WoodWorks® Software

Sizer* | *Shearwalls* | *Connections

Getting Started with WoodWorks® *Connections*

For US and Canadian Versions

Canadian Wood Council

American Wood Council

Developed by

Acronym Software Inc.

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As always, the engineer is ultimately responsible for his or her design.

Refer to Read Me for further information.

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1 Welcome to WoodWorks® *Connections*

With WoodWorks® *Connections*, you can design new connections or check the capacity of existing ones.

- Produce fully dimensioned, CAD-quality drawings
- Generate a material list for fasteners and steel plates
- Run designs using bolts, nails, timber rivets, shear plates or top-mount hangers

Post & Beam Connections

- Design connectors for beam-to-beam, beam-to-column, and column-to-foundation connections

Lapped Shear Connections

- Design single or double shear connections for wood-to-wood, wood-to-steel, and wood-to-concrete configurations

1.1 Scope

The purpose of this 'Getting Started' guide is to help the beginner quickly and efficiently learn how to use *Connections* and the *Database Editor*. This guide also makes reference to online step-by-step tutorials (interactive audio/video and instructional text formats) that demonstrate how to use the software. Both interactive and instructional tutorials can be accessed via the ***Help*** menu within the software or directly through the website. Detailed technical and engineering information is available within the online help files, which can be accessed from within the software by pressing F1 or via the ***Help*** menu. Further information can also be obtained from the Frequently Asked Questions (FAQ) section of the website.

This document applies to both the Canadian and US versions of the WoodWorks® software.

1.2 Technical Support

For information and keyword searches related to engineering assumptions, features, functionality, and version histories, please consult the online help. The online help can be accessed from within the software by pressing F1 or via the ***Help*** menu on the top toolbar.

The WoodWorks® software website contains additional information which includes product news, frequently asked questions, maintenance releases, and updates for registered software owners.

www.woodworks-software.com

If you have installation or software performance issues, please contact WoodWorks® Support via one of the options listed below.

Email: support@woodworks-software.com

Phone: 1-800-844-1275 ext. 2

2 *Connections*

2.1 About *Connections*

The WoodWorks® *Connections* software is an engineering design tool that assists in designing wood-to-wood, wood-to-concrete and wood-to-steel connections. *Connections* is made-up of several different screens which are followed in sequence to complete the design of a connection. You proceed through these screens using drop-down menus and toolbars.

2.2 Navigating the User Interface

Upon opening the software, *Connections* displays both a drop-down list and isometric images of the possible types of connections that can be designed. It is possible for the user to select a connection type in one of two ways:

1. Selecting the desired connection type from the drop-down menu and submenus; or
2. Selecting the desired connection type from the isometric images.

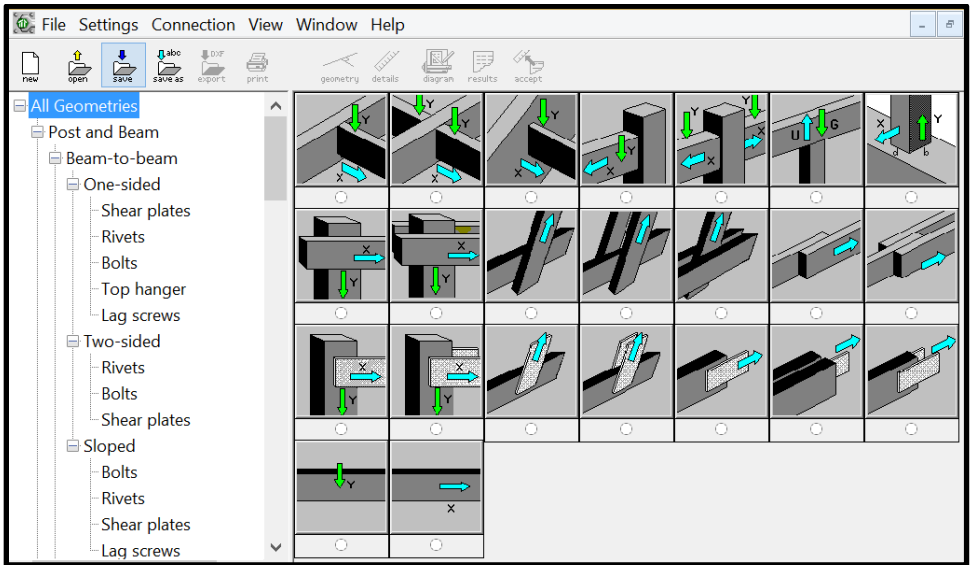

Figure 1: *Selecting a Connection Type*

2.3 Toolbars

Connections includes toolbars with toolbar buttons for the main procedures of the program. When performing a design from start to finish, the user should proceed sequentially from left to right across the toolbar. The toolbar buttons are placed in to facilitate design inputs.

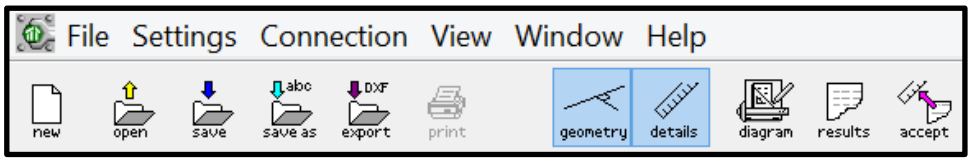

Figure 2: *Connections Top Toolbar*

2.4 Geometry

At any point during the design, the user can click on the ***Geometry*** button to open the drop-down list of connection materials, configurations and fastener types.

2.5 Details

After the user selects the connection materials, orientation and fastener type, the ***Details*** window is automatically opened in order to populate the inputs associated with the main member, the side member(s) and the fasteners within the connection.

Useful information and an isometric of the connection configuration can be found in the top left corner of the ***Details*** window. Toggles for the design inputs associated with the ***Main*** member and the ***Side*** member(s) are accessed via the tab at the top centre of the window.

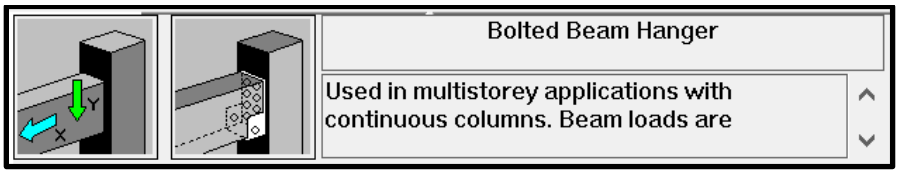

Figure 3: *Sample Connection Information Located at Top Left*

It is necessary to specific certain design parameters, such as member sizes and applied loads, but other design parameters can be left as ***(unknown)*** and the software will solve for these unknowns during the design process. After all the necessary parameters are populated, it is possible to click the ***Run Design*** button in order to generate results.

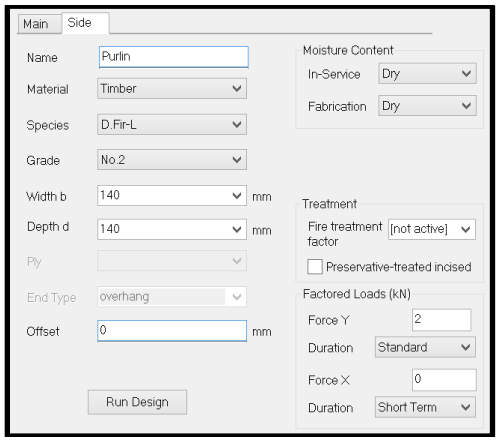

Figure 4: *Sample Design Inputs for Main and Side Member(s)*

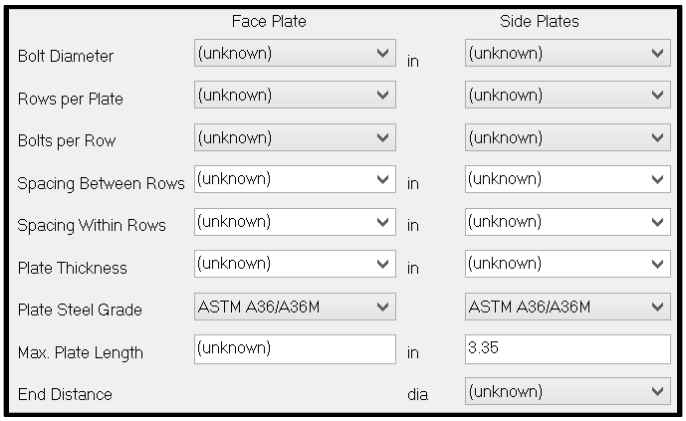

Figure 5: *Sample Design Inputs for Fasteners*

2.6 Diagram

The user can select the ***Diagram*** button in the top toolbar to view a dimensioned CAD-style drawing of the connection configuration and details. It is possible to modify the font size within the diagram by selecting the drop-down ***View*** menu from the top toolbar and then selecting ***Diagram Font…***.

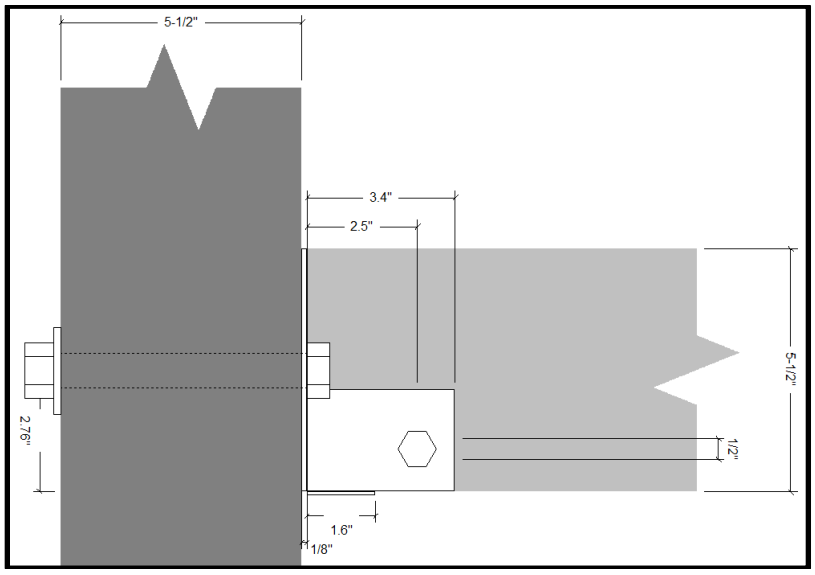

Figure 6: *Sample Connection Diagram*

2.7 Results

After the user has inputted all the design parameters, it is possible to click the ***Run Design*** button to generate results. Click on the ***Results*** button in the toolbar to change to the ***Results*** view. This view displays the design results output.

2.8 Accept

Click on the ***Accept*** button to accept the current design results and to automatically populate the information into the ***Details*** window.

3 *Connections* Tutorials

3.1 Video Tutorials

Introduction (US) & (Canada; English)

Example Design (US) & (Canada; English)

3.2 Worked Examples – Step-by-Step

All worked examples are available for download at the following links; Canada and US.

4 *Database Editor*

The *Database Editor* is a simple application that allows you to create new material databases, view existing databases, and customize the material database list for local availability. It is possible to modify or create new materials databases for beams, columns, joists and studs consisting of solid sawn lumber, glulam and engineered wood products. Sheathing materials and fasteners are not incorporated in the *Database Editor*.

4.1 Editing Buttons

4.1.1 Add

Click on the ***Add*** button in the top toolbar to add new species, grades or sections to a ***Custom*** database file. The ***Add*** button is only available for ***Custom*** database files.

4.1.2 Delete

Click on the ***Delete*** button in the toolbar to delete existing species, grades or sections in a Custom database file. The ***Delete*** button is only available for Custom database files.

4.1.3 Edit

Click on the ***Edit*** button in the toolbar to edit the species, grade or section properties of a Custom database file. The ***Edit*** button is only available for Custom database files.

4.1.4 Use

Click on the ***Use*** button in the toolbar to allow a selected species, grade, or section of a material database to be used by *Connections* during the design process. A check mark will appear beside the species, grade or section to indicate that it can be used by *Connections*. The ***Use*** button applies to both ***Standard*** and ***Custom*** databases.

4.1.5 Ignore

Click on the ***Ignore*** button in the toolbar to prevent *Connections* from using a selected species, grade or section during the design process. An 'X' will appear beside the species, grade or section to indicate that it cannot be used by *Connections*. The ***Ignore*** button applies to both ***Standard*** and ***Custom*** databases.

4.2 Material Databases

Material databases are described as either being a ***Standard*** database or a ***Custom*** database. The properties of the ***Standard*** databases can be viewed, but not edited. ***Custom*** database files can be viewed, edited and created.

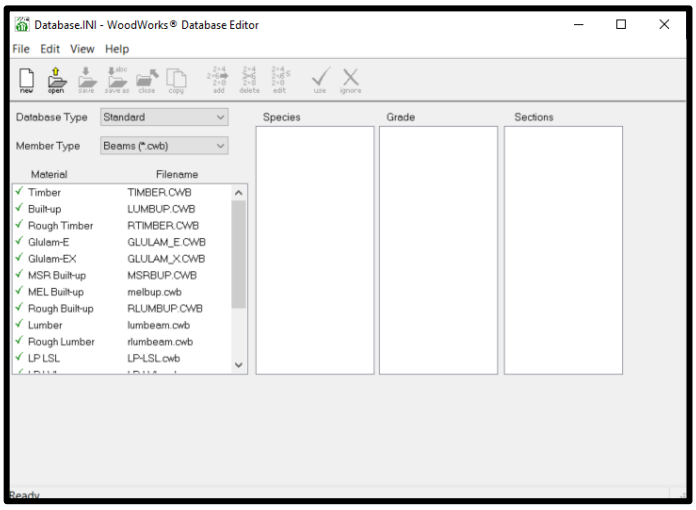

Figure 7: *Switch between Standard and Custom Database*

The ***Database Type*** drop-down list allows the user to switch between the ***Standard*** and ***Custom*** databases.

4.2.1 Standard Material Databases

Standard material databases include sawn timber and glulam members whose strength properties are based on those published in the applicable design standards. The ***Standard*** databases are based on values published in the National Design Specification (NDS) for Wood Construction for the US and based on the CSA O86 'Engineering design in wood' for Canada.

4.2.2 Custom Material Databases

Custom material databases include I-joists, Parallel Strand Lumber (PSL), Laminated Veneer Lumber (LVL), and Laminated Strand Lumber (LSL) as a default. The strength properties included in these databases are based on proprietary listings. The ***Custom*** databases included as defaults or created by the user should only be used for preliminary sizing of members. Contact the engineered wood product manufacturers directly for an accurate and complete design of proprietary wood products.

4.3 Viewing Standard Databases

The *Database Editor* allows the user to view the material, species, grade and section properties of the ***Standard*** databases. To view the ***Standard*** databases, first open the ***Material*** and ***Filename*** by using the ***Open*** button or by double clicking on the file name.

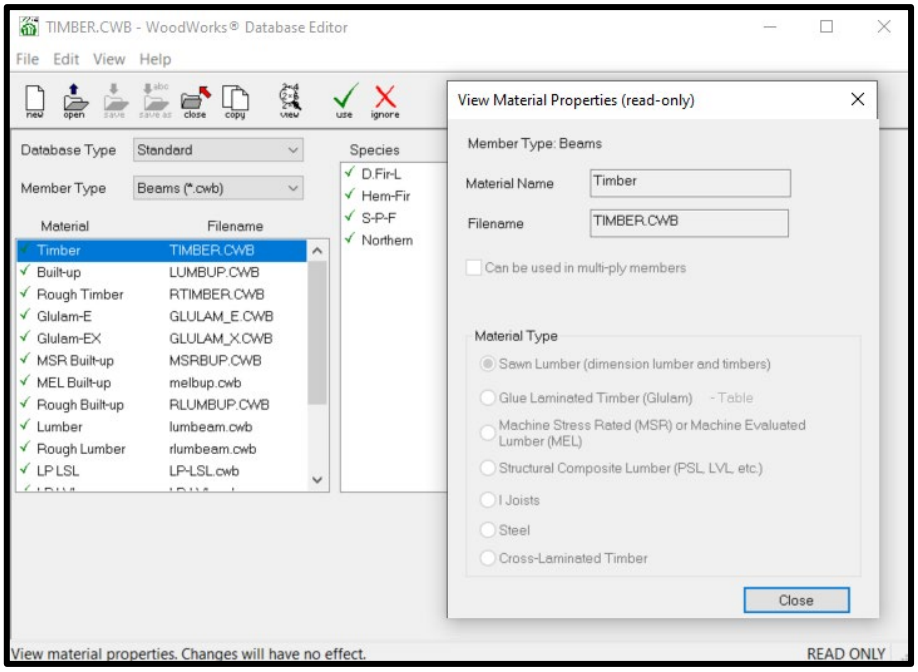

Figure 8: *View Standard Material Properties*

It is now necessary to select the material property to view. This is done by highlighting the material, species, grade or section and then clicking on the ***View*** button from the toolbar. Depending on the information that was selected, one of the four following dialog boxes will open:

- ***Material Properties*** dialog
- ***Species Properties*** dialog
- ***Grade Properties*** dialog
- ***Section Properties*** dialog

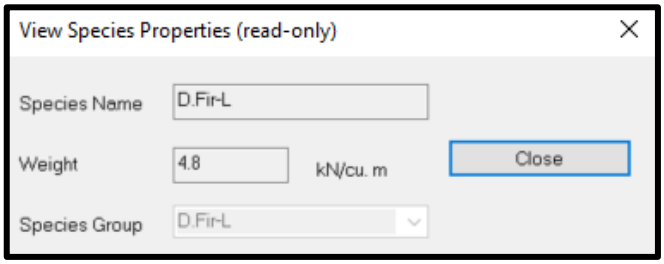

Figure 9: *Species Properties Dialog*

4.4 Creating Custom Databases

The *Database Editor* allows you to create custom material databases for beams, joist, columns, and walls. You can specify material type, species, grade, dimension, and strength properties.

4.4.1 New Material

Click the ***New*** button on the toolbar menu. The ***New Material*** dialog window opens and prompts the user to enter a ***Material Name***, specify the type of material, define whether this is a multi-ply member, and select a ***Material Type***.

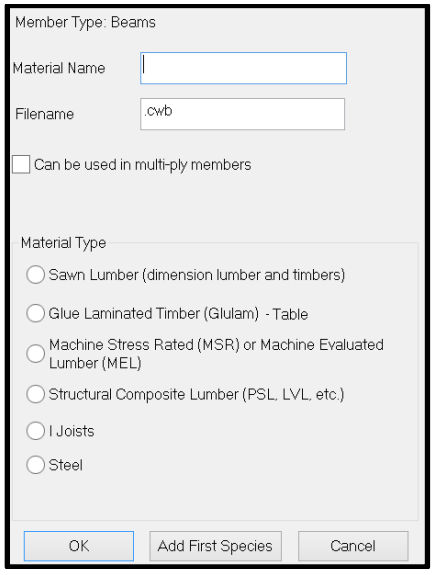

Figure 10: *New Material Window*

4.4.2 Species Properties

When the user clicks on the ***Add First Species*** button in the ***New Material*** window, it is now possible to enter a new species name and weight.

Alternatively, it is also possible for the user to use the ***Edit*** button after highlighting the name listed under the ***Species*** heading in the *Database Editor* window.

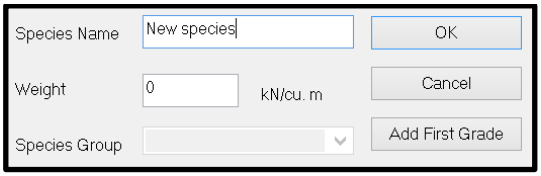

Figure 11: *Species Properties Window*

4.4.3 Grade Properties

When the user clicks on the ***Add First Grade*** button in the ***Species Properties*** window, it is now possible to enter the strength and stiffness properties of the new material.

Alternatively, it is also possible for the user to use the ***Edit*** button after highlighting the name listed under the ***Grade*** heading in the *Database Editor* window.

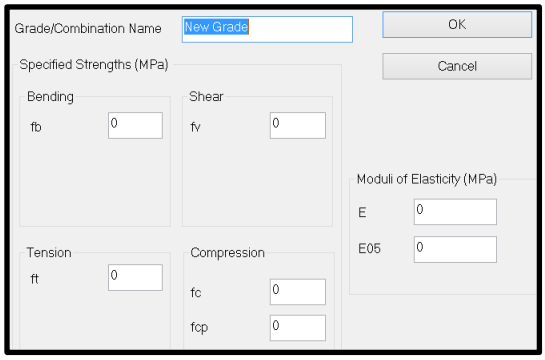

Figure 12: *Grade Properties Window*

4.4.4 Section Properties

It is possible for the user to use the ***Edit*** button after highlighting the name listed under the ***Section*** heading in the *Database Editor* window.

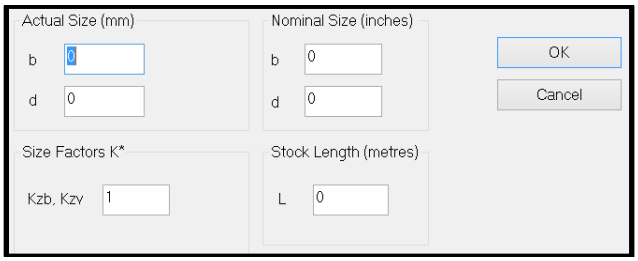

Figure 13: *Section Properties Window*