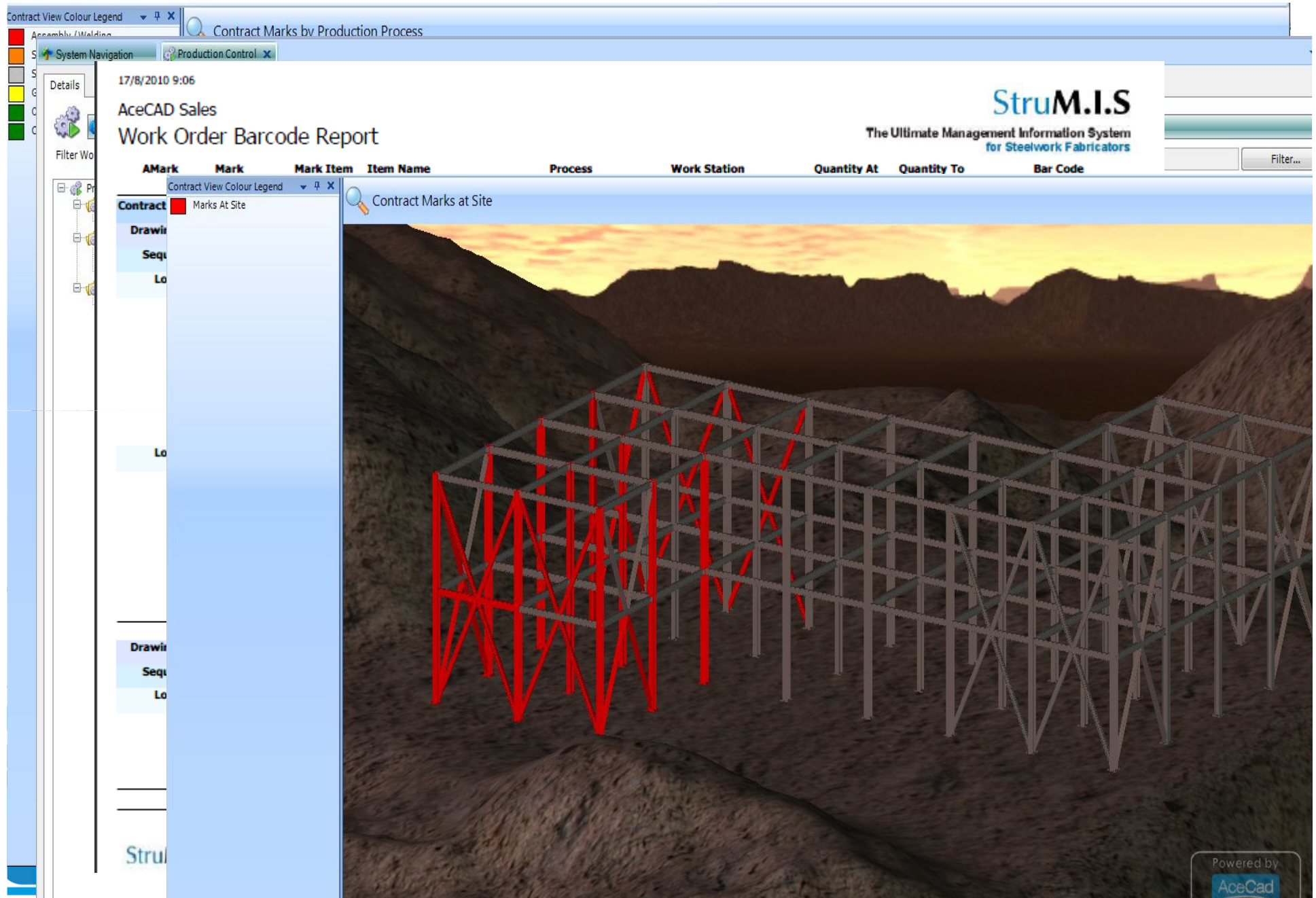


# Integrating logistics in the Supply Chain Fabrication to Site Management





## Fabrication to and at Site control



# Contract Collaboration through to Construction

**Contract View Colour Legend**

Contract	Options
C-00005	<input checked="" type="checkbox"/> Contract Mark Items by A

**Model Data**

Member Number	Body Type	Mark	Grade	Stock Size	Laag	FASE	NOTES
1	Member	1	S275JR	KK250X10	kolom_1	A1	bw
2	Member	2	S275JR	KK250X10	kolom_1	A1	bw
3	Member	3	S275JR	KK250X10	kolom_1	A1	bw
4	Member	4	S275JR	KK250X10	kolom_1	A1	bw
5	Member	5	S275JR	KK250X10	kolom_1	A1	bw

**Model Data Table**

Type	Mark	Grade	Piece Status	Stock Size	PhaseAttribute
1	1	S275JR	Real	400X1785X10	1
1	1	S275JR	Real	400X1785X10	1
2	2	S275JR	Real	400X1785X10	2
2	2	S275JR	Real	400X1785X10	2
3	3	S275JR	Real	400X1785X10	3
4	4	S275JR	Real	400X1785X10	4
4	4	S275JR	Real	400X1785X10	4
2	2	S275JR	Real	400X1785X10	2
2	2	S275JR	Real	400X1785X10	2
2-1	2-1	S275JR	Real	MS-202220	3
2-2	2-2	S275JR	Real	MS-202220	3
2-4	2-4	S275JR	Real	MS-202220	3
2-4	2-4	S275JR	Real	MS-202220	3
2-3	2-3	S275JR	Real	MS-202220	3
2-2	2-2	S275JR	Real	MS-202220	3
2-1	2-1	S275JR	Real	MS-202220	3
2-1	2-1	S275JR	Real	MS-202220	3
2-2	2-2	S275JR	Real	MS-202220	3
2-3	2-3	S275JR	Real	MS-202220	3
2-4	2-4	S275JR	Real	MS-202220	3

**acecad software**

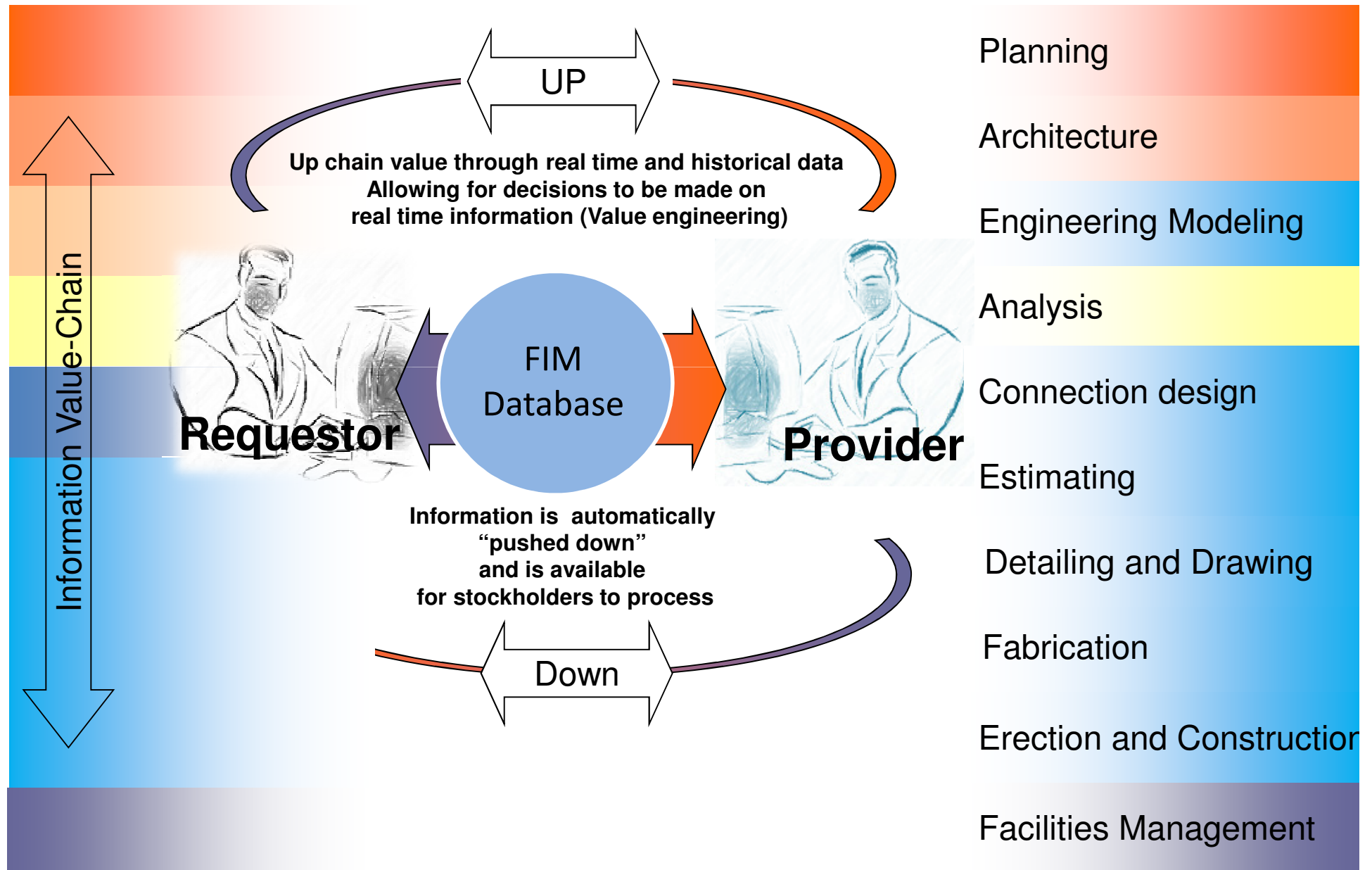
**StruWalker evolution**

**acecad software**

**AceCad software**



# Collaboration through the Supply Chain



## Established standards for Interoperability :

### SDNF – Steel Detailing Neutral Format

- Frameworks origins
- Old and rigid format, no longer developed
- Only basic design geometry

### CIS-2 – Structural Analysis, Design and Manufacturing

- Each view is a fixed format
- No longer being maintained (CIMSTEEL ended 1998)
- Variable implementation ... AISC/NIST initiative to improve
- Parametric shapes, Implicit geometry
- Holds moment loads, but doesn't carry MTO/BOM
- Can be converted to ifcXML files (NIST)

## Emerging standards for Interoperability:

### BIM/IFC

- IFC = ISO 16739 ... Classes are fixed
- IFC is for building models; Spatial layout for all disciplines, Materials, Building structure
- IFC structural
  - No initial placement information
  - No analytical or manufacturing content
  - Explicit geometry - extrusions and solids

### ISO15926

- Classes are defined in Reference Data for all Plant objects
- ISO 15926 structural
  - Supports implicit and explicit geometry
  - Scope covers some of CIS and IFC

Source: Noumenon Consulting