BOARD STRETCHER®
LUMBER OPTIMIZING PROGRAM

Table of Contents

Board Stretcher
Overview

The optimizing program, called **Board Stretcher™,** resides on a computer in the plant production office.

> **NOTE:** In addition to the production office computer, *Board Stretcher* Software can also reside on the saw computer and multiple PC's with a shared database.

The purpose of this program is to import the following file types:
- Roof truss part listings (.OMN or .CUT) file from the truss design software
- Wall panel file (.MIZ),
- Universal part file (.XML) **(Recommended)**
- Australia file (.MME)

Once imported these parts are then placed onto stock boards using an optimizing process that is chosen by the user.

It will then output a board (.MDB or .XML) file for the Omni-Miser or MatchPoint Blade to cut.

The user of the *Board Stretcher* software is responsible for defining a library of material that lists all stock that is available for the saw to select from. This list should contain stock that's available in the bunk feeder and magazines as well as stock that is available for the operator to load manually.

This list is called the **Lumber Yard** and it contains **Grade, Size,** and **Length** data about each type of lumber available as well as the **Source – manually loaded, magazine-fed**, or **bunk-fed.**

> **NOTE:** This information was written for *Board Stretcher* version 4.1.44 and may vary slightly from other versions

Board Stretcher
Overview (cont)

How It Works

The heart of the *Board Stretcher* program is the ability to combine the Parts List and the Lumber List for the job, and then create a board listing with boards that contain all the parts for that job for every grade and size.

The optimization algorithm is as follows:
- The optimization process will sort all the parts from the import file into: **Part Grade, Part Size,** and then descending order of **Part Lengths.**

- It will select the longest first part and the first length of board with the same grade and size and place the part.

- It then takes two independent paths to placing additional parts on the board.
    - The first selects the part with the best matching angle to the preceding part.
    - The second selects the longest part that will fit on the remainder.

- After part placement is completed using both of these methods, the board that has the least amount of waste is chosen, and the other is discarded.

- This process is repeated for all board lengths within a grade and size to attempt placing the parts on. The placement methods are the same, but after the parts have been placed on each length, the board that has the least percentage of scrap is chosen and the others discarded.

- This process is repeated for additional boards until all parts are placed.
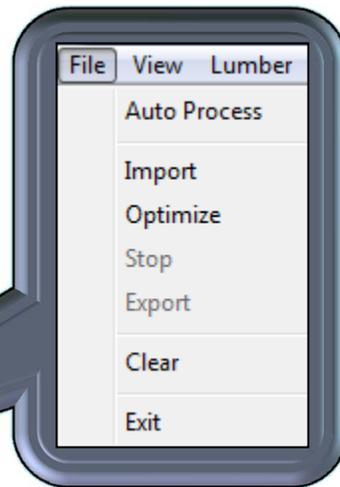
Board Stretcher
Information

- All instructions in this manual assumes the saw uses the default setting of 90 degrees for a square cut.

- When changing units of measurement, the same unit must be chosen in the *BLADE* software before optimizing the job.

- Imperial measurements (English) are given using 3 pair of numbers. **12-06-08** means 12 feet, 6 inches, and 8/16 inches (12' 6-1/2"). Metric measurements are given in whole millimeters (mm).

- Lumber grade name format must be entered following guidelines agreed upon at your facility. It must EXACTLY match the design file's grade name for the lumber, or the system will not recognize it as an existing lumber.

Board Stretcher Menus
File

This section will introduce the user to all drop-down menus.

File   View   Lumber

- Auto Process
- Import
- Optimize
- Stop
- Export
- Clear
- Exit

Board Stretcher 4.1 [C:\Program Files (x86)\Koskovich\BoardStretcher\Jobs\24792-A.OMN]

File View Lumber Print Tools About Help

Auto	Import	Optimize	Stop	Export	Lumber	Print

Board Count | | Imported | Board Status
Part Count | 28 | | Part Status | OK

Parts Boards Assemblies Optimizations

Part Data Part Errors Part Graphics

Id	Job	Group	Assembly	Description	Grade	Size	OA Len.	Qty.	PartType	Batch	Has Error
1	24792		X	W2	SPFSTUD-CAN	2x3	02-08-01	4	TopChord		
2	24792		M	G3	SPFSTUD-CAN	2x3	02-04-03	4	Web		
3	24792		RX	G3	SPFSTUD-CAN	2x3	02-03-08	4	Web		
4	24792		M	G2	SPFSTUD-CAN	2x3	01-08-13	4	Web		
5	24792		RX	G2	SPFSTUD-CAN	2x3	01-08-02	4	Web		
6	24792		M	G1	SPFSTUD-CAN	2x3	01-00-13	4	Web		
7	24792		RX	G1	SPFSTUD-CAN	2x3	01-00-02	4	Web		

Auto Process - Allows you to quickly import a job and have the program optimize it according to your present preferences and then sends the output to the saw in a directory that you have set.
Completes the import, optimize, and export steps all with one click. (Also on the Task Bar as Auto)

Import - Opens a file browse window for the user to import a file into the program. Hold the CTRL button on the keyboard to select more than one file. (Also on the Task Bar as Import)
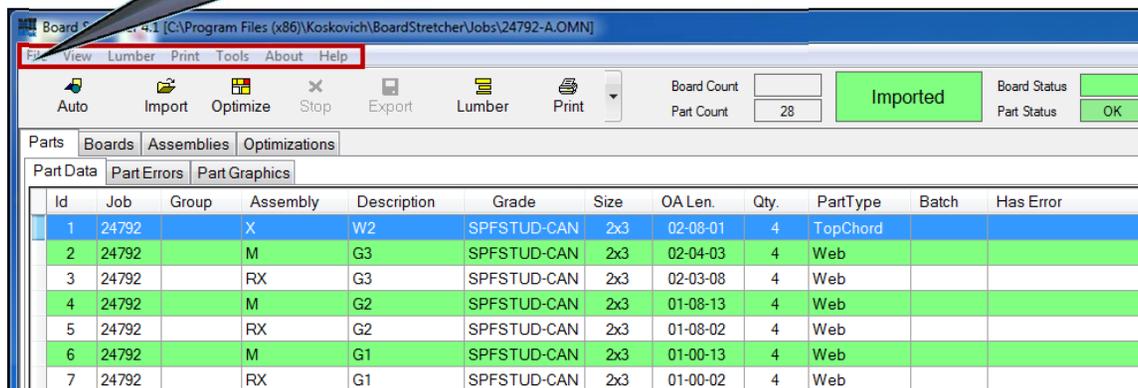
Optimize - Will place all of the pieces from the current job/truss/etc. onto to boards to give you the best optimization of your lumber. (Also on the Task Bar as Optimize)

Stop - Once optimization has begun, it can be stopped using this menu choice. (Also on the Task Bar as Stop)

Export - This selection sends the optimized job to the saw. (Also on the Task Bar as Export)

Clear - Removes the active job from "active" status. Clears all data in the primary tabs except the Optimizations tab.
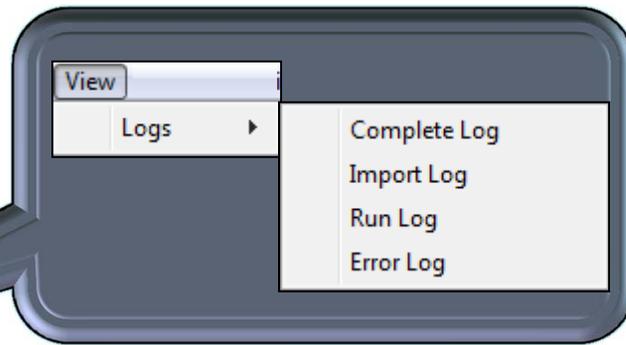
Exit – Closes the program

Board Stretcher Menus (cont)
View

Complete Log - This selection allows you to view all logged data.

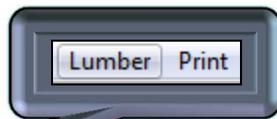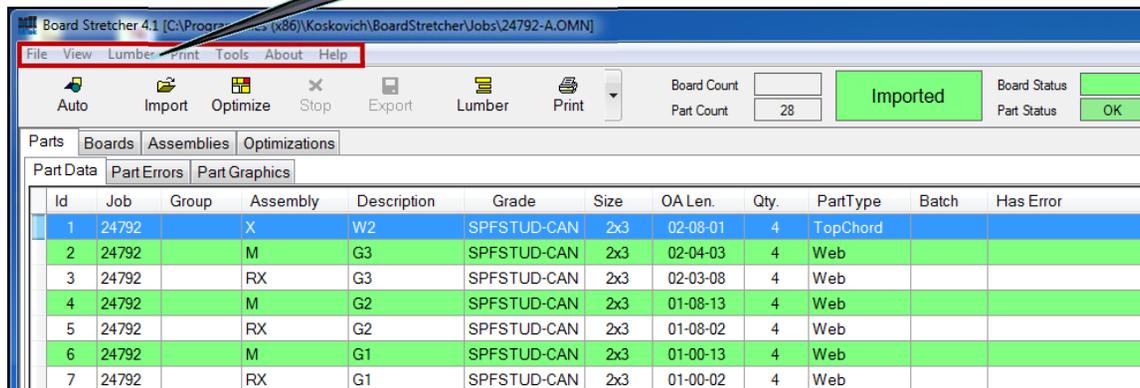**Import Log -** This selection allows you to view any import-related errors or information.

Run Log - This selection allows you to view any changes that have been made to options as well as logs entries when something has been completed such as import, optimize, or export.

Error Log - This selection allows you to view any errors that happened during the optimization process.

Id	Job	Group	Assembly	Description	Grade	Size	OA Len.	Qty.	PartType	Batch	Has Error
1	24792		X	W2	SPFSTUD-CAN	2x3	02-08-01	4	TopChord		
2	24792		M	G3	SPFSTUD-CAN	2x3	02-04-03	4	Web		
3	24792		RX	G3	SPFSTUD-CAN	2x3	02-03-08	4	Web		
4	24792		M	G2	SPFSTUD-CAN	2x3	01-08-13	4	Web		
5	24792		RX	G2	SPFSTUD-CAN	2x3	01-08-02	4	Web		
6	24792		M	G1	SPFSTUD-CAN	2x3	01-00-13	4	Web		
7	24792		RX	G1	SPFSTUD-CAN	2x3	01-00-02	4	Web		

Board Stretcher Menus (cont)
Lumber and Print

Lumber (Also on Task Bar)
This selection allows you to view and modify your Lumber Yard, or the lumber that you make available to the saw. *Board Stretcher* uses this information to optimize your lumber usage.

When Lumber is clicked, either from the Lumber Menu or from the Task Bar, a second screen appears on top of the primary screen.

Print Menu (Also on Task Bar)
There are different reports included in *Board Stretcher* that can assist in managing lumber used. All three reports can be printed from the **Print** menu. Two of them can also be printed using the **Print** button on the Task Bar.

Board Stretcher Menus (cont)
Tools > Options
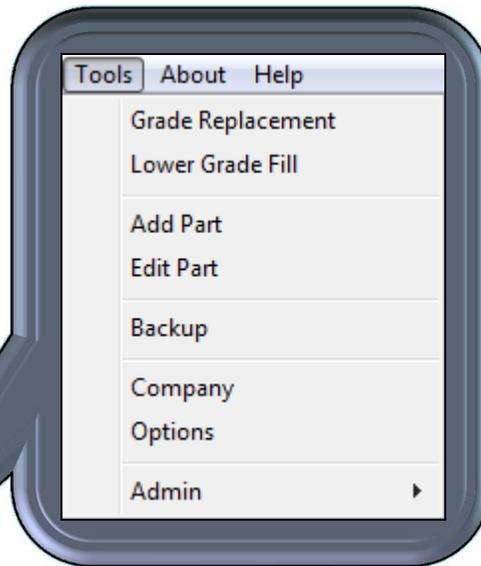
Grade Replacement - Changes lumber grades in the import file to a different grade, either for all lumber in a grade, or for specific widths in a grade.

Lower Grade Fill - Place lower grade material onto higher grade material if there is room left on the end of a board.

Add Part – Choose a generic part and customize it from scratch to add a part to the job that wasn't in the job file.

Edit Part – Change the design, quantity, grade, etc. of a part already in the job file.
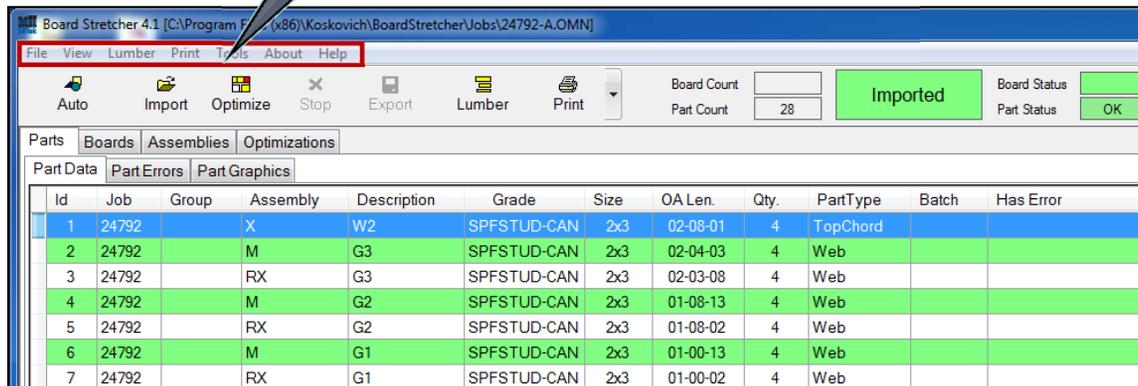
Backup – Upon clicking Backup, the config.mdb file will save to a user specified directory.

Company – Allows you to fill in your company information so it can be used on reports

Options – See the next step for details

Admin - All of the standard configuration items an operator should ever need can be set in Admin.

NOTE: Admin settings should not be changed without consulting with MiTek first. The correct setting were entered by a MiTek representative at installation.

Id	Job	Group	Assembly	Description	Grade	Size	OA Len.	Qty.	PartType	Batch	Has Error
1	24792		X	W2	SPFSTUD-CAN	2x3	02-08-01	4	TopChord		
2	24792		M	G3	SPFSTUD-CAN	2x3	02-04-03	4	Web		
3	24792		RX	G3	SPFSTUD-CAN	2x3	02-03-08	4	Web		
4	24792		M	G2	SPFSTUD-CAN	2x3	01-08-13	4	Web		
5	24792		RX	G2	SPFSTUD-CAN	2x3	01-08-02	4	Web		
6	24792		M	G1	SPFSTUD-CAN	2x3	01-00-13	4	Web		
7	24792		RX	G1	SPFSTUD-CAN	2x3	01-00-02	4	Web		

Tools > Options
General Tab

Machine Name – The name *Board Stretcher* uses in log entries.

Display and Input Units - Choose imperial or metric measuring units

Square Cut – Set the angle for a square cut

Kerf – Set the blade thickness

Maximum Part Length – Set the maximum part length for a single part

Importing Parts with End/Rip Bevels allowed – If checked *Board Stretcher* allows the importing of bevels without showing an error

Remove End/Rip Bevels from Parts when Imported - If checked *Board Stretcher* will remove bevels on parts for saws not capable of processing bevels.

Tools > Options
Optimization Tab
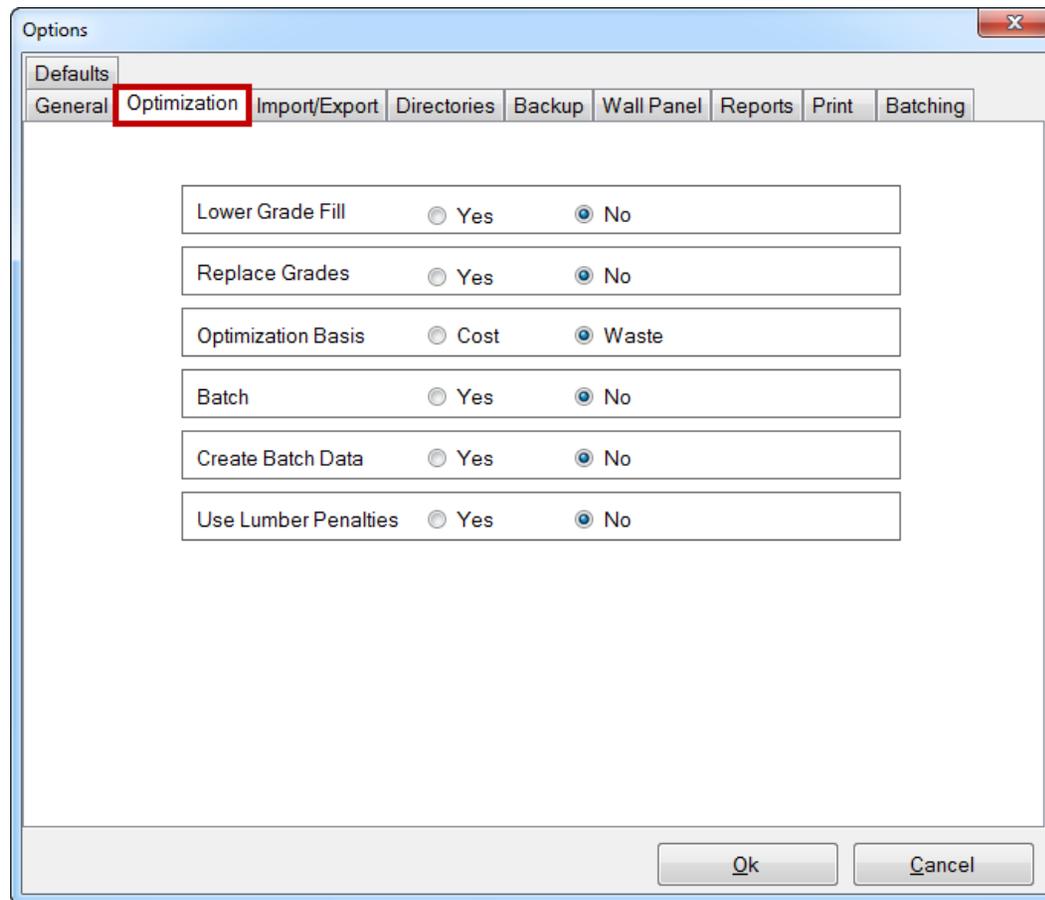
Lower Grade Fill – Allows the software to automatically take parts calling for lower grade material and place it on a higher grade material if there is room on the end of a board. This selection must be chosen in **Options > Optimization** to make the feature available.

Replace Grades - Allows you to replace lumber grades in the import file to a different grade, either for all lumber in a grade, or for specific widths in a grade. This selection must be chosen in **Options > Optimization** to make the feature available.

Optimization Basis - Allows you to select either cost or waste as the basis for the optimization. If waste is selected, it will optimize to give the minimum waste. If cost is selected, it will optimize to give the minimum cost, based on costs entered into the Lumber Yard data.

Batch - It allows the output of the saw to group parts together within a job to simplify sorting at the saw. The downside is that this will negatively affect the optimization.

Create Batch Data - Allows the operator to create multiple batches for files that do not already contain batches. Setup for batching criteria are located on the Batching tab.

Use Lumber Penalties - Enables/disables whether or not the lumber penalties are used for the optimization process (based on either cost or waste). If this selection is enabled, it will display the default lumber penalties that will be applied when adding new boards to the Lumber Yard.

Tools > Options
Import/Export Tab
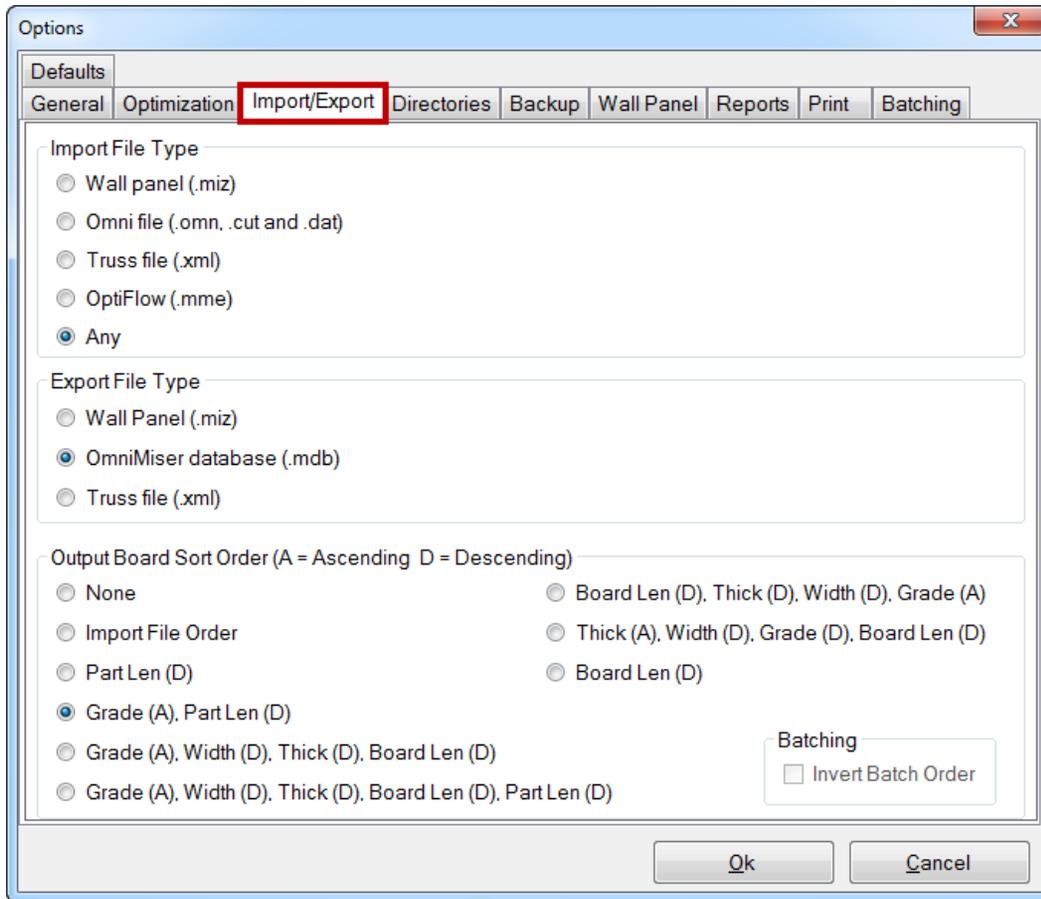
Import File Type – Choose the type of file format that you will be using when importing files from your design program to Board Stretcher.

Export File Type - Choose what type of file format you will be sending to the saw from the **Board Stretcher** program. The Miser II saw MatchPoint Blade will only accept .xml files.

Output Board Sort Order - Choose the output of the boards. This option controls the order of the optimized boards.

NOTE: This does not affect the optimization, only how the boards are sorted.

Tools > Options
Directories
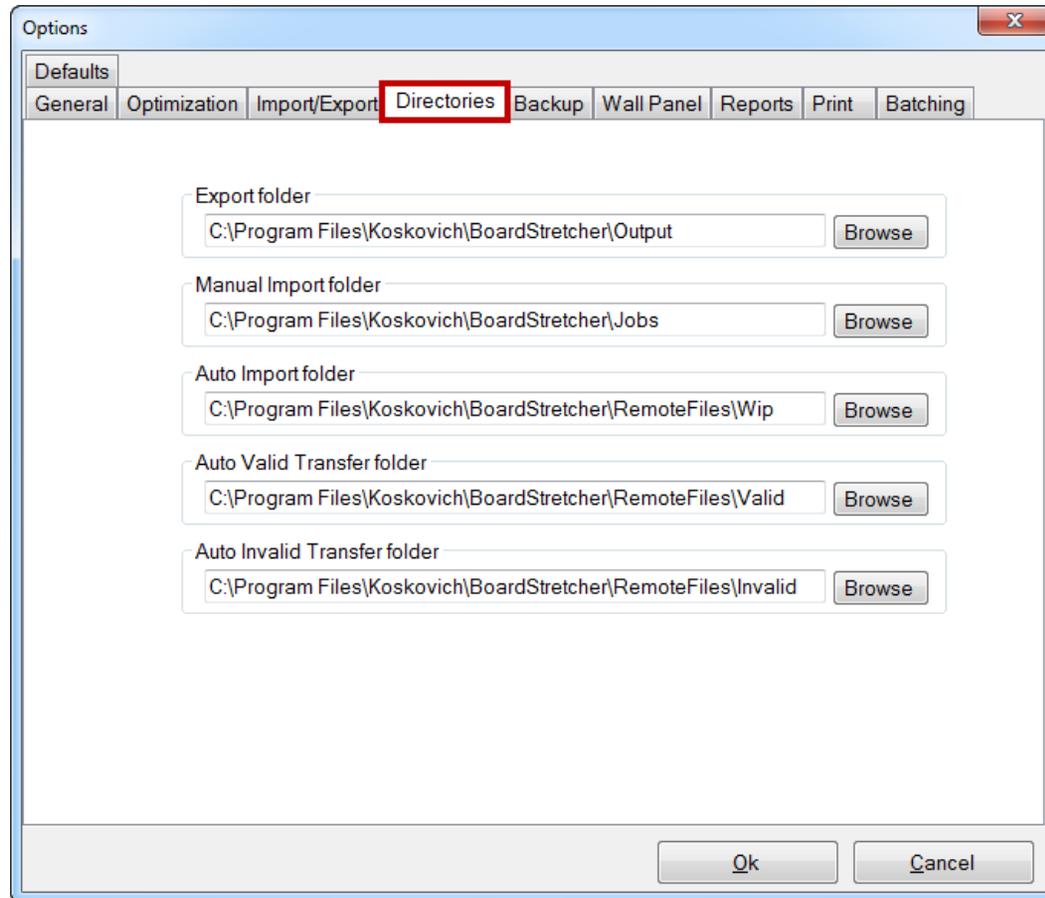
Export Folder – The path where the optimized job file will be saved at all times.

**Manual Import Folder -** The default path that will be selected when importing an un-optimized file

Auto Import Folder - The path that is watched so that when a file does exist in the directory it will be imported, optimized, and exported automatically. This folder must be empty, as every file that exists in the directory will be read in as a job file.

Auto Valid Transfer Folder - The path where the un-optimized job files are moved when the Auto Import (import, optimize, and export) has completed successfully. This is **NOT** where the optimized files are moved.
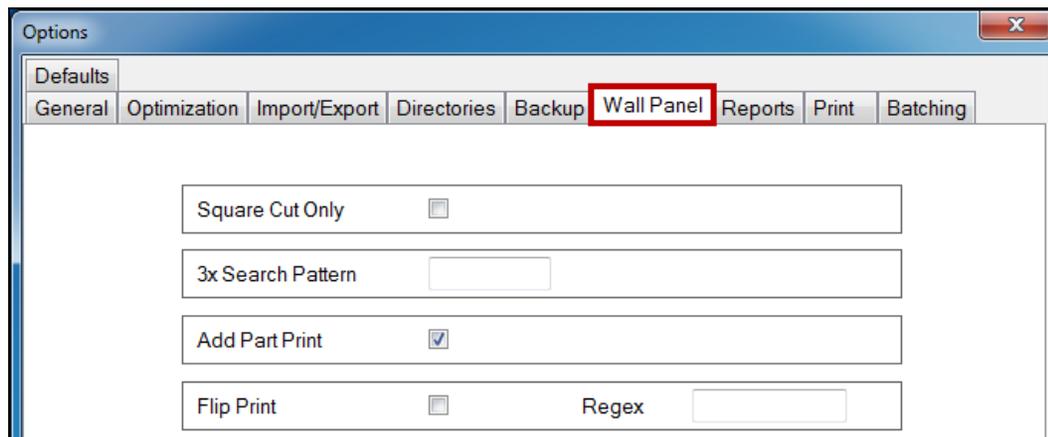
Auto Invalid Transfer Folder - The path where the un-optimized job files are moved when the Auto Import (import, optimize, and export) was unsuccessful. This is typically caused by lumber required not matching the Lumber Yard, or parts being too short or long.

Tools > Options
Backup and Wall Panel
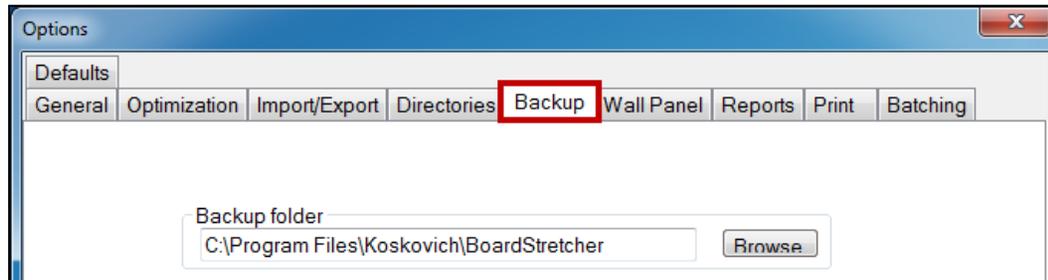
Backup Folder – Where the backup files are stored.

Square Cut Only - This option will be set if your saw only has the ability to cut square angles.

3x Search Pattern - If you have the ability to cut 3x material on your saw you will enter a text string that occurs in the board grade which identifies the board as a 3x (instead of the default 2x).
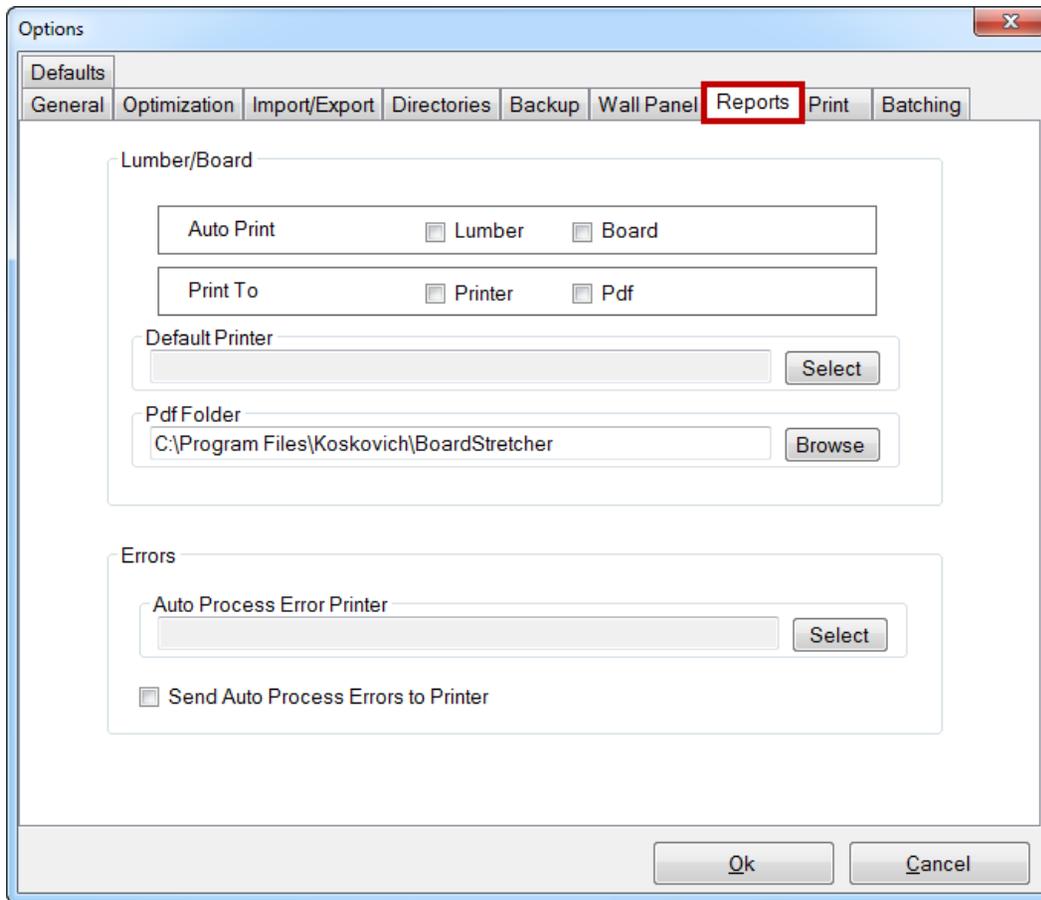
Add Part Print - Adds part description to what is already being printed on the board.

Flip Print - Adjusts the location of printing on the top and bottom board plates so the printing can be easily seen.

Regex - An advanced method of batching. Contact MiTek if there is a need to use the Regex feature.

Tools > Options
Reports

Auto Print – As soon as the job is exported the pick list or board list for the job will be printed.

Print To - You can either print to your default printer or to a pdf file.
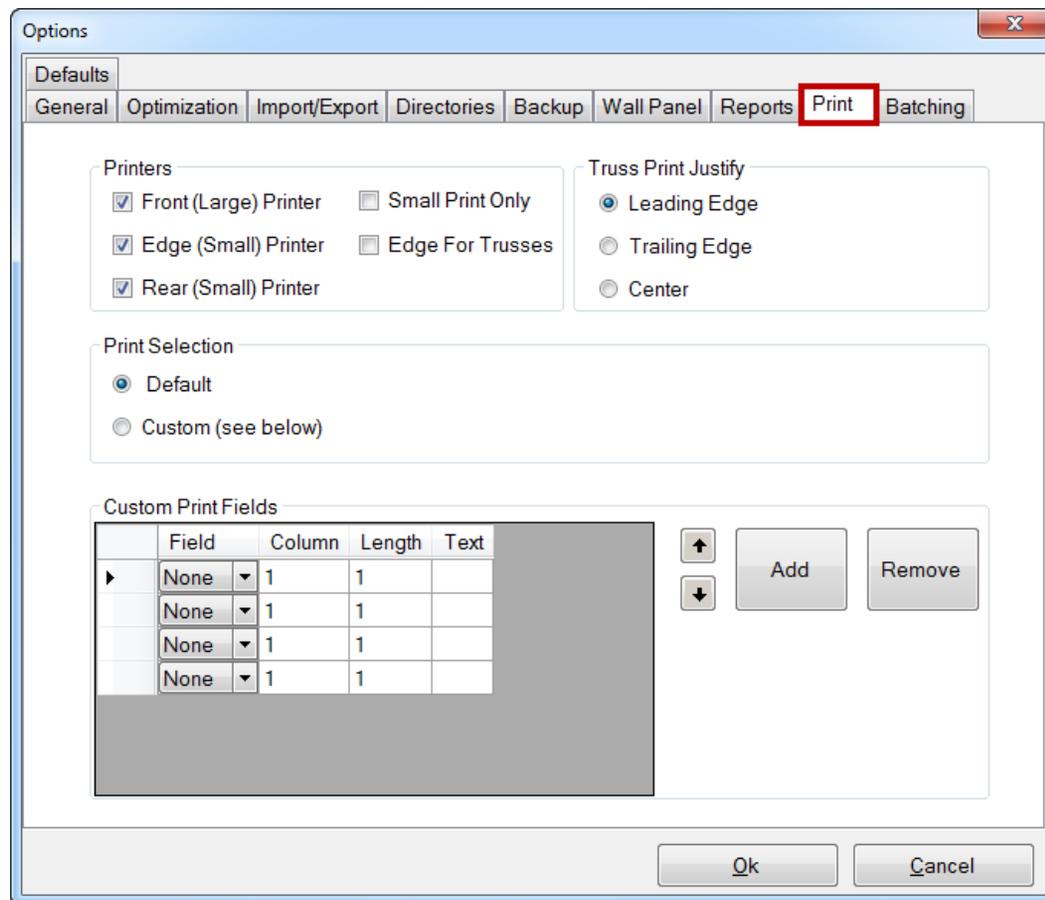
Default Printer – Select the default printer

PDF Folder - This is the path that pdf documents are created in.

Errors - For Auto Process jobs, errors for each job will print to the designated printer as the job attempts to run.

Tools > Options
Print

Printers – Select the applicable checkboxes for the current board printing system.

Truss Print Justify - Select **Leading Edge, Trailing Edge,** or **Center** to determine where the image will print on each part.

Print Selection –
- **Default** prints the following information: Name, description, and quantity of like parts.

- **Custom** must be selected to print anything other than the default information.

Custom Print Fields –

- **Column -** The Column is the number of digits from the left in a given field.

- **Length -** The Length is how many digits including and following the column selected in a given field.

  - For example, if the Description is chosen, and the Description is '1135-W2-787', the Starting Column is set to 6, and the Length is set to 2, 'W2' will be printed.

- **Arrows –** Move a selected field up and down the list.

- **Add –** Click this button to add a blank field for a new entry.

- **Remove –** Remove a selected field.

Tools > Options
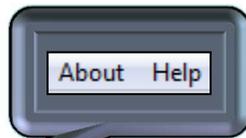Batching
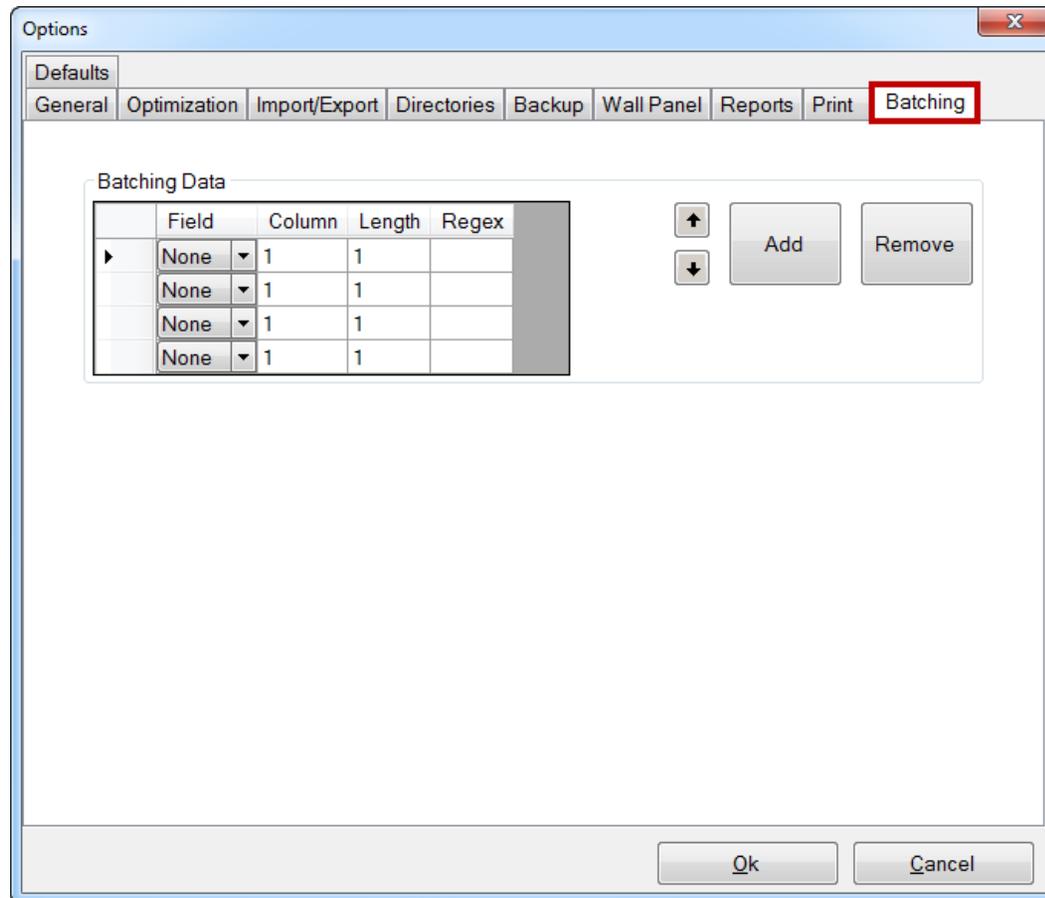
Batching Data –

- **Column -** The Column is the number of digits from the left in a given field.

- **Length -** The Length is how many digits including and following the column selected in a given field.

- **Arrows –** Move a selected field up and down the list.

- **Add –** Click this button to add a blank field for a new entry.
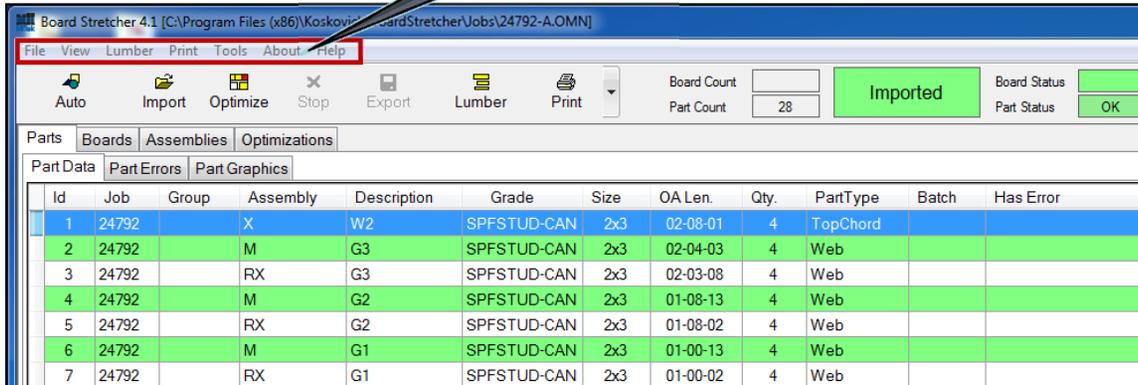
- **Remove –** Remove a selected field.

Board Stretcher Menus (cont)
About and Help

About – Displays version number and Copyright information

Help – Access to Help Files and Technical Support for contact and reporting problems

Board Stretcher Menus
Task Bar
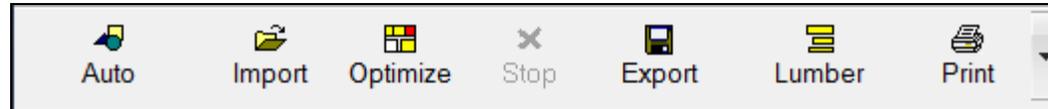
Auto – Allows you to quickly import a job and have the program optimize it according to your present preferences and then sends the output to the saw in a directory that you have set. Completes the import, optimize, and export steps all with one click.

Import – Opens a file browse window for the user to import a file into the program. Hold the CTRL button on the keyboard to select more than one file

Optimize - Will place all of the pieces from the current job/truss/etc. onto to boards to give you the best optimization of your lumber.

Stop - Once optimization has begun, it can be stopped using this icon. Becomes active after the Optimization button has been clicked.

Export - This selection sends the optimized job to the saw.

Lumber - This selection allows you to view and modify your Lumber Yard, or the lumber that you make available to the saw. *Board Stretcher* uses this information to optimize your lumber usage. When Lumber is clicked a second screen appears on top of the primary screen.

Print - There are different reports included in *Board Stretcher* that can assist in managing lumber used. All three reports can be printed from the Print menu. Two of them can also be printed using the Print button on the Task Bar.

Board Stretcher Menus
Status Bar

| Board Count | 16 | | Board Status | OK |
| Part Count | 28 | Optimized | Part Status | OK |

Board Count – Displays the number of boards that the parts have been placed on.

Part Count - Displays the number of parts that are in the job that have been placed on boards.

Current Job Status (green) - Displays the current state of the optimization process.
Status options include:
- Imported
- Imported (with errors)
- Optimizing
- Optimized
- Exported
- Error

Board Status - Displays the status of the optimized boards. It can either be **OK, Warning**, or **Error.**

Part Status - Displays the status of the imported parts. It can either be **OK, Warning,** or **Error.**

Board Stretcher Menus
Primary and Secondary Tabs

Parts	Boards	Assemblies	Optimizations
Part Data	Part Errors	Part Graphics	
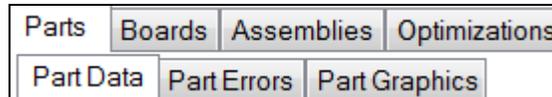
The primary tabs near the top of the Main Screen provide different areas to focus.

The secondary tabs change, depending on which primary tab is selected.

Parts - Displays the parts in the active job (by list and by graphic).

Boards - Displays type, quantity, and waste information for the active job. It includes lumber needed from inventory as well as each board. Data is displayed in a list and graphically

Assemblies - Graphically displays the assembled truss and each board required IF the imported file contains truss or panel information. If not, this tab remains blank

Optimizations - Lists each time the active job has been optimized, allowing a comparison to choose the scenario with the least waste.

Board Stretcher Operation
Importing a Job - Manually

To manually Import a job:

Task Bar

1. From the **Task Bar**, click **Import.**

The user can import any of the following file types
- **.OMN or .CUT –** generated by the truss design software
- **.MIZ -** generated by the wall panel design software
- **.MME -** Australia
- **.XML -** could contain wall or truss information

2. Select the next job from the list

Name	Date modified	Type
540-1.MIZ	3/13/2006 9:15 AM	MIZ File
24792-A.OMN	11/1/2004 3:14 PM	OMN File
T08	5/18/2007 6:01 PM	XML Document

NOTE: If any problems occur with the import file, the optimizing software will automatically try to correct the problem as well as notify the user of the problem.

Board Stretcher Operation
Importing a Job - Manually (cont)

To create the lumber list for the job:

3. From the **Task Bar**, click **Lumber.**

If the *Board Stretcher* program determines that
any grades and dimensions of lumber in the job
file are not available in the current Lumber Yard, it
will allow replacement grades to be selected OR
new lumber grades and dimensions to be added to
the Lumber Yard.

All possible replacement grades that are available
for the particular dimensions and grades required
for all of the parts listed in the import file are
highlighted for each lumber grade and dimension
that is not found in the Lumber Yard.

Task Bar

Board Stretcher Operation
Importing a Job - Manually (cont)

To optimize the parts onto the boards:

4. From the **Task Bar**, click **Optimize.**

The program then begins the process of placing the parts onto boards.

Different optimizing processes and options are available to the user to achieve the results desired.

The user also has the capability to re-optimize the same job several times using different options to achieve the best results.

Task Bar

Board Stretcher Operation
Importing a Job - Manually (cont)

To send the board list to the saw:

5. From the **Task Bar**, click **Export.**

When the user is satisfied with the optimization results, the job can then be sent via network connection directly to the saw.

The job is then ready to be cut.

After the current job is sent to the saw, the optimization program is ready to import and optimize the next job.

Task Bar
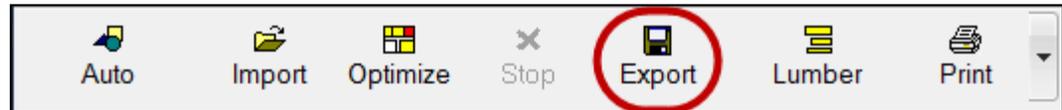
Board Stretcher Operation

Importing a Job - Automatically

To automatically Import a job:

1. From the **Task Bar**, click **Auto.**

Task Bar

The Lumber Yard
Information

- Before *Board Stretcher* can use a type of lumber, it must be added to the Lumber Yard. Ideally, when *Board Stretcher* is installed, all lumber stocked at your facility is added to the Lumber Yard. Then, future jobs only need to add odd or new lumber, and the daily optimizing tasks flow more smoothly. Whether the lumber is added before the job is imported or after, it is a simple procedure.
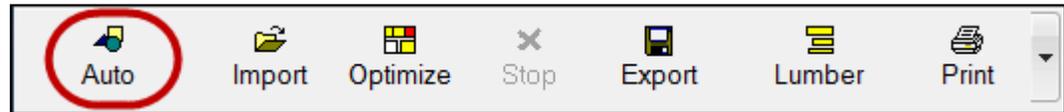
NOTE: Populating the Lumber Yard should be accomplished by opening job files so the grade strings are automatically populated. It is not recommend to type in the grade strings as they must be an exact match to the job files.

- When **Lumber** is clicked, either from the Lumber Menu or from the Task Bar, a second screen appears on top of the primary screen.

- This selection allows you to view and modify your **Lumber Yard,** or the lumber that you make available to the saw. *Board Stretcher* uses this information to optimize your lumber usage.
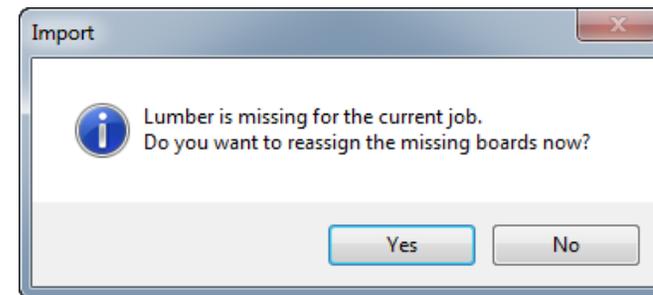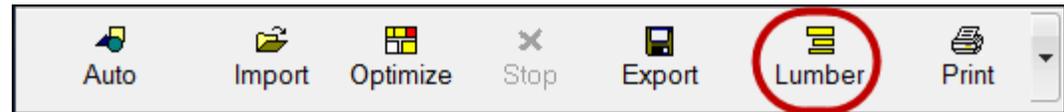
The Lumber Yard
Entering the Lumber Yard

Methods for accessing the Lumber Yard:

1. Click the **Lumber** button on the **Task Bar** from the Main Screen.

2. Click the **Lumber** menu from the **Main Screen.**

Say **YES** to the message that could appear when importing a new job:

Import

Lumber is missing for the current job.
Do you want to reassign the missing boards now?

Yes   No

Lumber Yard												
Current Job Inventory				**Add Lumber**								**Lumber in Yard**
Status	Grade	Size	Min. Ler	Grade		Active	Grade	Size	Length	Source	Cost E...	Cost P...	Lengt...
Has	SPF No.2 D	2x6	01-04-0'			Yes	SPF No.2 D	2x6	16-00-00	Magazine	0.00	0.00	00-00-...
Has	SPF Stud D	2x6	00-04-1(	Size 2x3		Yes	SPF Stud D	2x6	08-00-00	Magazine	0.00	0.00	00-00-...
Has	Wol TREAT...	2x6	01-06-0	Length 08-00-00		Yes	Wol TREAT...	2x6	16-00-00	Magazine	0.00	0.00	00-00-...
				Source Magazine		Yes	SPF No.2 D	2x4	16-00-00	Magazine	0.00	0.00	00-00-...
				Cost 0.00									
				Cost Penalty 0.50									
				Length Penalty 00-06-00									
				Add >>>									

The Lumber Yard
Add Lumber and Reassign Boards in Active Jobs

1. Click one of the missing lumber types in the left column (Current Job Inventory). **Missing lumber is highlighted in red.**

   • The Grade field automatically populates with the lumber selected in the left column.

   • Existing lumber that is a valid substitution gets highlighted green in the right column (Lumber in Yard).

NOTE: Before adding material at this screen, ensure the lumber is physically stocked in inventory, or will be when the sawyer is ready to cut this job.

The Lumber Yard
Add Lumber and Reassign Boards in Active Jobs (cont)

2. Either assign a substitution or add the missing lumber. Both options are described here.

 a) **To assign a substitution:**

      1) Double-click a green lumber type in the right column.

      2) Click **Yes** when the system asks you to verify your choice.

 b) **To add lumber to the Lumber Yard from this screen:**

      1) Click the lumber in the left column that is missing so it populates the fields in the middle column.

      2) Adjust the Size, Length, Source, Cost, and Penalty fields if necessary.

      3) Click the **Add** button.

The Lumber Yard
Add Lumber without an Active Job

To add lumber to the Lumber Yard before a job is imported:

1. Enter the Lumber Yard (use instructions described in the previous step)

2. In the middle column in the **Add Lumber section**, type the grade name, **NOT RECOMMENDED,** into the Grade field.

> **NOTE:** Type the Grade following format guidelines agreed upon at your facility. It must EXACTLY match the design file's grade name for the lumber, or the system will not recognize it as an existing lumber.

3. Fill in the **Size** from the drop-down menu (2x3, 2x4, etc.)

4. Fill in the **Length** from the drop-down menu (12-6-0 equals 12 ft. 6 in. and no sixteenths of an inch),

5. Fill in the **Source** from the drop-down menu.

6. The **Cost** field should be filled in only if cost will be considered over material usage when determining acceptable waste.

> **NOTE: Penalty** fields will be explained in another step.

7. Click the **Add** button.

Add Lumber	
Grade	
SPF No.2 D	▼
Size	2x6 ▼
Length	16-00-00 ▼
Source	Magazine ▼
Cost	0.00
Cost Penalty	0.50
Length Penalty	00-06-00

Add >>>

Remove/Update Selected

| Active | ☑ | Update |

Grade — Update
Wol TREATED D ▼

Source
Magazine ▼ Update

Cost
0.00 Update

Cost Penalty
0.00 Update

Length Penalty
00-00-00 Update

Remove Selected Items

The Lumber Yard
Remove Material from the Lumber Yard

Reasons to remove material from the Lumber Yard:

- You no longer inventory a certain lumber
- Cleaning out your Lumber Yard

To permanently remove material from the Lumber Yard:

- Select a lumber type in the right column, under Lumber Yard, and click the **Remove Selected Items** button.

	Add Lumber	
	Grade	
	SPF No.2 D	▼
Size	2x6	▼
Length	16-00-00	▼
Source	Magazine	▼
Cost		0.00
Cost Penalty		0.50
Length Penalty		00-06-00
	Add >>>	

Remove/Update Selected

Active	☑	Update
Grade		Update
Wol TREATED D		▼
Source		
Magazine	▼	Update
Cost		
0.00		Update
Cost Penalty		
0.00		Update
Length Penalty		
00-00-00		Update
	Remove Selected Items	

Lumber in Yard						
Active	Grade	Size	Length	Source	Cost E...	Cost P...	Lengt...
Yes	SPF Stud D	2x6	08-00-00	Magazine	0.00	0.00	00-00-...
Yes	Wol TREAT...	2x6	16-00-00	Magazine	0.00	0.00	00-00-...
Yes	SPF No.2 D	2x4	16-00-00	Magazine	0.00	0.00	00-00-...
Yes	Wol TREAT...	2x4	16-00-00	Magazine	0.00	0.00	00-00-...

The Lumber Yard
Temporarily Prevent Material Use

The user can prevent a type of lumber from being used without removing it from the Lumber Yard.

- **Example:** You ran out of 16-ft lumber, and it won't be here for another week.

To prevent lumber usage:

- From the center section of the Lumber Yard (Add Lumber), remove it from **active duty** by unchecking its **Active** checkbox.

- When the lumber becomes available , just enter the Lumber Yard, select that lumber, and check the checkbox again.

The Lumber Yard
Penalty Fields

A **Penalty** is a feature that allows the user to discourage *Board Stretcher* from using a certain type of lumber, while still allowing it when necessary. The higher the penalty, the stronger the discouragement for using.

There are different types of penalties:

1. **Cost Penalties -** make the software think the lumber costs more than it really does.
   - a) Default cost penalty
   - b) Optimization cost penalty

2. **Length Penalties -** make the software think there is more waste on a type of lumber than there really is.
   - a) Default length penalty
   - b) Optimization length penalty

> **NOTE:** Default penalties are what will default when adding new lumber and are based on what the source is. Whatever penalty is shown in the Lumber Yard on the right side will be the penalty used.

3. **Optimization Penalty -** an edited version of the default penalty, for use on the active job only.

Add Lumber

Grade	SPF No.2 D
Size	2x6
Length	16-00-00
Source	Magazine
Cost	0.00
Cost Penalty	0.50
Length Penalty	00-06-00

Add >>>

Remove/Update Selected

Active ☑ Update

Grade — Update
WoI TREATED D

Source
Magazine — Update

Cost
0.00 Update

Cost Penalty
0.00 Update

Length Penalty
00-00-00 Update

Remove Selected Items

The Lumber Yard
Length Penalty Examples

When lumber is first added to the Lumber Yard any penalty added will be referred to as the default penalty.

- **Example 1 -** You started working with a new client, and are getting more trusses that would benefit from 20-ft lumber, but it is very expensive to buy. You want to use this lumber only when it's absolutely necessary. So, when you add it to the Lumber Yard you placed a 2-ft length penalty, using the Add Lumber section.

When a penalty is assigned because a change in inventory or policy requires a short-term change in lumber usage, it is referred to in this manual as an optimization penalty.

- **Example 2 -** You're running low o n 16-ft lumber of a certain grade, and your supplier can't get you more for several weeks. You typically use a lot of 16-ft lumber because it optimizes well, but now, you want to use it only when absolutely necessary. So, enter the Lumber Yard and add a length penalty at the bottom of the middle column.

Viewing Data

Parts

When the **Parts Tab** is selected, in the Primary Tabs section, the Secondary Tabs reflect the selection.

| Parts | Boards | Assemblies | Optimizations |
| Part Data | Part Errors | Part Graphics |

In the Parts Data window, the data is populated by the design file.
- **Group -** the stack on the truck if the design file specifies.
- **Assembly -** the truss or wall panel.
- **Description -** the individual part descriptions.

| Part Data | Part Errors | Part Graphics |

Id	Job	Group	Assembly	Description	Grade	Size	OA Len.	Qty.	PartType	Batch	Has Error
1	24792		X	W2	SPFSTUD-CAN	2x3	02-08-01	4	TopChord		
2	24792		M	G3	SPFSTUD-CAN	2x3	02-04-03	4	Web		
3	24792		RX	G3	SPFSTUD-CAN	2x3	02-03-08	4	Web		
4	24792		M	G2	SPFSTUD-CAN	2x3	01-08-13	4	Web		
5	24792		RX	G2	SPFSTUD-CAN	2x3	01-08-02	4	Web		
6	24792		M	G1	SPFSTUD-CAN	2x3	01-00-13	4	Web		
7	24792		RX	G1	SPFSTUD-CAN	2x3	01-00-02	4	Web		

Viewing Data

Parts (cont)

Parts	Boards	Assemblies	Optimizations

Part Data	Part Errors	Part Graphics	**Secondary Tabs**

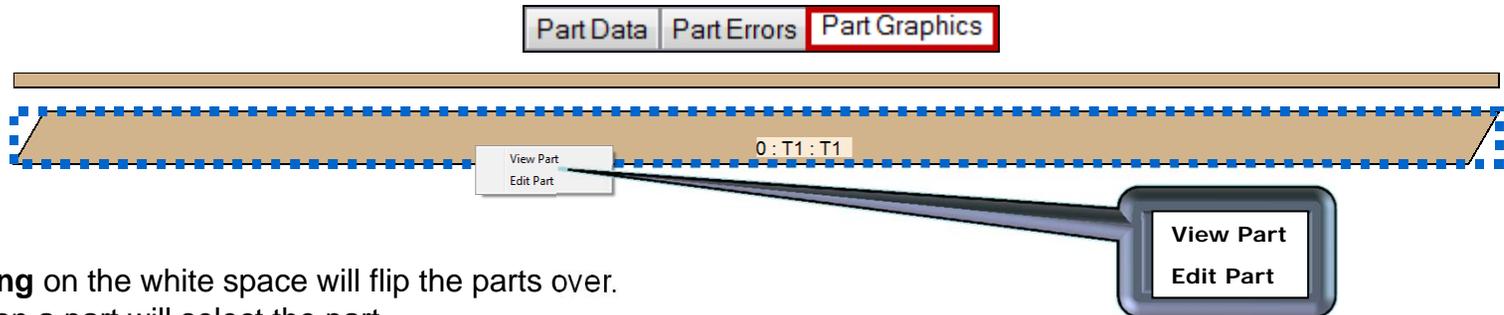| Id	Job	Description	Level	Error Msg.

Part Error - If any of the parts contain an error they will be listed under the Part Errors tab.

- The **ID, Job, Description** are the same as the **Part Data tab.**
- **Level** indicates **Warn** or **Err**.
- **Error Msg** displays the error message.
  - If the **Level = Warn** the part will still be included in the optimization,
  - if the **Level = Err** the part will not be included in the optimization..

Part Data	Part Errors	Part Graphics

0 : T1 : T1

View Part
Edit Part

View Part

Edit Part

Part Graphics –
- **Double clicking** on the white space will flip the parts over.
- **Left clicking** on a part will select the part,
- Once selected **right clicking** on the part will show a menu with the following selections:
  - **View Part** shows the part in the 3D viewer.
  - **Edit Part** shows the key-in interface populated with the part's information to allow for editing the

Viewing Data
Boards

When the **Boards Tab** is selected, in the Primary Tabs section, the Secondary Tabs reflect the selection.

Parts	Boards	Assemblies	Optimizations
Lumber Data	Board Data	Board Errors	Board Graphics

Secondary Tabs

In the Lumber Data window, the following information is available:
- **Length –** material length used
- **Source –** how the material is entering the saw
- **Quantity –** total number of this material needed
- **Total Board Ln. –** the total board footage of all pieces for this length
- **Length Eff. -** the efficiency percentage of the pieces cut from the selected board length
- **Total Waste Length –** the amount of waste after all pieces are cut from a quantity of boards

Lumber Data	Board Data	Board Errors	Board Graphics				
Grade	Size	Length	Source	Quantity	Total Board Ln.	Length Eff.	TotalWasteLength
SPF No.2 D	2x6	16-00-00	Magazine	21	336-00-00	93.6%	21-06-12
SPF Stud D	2x6	08-00-00	Magazine	18	144-00-00	95.6%	06-04-12
Wol TREATED D	2x6	16-00-00	Magazine	6	96-00-00	84.8%	14-07-08

Viewing Data
Boards (cont)

When the **Boards Tab** is selected, in the Primary Tabs section, the Secondary Tabs reflect the selection.

Primary Tabs

Parts	Boards	Assemblies	Optimizations
Lumber Data	Board Data	Board Errors	Board Graphics

Secondary Tabs

In the Parts Data window, the data is populated by the design file.

- **Source –** how the material is entering the saw
- **Waste –** the amount of waste after the pieces are cut
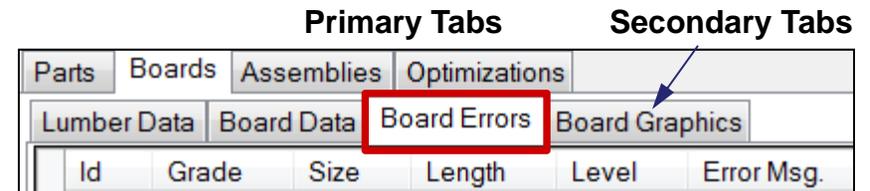- **Length Eff. -** the efficiency percentage of the pieces cut from the selected board length

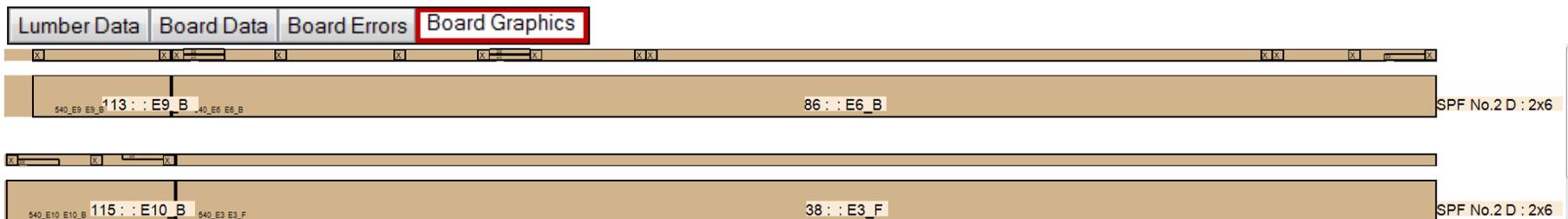|	Lumber Data	Board Data	Board Errors	Board Graphics						
Id	Grade	Size	Length	Source	Batch	Parts	Waste	Length Eff.	Cost Eff.	Has Error
1	SPF No.2 D	2x6	16-00-00	Magazine		2	00-04-00	97.9%		
2	SPF No.2 D	2x6	16-00-00	Magazine		2	00-00-08	99.7%		
3	SPF No.2 D	2x6	16-00-00	Magazine		2	00-04-00	97.9%		
4	SPF No.2 D	2x6	16-00-00	Magazine		2	00-05-00	97.4%		
5	SPF No.2 D	2x6	16-00-00	Magazine		2	01-04-08	91.4%		

Viewing Data
Boards (cont)

Board Errors - If any of the boards contain an error they will be listed under the Board Errors tab.

- The **ID, Grade, Size, Length** are the same as the **Board Data tab.**
- **Level** indicates **Warn or Err.**
- **Error Msg** displays the error message.
  - If the **Level = Warn** the board will still be included in the optimization,
  - if the **Level = Err** the board will not be included in the optimization.

Primary Tabs   **Secondary Tabs**

| Parts | Boards | Assemblies | Optimizations |

| Lumber Data | Board Data | Board Errors | Board Graphics |

| Id | Grade | Size | Length | Level | Error Msg. |

Board Graphics –

- Double clicking on the white space will flip the boards over.
- Left clicking on a individual part of a board will show the 3D viewer for the part.

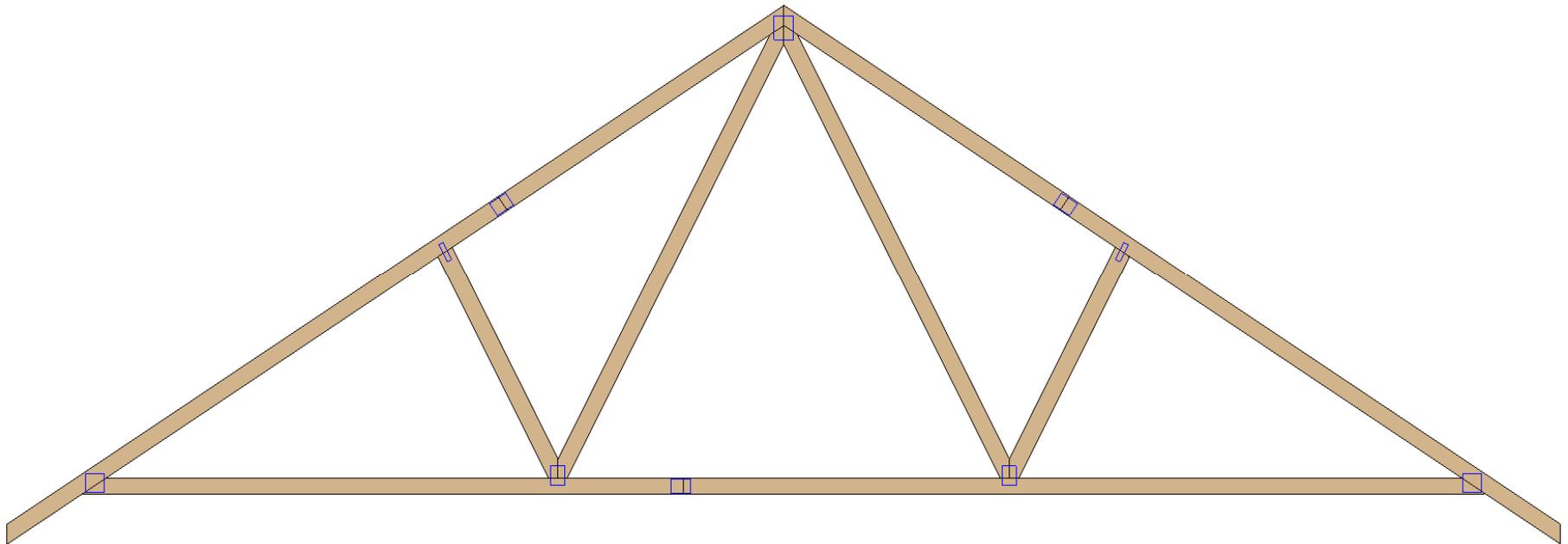| Lumber Data | Board Data | Board Errors | Board Graphics |

540_E9 E9_B 113 : : E9_B 40_E6 E6_B   86 : : E6_B   SPF No.2 D : 2x6

540_E10 E10_B 115 : : E10_B 540_E3 E3_F   38 : : E3_F   SPF No.2 D : 2x6

Viewing Data
Assemblies

Parts	Boards	Assemblies	Optimizations
Assy Graphics			

Secondary Tabs

Assembly Graphics - displays the image of the fabricated component the cut pieces will produce.

Viewing Data
Optimizations

Optimizations - The Optimizations tab allows for the comparison of optimizations of the same file. Settings can be changed and the file re-optimized. The best settings can be found using this method.

Definitions:
- **Length Efficiency =** Overall length of all parts/length of all boards x 100
- **Volume Efficiency =** Volume (board feet) of parts/volume of boards x 100
- **Board Feet** of boards used
- **Cost** of the boards if optimizing by cost
- **Quantity of parts** which share one common angle with another adjacent part on the board.
- **Quantity of parts** which share two or more common angles with another adjacent part on the board.

When adjacent parts share common angles the saw will stroke into the wood less times increasing the production rate.
- **Saw Strokes Saved** indicates how many strokes are saved.

	Date	Files	Length Eff.	Volume Eff.	BoardFeet	Cost	Qty Parts Single Nested	Qty Parts Multiple Nested	Saw Strokes Saved
▶	11/7/2014 7:48 AM	540-1	69.5%	69.5%	768.0	0.0	68	0	68
	11/7/2014 7:49 AM	540-1	92.6%	92.6%	576.0	0.0	71	0	71