NavisWorks ™

3D Design Review Solution, based on NavisWorks™ Visualization Technology, revolutionizes Design Review Process by offering Collaborative Communication and Interactive Viewing of large 3D Structural Models

AEC projects often involve large models, 100MB or larger, resulting in millions of polygons that, for presentation and interference detection purposes, must be rendered by a visualization engine. Traditional walk-through products rely heavily on high performance CPU's, graphics card technology and other specialized hardware. NavisWorks™ improves large model visualization performance by controlling frame refresh. During motion, objects on the periphery blur or disappear, much like riding in a car. When motion stops, polygons are quickly redrawn at the new viewpoint. By manipulating the frame rate, the user can adjust the smoothness of the walk-through session. This unique approach enables NavisWorks to provide exceptional graphic performance on conventional workstations, and support enterprise wide deployment. In addition, NavisWorks takes full advantage of specialized graphics hardware (OpenGL) for client review in dedicated visualization centers. Value pricing and extreme ease of use extend the benefits of the CAD model to management, sales, maintenance, operations, and other occasional users. *StrucSoft Solutions offers this powerful visualization module at four different price points:*

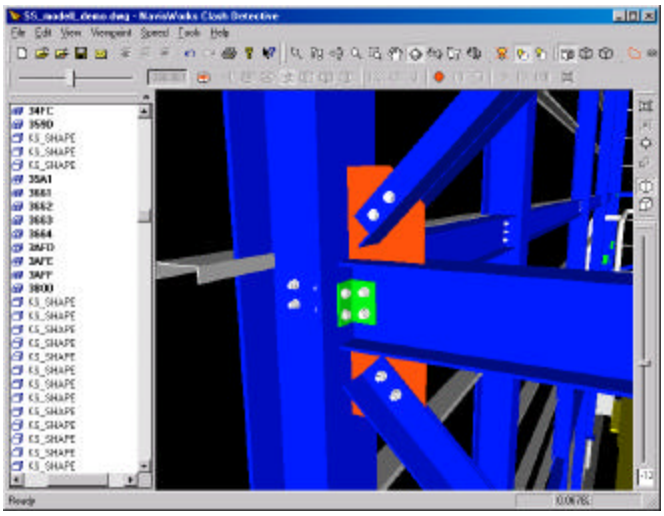
- *NavisWorks Publisher - for visualization, publishes to NWD file format, produce 2D images and AVI's*
- *NavisWorks Presenter - drag and drop materials and textures, enhance background image*
- *NavisWorks Clash Detective - interference checking across file formats and design disciplines*
- *NavisWorks Pro - includes combination Packs of the above solutions.*

File Formats

NavisWorks reads native .dwg, .dgn, .3ds, and .dxf file formats directly without time consuming pre-processing or binding of Xrefs. An append feature enables you to combine different file formats, such as .dgn and .dwg, into a single model for review. The system creates secure and highly compressed .nwd format files which can be distributed to clients or subcontractors. People outside the design group can review an entire model that would consist of dozens of AutoCAD - Xrefs in one single .nwd file. Since they do not have access to the raw AutoCAD files, there is no possibility of unauthorized copies.

Database Polling

A familiar hierarchical tree interface enables you to select and isolate individual objects for review. A database polling feature lets you interrogate database information from various other modules used during the design process. In addition, you can query the 3D position of any point in the model as well as determine the distance between two points.

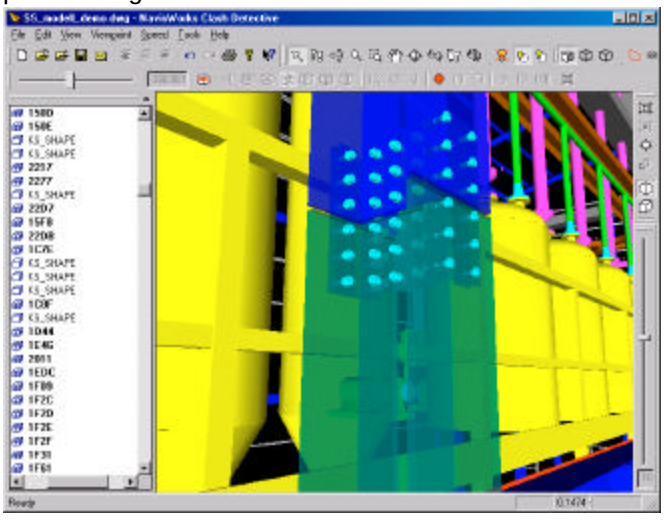


View Tools

NavisWorks provides numerous view functions to isolate components and quickly examine them from any angle. These include:

- Zoom In / Out / Window / All
- Focus, center and hold object in the view
- Turn-table / orbit around held object
- Display / hide, change transparency, color, etc.

NavisWorks supports a cutting plane feature to section complex models and reveal hidden details. The section plane is aligned with XYZ axes or the current view.



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Collaboration Tools

NavisWorks has a “save view” feature which enables you to capture a given perspective and store comments in a compact text file. This text file can be embedded in an email and sent to other departments for review. When the recipient double-clicks on the file icon, NavisWorks locates the .nwd file locally or on the Intranet, and displays the correct orientation of the model. This is a quick way to correspond regarding model configuration items.

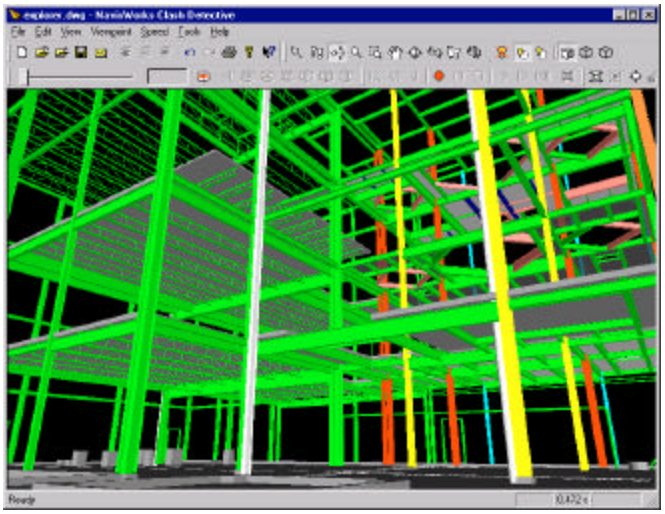
NavisWorks : Clash Detective

NavisWorks Clash Dectective includes all previously discussed features but it also offers interference detection capabilities that are not included in the Publisher module. NavisWorks Clash Detective is designed to allow rapid interrogation of large models, producing a visually clear, easily understood analysis of clashes. End users report that its speed is fast enough to allow virtual “real-time” clash checking, eliminating the need for lengthy or overnight runs.

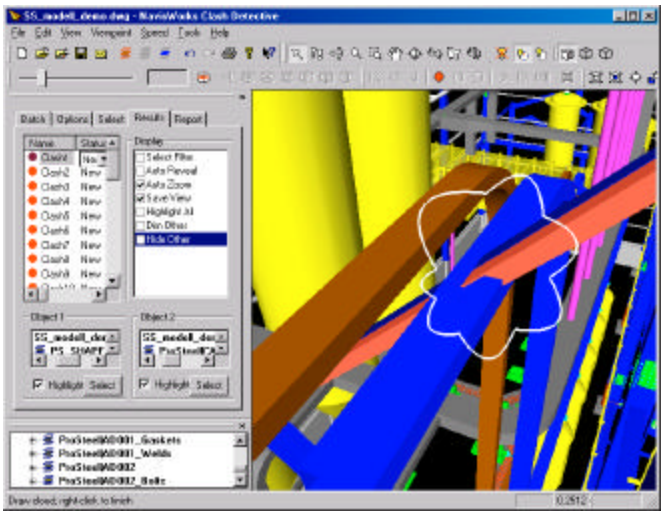
Clash checks can be performed between combinations of files, Xrefs, layers or objects enabling the end user to set up the exact analysis as required. A comprehensive set of options includes: clash tolerance; selecting normal or conservative analysis; self intersection; ignoring objects on the same layer or group; etc. NavisWorks Clash Detective can search not only for hard clashes but also for intrusions into clearance envelopes around objects, e.g. when checking for “knuckle room” around valve handles.

The clashes found are listed in order of severity. When scrolling down the list of clashes, the view automatically changes to show the relevant clashing pair centered in the view window. To assist visualization, clashing pairs can be highlighted against a dimmed, grey background of the surrounding model, or isolated by hiding the surrounding model. All of the clashes found can be highlighted simultaneously to indicate areas which may cause concern within the complete model.

As well as being fast and easy-to-use, NavisWorks Clash Detective ensures maximum productivity with extensive clash management and reporting capabilities. A clash file stores the location and status of all clashes found during individual clash checks. By merging clash files generated during a project, a complete record of all clashes found and their status can be maintained.



Importantly, each clash retains its own identity and status throughout all the clash checks allowing the end user to focus his/her valuable time on resolving new clashes, instead of having to re-evaluate old clashes. Comments on each clash are stored along with date found, location, Object ID, etc. A clash report can be printed and customized to provide information on date found, type, location, Object ID, status, etc.



In summary, NavisWorks provides a rapid and easy-to-use clash detection capability offering high productivity combined with exceptional visual appeal.

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