

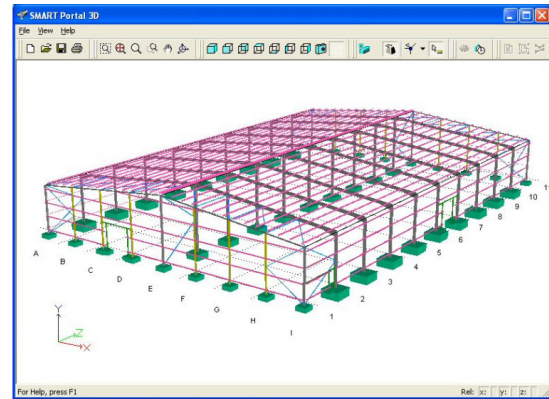
CADS SMART Portal 2D and 3D

ENGINEERING SOFTWARE



Overview

CADS SMART Portal is easy to use. It provides fast and versatile single and multi-span portal frame design covering a wide range of configurations, features and loadings. SMART Portal 2D allows designers to concentrate on refining the main internal frames whilst SMART Portal 3D provides a complete 3D building frame solution. Complete 3D solutions can be designed in seconds for rapid costing.



2 Span Propped Portal

SMART Portal 2D and 3D

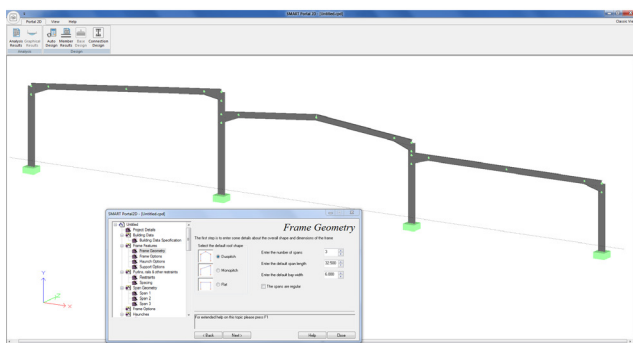
Principal features

- Single span and multi-span versions are available
- Quick design estimator for schemes & prices
- Integrated BS 6399 wind loading module
- Comprehensive dead & imposed load libraries
- Automated snow loading wizard
- Automatic load combinations
- Detailed BS 5950:2000 frame / member design
- Integrated connection & foundation design
- Printed & electronic calculation results
- Automatic drawings in AutoCAD
- Linked products to SMART Portal 2D and 3D are:
 - A3D MAX
 - VeVenti (Peak Wind Speed Calculator & snow load)
 - RC Pad Base Designer
 - Steelwork Moment Connection Designer

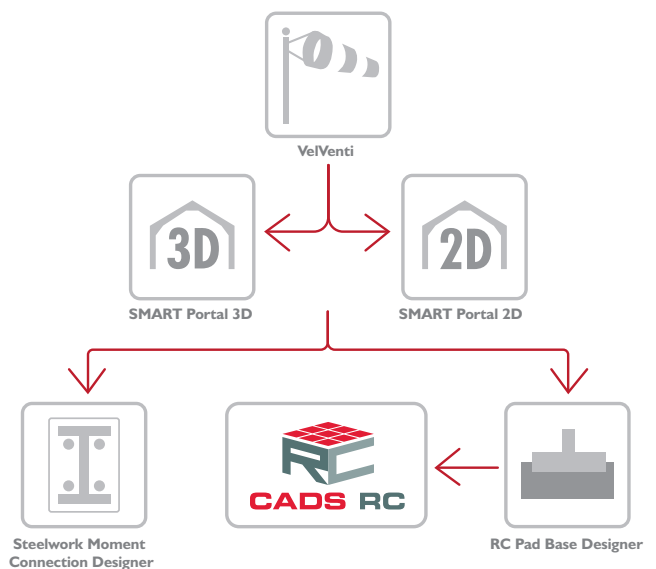
SMART Portal 3D

Additional features

- Complete building frame structural design
- Cold rolled purlins, rails, eaves beams design / selection
- Light end frames of simple construction including gable posts and bracing
- Roof and side bracing
- Framing for doors (goods and personnel)
- Variable frame spacing and features (e.g. canopy frame)



Main window layout



Integrated wind loading

SMART Portal provides an optional dynamic link to the VelVenti wind speed software developed by CADs to assist with application of BS 6399 Part 2. VelVenti can automatically generate effective wind speeds and snow loads for the selected UK site using Google Maps data.

SMART Portal applies the resultant dynamic pressures to the building surfaces using its own routines for interpreting BS 6399 pressure coefficients which may also be edited by the user for special conditions. The program automatically converts the resultant surface area loads into member loads and load combinations for structural analysis and design of the main portal frames and secondary members.

If VelVenti is not purchased, users may themselves derive effective wind speeds (V_e) from BS 6399-2 and input directly into the software. SMART Portal also provides the option to generate wind loads to CP3 ChV Part 2. In this case VelVenti is not required and users must derive the design wind speed (V_s) from the code.

Features

SMART Portal 2D supports a wide range of frame and roof configurations, including single and multi-span permutations of duopitch, monopitch and flat roofs including steps in the roof and changes in foundation level. A user-friendly wizard guides users through a logical process of data input, automatically generating the frame loads and lateral restraints. Users may rely on the Autodesign feature or select their own steel sections for analysis and code checks. SMART Portal 3D is a program for the design of common portal framed building structures, including single and multi-span permutations of duopitch, monopitch and flat roofs.

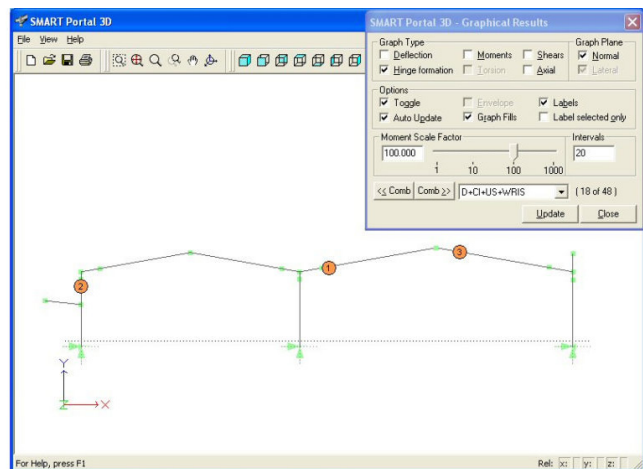
The software includes facilities for the design of cold rolled purlins, sheeting rails, eaves beams, end frames, gable posts, bracing and door framing as well as the main frames. SMART Portal 3D Quick Mode provides a rapid automatic design for initial schemes. Advanced mode provides for parapets, canopies, door framing and more detailed design. Users may rely on the Autodesign feature or select their own steel sections for analysis and code checks.

Base Groups	Dimensions	Status	U-R...	Load	Critical
A1	2100 x 2100 x 900	Passed	0.994	D+I	Unreinfor...
A2	2300 x 2300 x 1000	Passed	0.990	D+I	Unreinfor...
A3	2300 x 2300 x 1000	Passed	0.990	D+I	Unreinfor...
A4	2300 x 2300 x 1000	Passed	0.990	D+I	Unreinfor...
A5	2300 x 2300 x 1000	Passed	0.990	D+I	Unreinfor...
A6	2300 x 2300 x 1000	Passed	0.990	D+I	Unreinfor...
A7	2300 x 2300 x 1000	Passed	0.990	D+I	Unreinfor...
A8	2300 x 2300 x 1000	Passed	0.990	D+I	Unreinfor...

Base design results

Item	Status	Lcl Cap.	Lat Buck.	Tor Buck.
Single Span MonoPitch.spd				
Rafters	Passed	0.652	0.713	0.972
*Rafter span 1	Passed	0.652	0.713	0.972
External columns	Passed	0.793	0.789	0.793
*Left column span 1	Passed	0.732	0.712	0.732
*Right column span 1	Passed	0.793	0.789	0.793

Main Frame Member BS 5950 Check Brief Results



Plastic Hinge Formation Graphics