

FeneTech, Inc.

FeneVision® Opti-Temp User Manual



FeneVision® Opti-Temp User Manual

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Overview

FeneVision Opti represents an integrated glass optimization system that maximizes yields when cutting and batch tempering glass, as well as an application that integrates with glass loading machinery. Graphical patterns are displayed within FeneVision Opti, and both reports and glass labels can be generated. This unique system handles rectangular or standard shapes, but also allows users to optimize any non-standard shapes, such as digitized templates and DXF files generated from FeneVision CAD. The system can operate in either 'Batch' or 'Dynamic' optimization mode. Additionally, FeneVision Opti can interface to many manufacturers' cutting lines.

FeneVision Opti-Temp allows glass manufacturers to optimize tempering bed layouts. An additional module to Opti, FeneVision Opti-Temp also features an optional 'Unload' mode, which allows users to reject items that break in the oven, sending them back to Opti-Glass and Opti-Break as cutting remakes.

FeneVision Opti-Temp requires users to create and configure at least one tempering machine in Opti-Glass.

Using Opti-Temp

Opti-Temp is used in combination with Opti-Glass and Opti-Break. Like Opti-Break, tempering can be run in Dynamic or Batch mode. In Batch mode, the tempering release will need to be created in Opti-Glass first. This will then be used to create the glass cutting release in Opti-Glass. In Dynamic mode, no tempering release is created in Opti-Glass. Instead, Opti-Temp dynamically optimizes tempering bed patterns based on all the available lites that were selected when the Run button is clicked.

Whether in Dynamic or Batch mode, Opti-Break releases must be run before a tempering release. Once the glass is broken out at Opti-Break, it can be placed on the tempering bed for the tempering release. The release will start at an Opti-Temp Load station where the tempering bed is loaded. Once a pattern is fully loaded, it can go through the tempering machine. Upon completion of the tempering, the release will then be available at an Opti-Temp Unload station. During unload, the tempered pattern will be accepted again to signify completion and removal of the glass from the tempering machine.

Dynamic Mode

When using Dynamic mode, the Opti-Temp run selection organizes items by glass type then by 'Cutting' racks. In this mode, users do not create a tempering release through Opti-Glass. Instead the release is optimized on the fly based on the lites selected for tempering.

The image below represents Opti-Temp in 'Dynamic' mode, whereby racks of glass are sent from Opti-Glass and optimized in Opti-Temp. Opti-Temp uses the lites selected and dynamically creates a pattern to run through the tempering oven.

The following fields exist in the upper section of the 'Run' screen in 'Dynamic' mode:

- **Show**
 - **Unavailable** – Updates the screen to include glass that is unavailable to be tempered, including glass not yet cut, glass rejected at cutting, and glass already tempered. This is particularly helpful if / when glass is physically at a tempering station that is not yet showing as available in Opti-Temp.
 - **Available** – Updates the screen to include glass that is available to be tempered, i.e. glass that FeneVision Opti-Break has accepted, cut, but not tempered.
- **Days Back** – Based on the run date for the cutting release of the glass displayed.
- **Include** – Check which process to display. Only one process may be selected at a time.

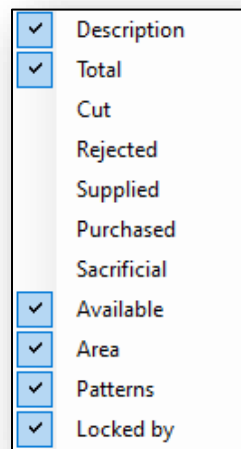
Note: The 'Include' filter can be set up differently for each user, and is typically configured during initial implementation. Contact FeneTech for assistance if changes are required.

- **Refresh** – Each time the user changes one of the filters or updates information, select Refresh to apply the filter.
- **Manual** – used if a piece of glass is physically at the tempering machine, fully cut and ready to be tempered, but no release was created for it. See the 'Manual' section below for more information

The main grid on the screen shows several columns. The user can manage these columns by right clicking on the grid and checking the items to display. The column width and order saves upon exit of the application.

Select	Part	Description	Rack	Optimize Asc	Total	Available	Area (SqFt)	Patterns	Edit
☐	GL060.BLGR.-.-	6 mm (1/4") BLUE GREEN			120	120	2035.9	19	
☐	GL060.BLGR.-.-		07-H1		20	20	180.0	1	
☐	GL060.BLGR.-.-		08-H1		20	20	360.0	3	
☐	GL060.BLGR.-.-		09-H3		40	40	840.0	8	
☐	GL060.BLGR.-.-		09-H4		20	20	155.9	1	
☐	GL060.BLGR.-.-		09-L5	☐	20	20	500.0	4	

The image below represents the column headers that are able to be shown. To adjust the columns, right-click on the column headers. By clicking on a column name, a checkmark will appear/disappear. Any column with a checkmark will be shown.



- **Select** – Checkbox to select the part to optimize.
- **Part** – Alpha-numeric identifier of the glass part number.
- **Description** – Description of the glass part.
- **Rack** – Rack tag comprised of the last two digits of the 'Schedule ID / Container Prefix' from Core.
- **Optimize Asc** (Dynamic mode only) – Optimizes the racking sequence of the lites on the release in ascending order.
- **Total** – Total number of lites.
- **Available** – Total number of lites available for optimization.
- **Cut (hidden by default)** – Number of lites cut to optimize.

- **Rejected (hidden by default)** – Number of lites rejected.
- **Supplied** – Number of lites that were either supplied or purchased. Lites depicted here were not cut at Opti-Break.
- **Purchased** – Number of lites that were purchased.
- **Sacrificial** – Number of expected sacrificial lites on that rack.
- **Area** – Total area of lites in square units.
- **Patterns** – Indicates selection is in use by another station.
- **Locked by** – Indicates the station the items are locked at.
- **Edit (fixed column)** – Selecting  takes the user to the 'Rack Detail' screen

Rack Detail

The 'Rack Detail' screen allows the user to manipulate status by rack and slot. This section is only accessible when the machine is in 'Dynamic' mode. When the user is in the 'Glass Selection Grid' screen and has expanded a glass type, the  icon will appear. Selecting this will take the user to the 'Rack Detail' screen.

Select	Slot	Part	Width	Height	Thickness	Process	SUMP	Order-It	
☐	1	PL-G6	800	900	6	Tempering	14619`1`5147`5786`0	M-32077	 Reset
☐	2	PL-G6	800	900	6	Annealed	14619`1`5167`5788`0	M-32077	
☐	3	PL-G6	800	900	6	Tempering	14619`2`5147`5786`0	M-32077	
☐	4	PL-G6	800	900	6	Annealed	14619`2`5167`5788`0	M-32077	 Accept
☐	5	PL-G6	800	900	6	Tempering	14619`3`5147`5786`0	M-32077	
☐	6	PL-G6	800	900	6	Annealed	14619`3`5167`5788`0	M-32077	
☐	7	PL-G6	800	900	6	Tempering	14619`4`5147`5786`0	M-32077	 Reject
☐	8	PL-G6	800	900	6	Annealed	14619`4`5167`5788`0	M-32077	
☐	9	PL-G6	800	900	6	Tempering	14619`5`5147`5786`0	M-32077	
☐	10	PL-G6	800	900	6	Annealed	14619`5`5167`5788`0	M-32077	Set Cut
☐	11	PL-G6	800	900	6	Tempering	14619`6`5147`5786`0	M-32077	
☐	12	PL-G6	800	900	6	Annealed	14619`6`5167`5788`0	M-32077	
☐	13	PL-G6	800	900	6	Tempering	14619`7`5147`5786`0	M-32077	
☐	14	PL-G6	800	900	6	Annealed	14619`7`5167`5788`0	M-32077	
☐	15	PL-G6	800	900	6	Tempering	14619`8`5147`5786`0	M-32077	
☐	16	PL-G6	800	900	6	Annealed	14619`8`5167`5788`0	M-32077	
☐	17	PL-G6	800	900	6	Tempering	14619`9`5147`5786`0	M-32077	
☐	18	PL-G6	800	900	6	Annealed	14619`9`5167`5788`0	M-32077	
☐	19	PL-G6	800	900	6	Tempering	14619`10`5147`5786`0	M-32077	
☐	20	PL-G6	800	900	6	Annealed	14619`10`5167`5788`0	M-32077	
☐	21	PL-G6	800	900	6	Tempering	14619`11`5147`5786`0	M-32077	
☐	22	PL-G6	800	900	6	Annealed	14619`11`5167`5788`0	M-32077	 Refresh
☐	23	PL-G6	800	900	6	Tempering	14619`12`5147`5786`0	M-32077	
☐	24	PL-G6	800	900	6	Annealed	14619`12`5167`5788`0	M-32077	




Close

In the 'Rack Details' screen, the user can

1. Mark uncut items as cut. Used when a cut glass piece makes it to the tempering station without having been accepted at the cutting table.
2. Mark cut items as tempered. Used when a piece has gone through tempering but was missed during the accepting process.
3. Mark tempered items as un-tempered. Used when a piece has accidentally been marked as tempered before it has physically gone through the tempering machine.
4. Reject cut and tempered items.

The functions of the buttons in the 'Rack Details' screen follow.

- **Reset** – Reset changed tempering status(es) for the selected item(s).

Note: Resetting will not change the status of a glass piece marked as Cut through this screen.

- **Accept** – Allows the user to accept an item as tempered. Select the item(s) before clicking accept.
- **Reject** – Allows the user to reject an item. Select the item(s) before clicking reject.
- **Set Cut** – Sets a yellow line clear indicating that the items are set as cut. Click first before setting the items.
- **Refresh** – Refresh the 'Rack Details' screen.
- **Close** – Closes the 'Rack Details' screen.

The following colors indicate these actions:

- **Yellow** – Unavailable for tempering. This indicates that items have not been cut or have been rejected at cutting. The only option is to set these items as 'Cut'.
- **Red** – Rejected at tempering. These items can be un-rejected. This will remove the cutting remake that was placed in FeneVision Opti-Glass upon rejecting the unit.
- **Green** – Tempered. These items can be un-tempered, making them available for tempering, or rejected, which will add a cutting remake.
- **Clear** – Ready for tempering. Item has been set as cut and can be tempered, or the item can be rejected, which will also add a cutting remake.

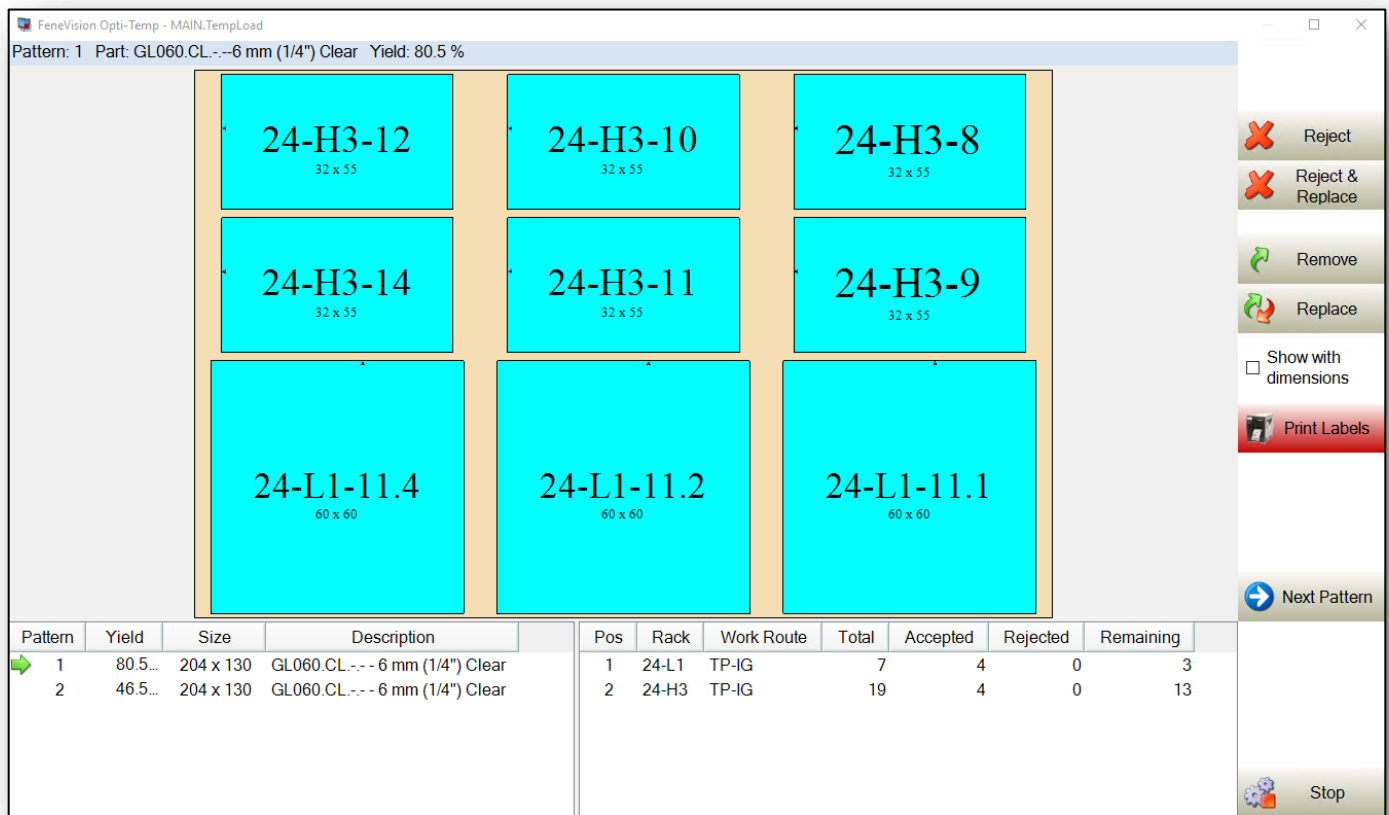
Running in Dynamic Tempering

To begin an optimization, select the glass type and / or racks to be run, and select the Run button.



Upon selecting Run, Opti-Temp will dynamically optimize the selected racks. A 'Tempering' optimization, unlike a 'Cutting' optimization in Opti-Glass or Opti-Break, will not reveal any stock selection screens. It is assumed that the size of the tempering bed, as defined in machine setup, will always be the size on which lites are placed. Optimization will start with the largest available lite. Opti-Temp will add lites to the layout as long as the lite meets the 'Lite Size Factor' condition, as configured in Opti-Glass. This process will continue with each layout. This results in layouts that begin with the largest lites and progressing to smallest lites.

Note: Users can change how many dynamic tempering patterns are generated at once by editing the NumberOfOptimizableDynamicPatterns parameter in the database.



Rack Moving

The 'Rack Move' screen will appear at any point when the 'Rack List' in the bottom right will be updated. When the first pattern is generated, the 'Rack Move' screen appears to tell the user what racks need to be moved into the rack positions. When a rack has been completed, the screen will appear again showing the user two things:

1. The rack that should be moved *out*.
2. The rack that should be moved *in* to replace it.

This screen can be accessed at any time by selecting the gray space outside of the stock sheet. The 'Rack Moves' screen will reappear.

The following steps outline the use of the 'Rack Move' functionality:

1. When starting the run, the 'Rack Move' screen will appear to tell the user how to position the racks around the tempering bed.

Rack Move		
	Out	In
1	Empty	41-M1
2	Empty	47-JSHA16
3	Empty	47-JSHA17
4	Empty	47-JSHA18
5	Empty	49-M1
N6	Empty	50-M3
N7	Empty	51-M5
N8	Empty	62-M1
		

- The user should position the racks according to the 'Rack Move' screen. The 'Racks List' at the bottom right of the screen will update to show each rack and its position around the tempering bed.

Pos	Rack
1	50-M3
2	47-JSHA16
3	47-JSHA17
4	47-JSHA18
5	49-M1

- As the user accepts patterns racks will begin to fill up. Once every lite designated for a rack has been completed, the rack move screen will reappear to inform the user to move that rack out and move a new rack in.

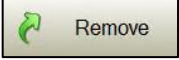
Rack Move			
		Out	In
1		41-M1	50-M3 
2			47-JSHA16
3			47-JSHA17
4			47-JSHA18
5			49-M1
N6		50-M3	61-M59 
N7			51-M5
N8			62-M1
			

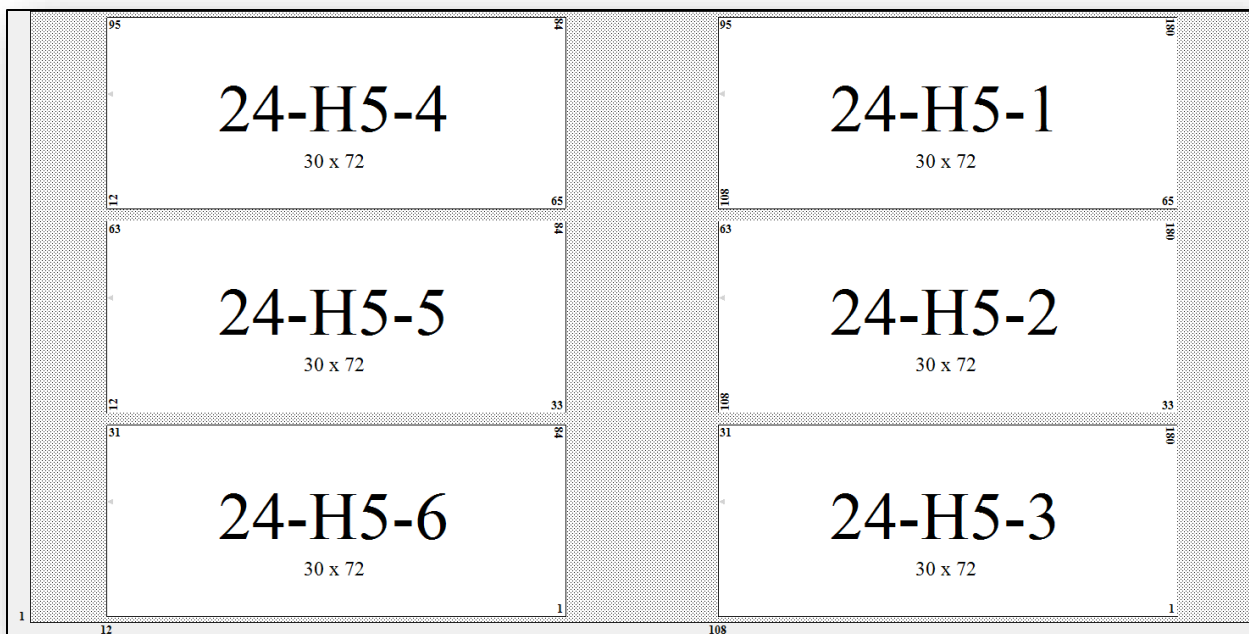
4. Based on the 'Rack Move' screen, the following changes are indicated:
 - a. Rack Position 1 (41-M1) and Rack Position N6 (50-M3) must be moved out. Rack 41-M1 has been completed.
 - b. Rack Position N6 (50-M3) is moved up to Rack Position 1 so it will now be optimized with priority rather than being optimized as buffer.
 - c. A new rack (61-M59) is pulled into the buffer position of Rack Position N6.
 - d. Rack Positions 2, 3, 4, 5, N7, and N8 are not moved at all.
5. Select the green checkmark, removing the 'Rack Move' screen from view.
6. The tempering bed can now continue with the next patterns.

Action Buttons

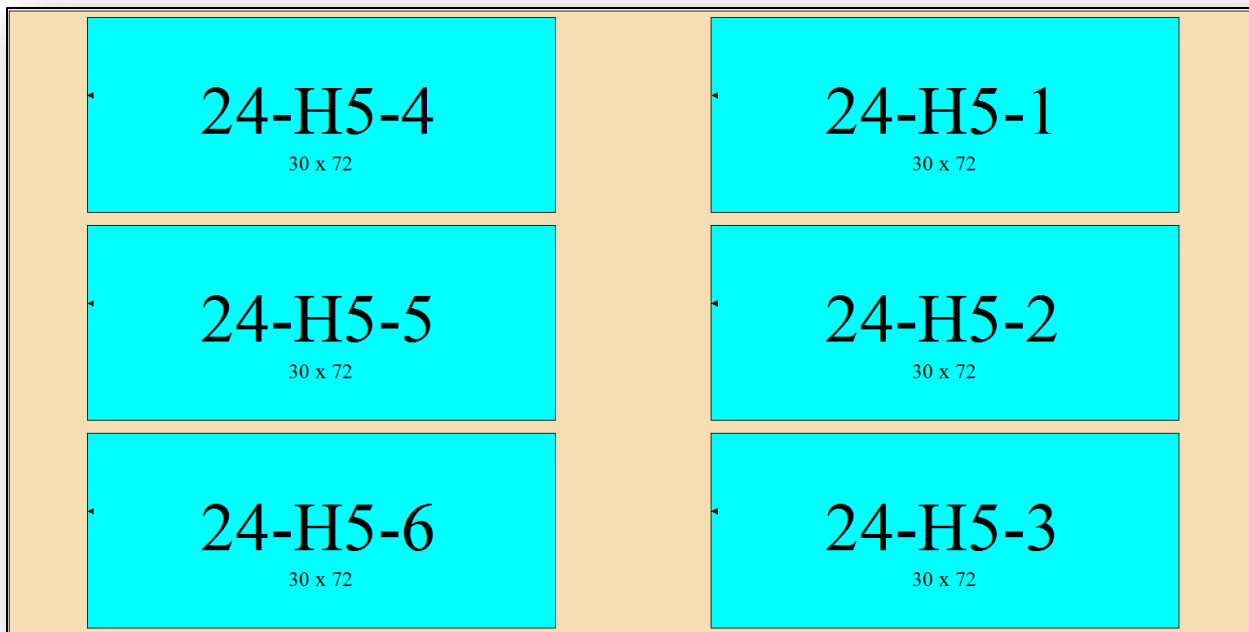
The following action buttons are available within the run screen.

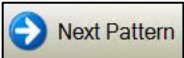
-  Reject – Rejects a lite of glass. Opti-Temp will submit the lite as a remake to re-optimize at cutting. The application will remove the lite, and its area is blank.
-  Reject & Replace – Rejects a lite of glass and attempt to replace. Opti-Temp will submit the lite as a remake to re-optimize at cutting; however, the user can select another lite to replace it from a queue that contains lites that will fit from racks within the current working patterns, but not on any other racks. If there is only 1 lite that will fit, the system automatically selects it and replaces. If there are not replacements available, a prompt will appear that says, 'No items are available for replace.', and will just reject and remove the unit without replacing.

-  **Remove** — Drops the lite from the current pattern. The item is still available for tempering and will likely return within the next few patterns. This is useful if the user does not think that the glass is broken but does not have it readily available for replacement. The application will remove the lite, and its area is blank.
-  **Replace** — Drops the lite from the current pattern. The item is still available for tempering and will likely return within the next few patterns; however, the user can select another lite to replace it from a queue that contains lites that will fit from racks within the current working patterns, but not on any other racks. If there is only 1 lite that will fit, the system automatically selects it and replaces. If there are not replacements available, a prompt will appear that says, 'No items are available for replace.' By selecting 'Yes', the selected unit will be removed without a replacement. By selecting 'No', no changes will be made to the current pattern. This is useful if the user does not think the glass is broken but does not have it readily available for placement.
- ☒ **Show with dimensions** — When checked, displays the measurement of the lite placement on the tempering bed relative to the '0' location.
 - **Show with Dimensions on:**



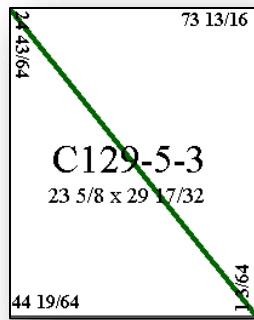
- **Show with Dimensions off:**



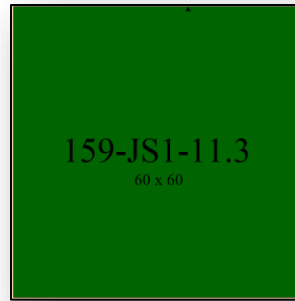
-  **Print Labels** – Send identifying information to printer. This button turns red when Opti-Temp has sent the information.
-  **Next Pattern** – Advances to the next pattern. Users may also select the hotkey, F12, to advance to the next pattern.
-  **Stop** – Returns the user to the run selection screen.
- **Auto Load Patterns (Osprey machines only)** – If Osprey is configured as the interface, the Unload station will have an Auto Load button. When this is "On", the first time a lite is statused for a pattern at Unload, a .DAT file is generated in the specified directory for the whole pattern.

Accepting / Rejecting Lites

When the user clicks on a lite, the pattern is rendered 'Accepted'. The lite will appear on the pattern as represented in the image below:



(Show Dimensions checked)

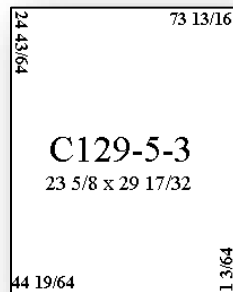


(Show Dimensions unchecked)

Users can reject a lite by first clicking Reject, then clicking on the lite to reject. When running in dynamic mode, the rejected lite will be removed from the pattern, and be sent back to Opti-Glass / Opti-Break to be remade.

Note: Rejected / Removed items will not display on the pattern at an 'Unload' station if an Unload station is configured. Additionally, when optimizing at an 'Unload' station, rejecting a lite does not remove the lite from the pattern. These lites will be sent to Opti-Glass as a remake.

By default, lites will maintain their status. Additionally, if the user selects a lite after assigning a status, Opti-Temp clears the status. The lite will appear on the pattern as represented in the image below:



The user selects 'Next Pattern' to advance to the next pattern. At the last pattern of the run, the screen will not advance when pressing the 'Next Pattern' button. Selecting the 'Stop' button will return the user back to the main screen of Opti-Temp.

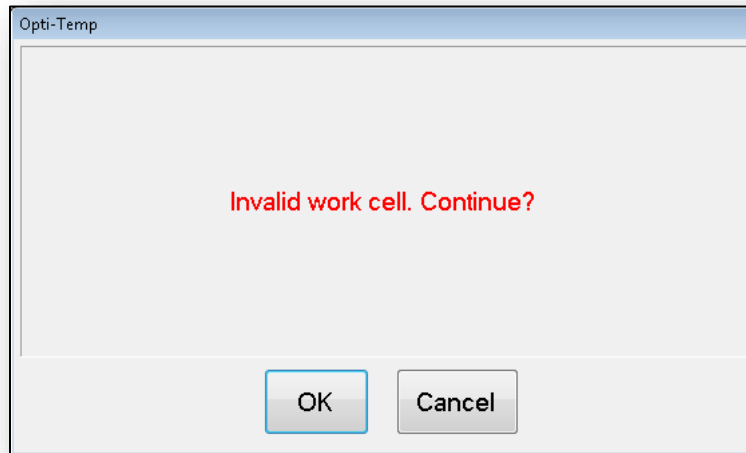
Note: Typically, the rack displayed as the source rack at the 'Load' Station is the same as the destination rack at the 'Unload' station

Plan Alerts

With 'Plan Alerts' enabled, the previous work cell in the sequence order will be checked for a completion status. If 'All previous work cells' is checked, all work cells the item has passed through before the current work cell in the sequence order will be checked. If an item that has capacity plans is scanned at a work cell that is not found in the capacity sequence or is scanned out of plan sequence order (*'Capacity Planning' in FeneVision Core is required*) the user will be informed properly.

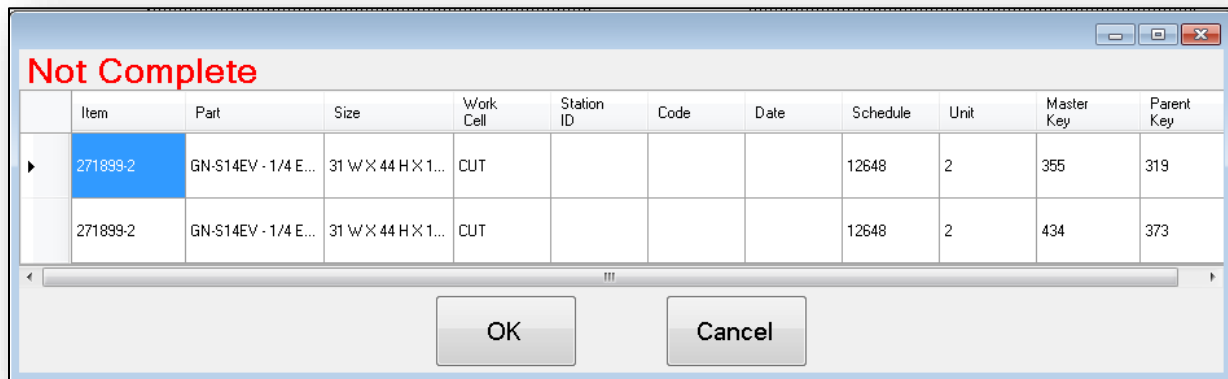
For example, if a 2-lite IG unit is being scanned, one lite goes from CUT to TEMP while the other lite only goes to CUT. If the next cell in the plan is IG and the orderable part is planned there, the alert will check the previous cell for each part so that it is actually checking to confirm if the first lite was scanned at TEMP and if the second lite was scanned at CUT.

If a unit has been scanned at a station tied to a work cell that is not part of the capacity plans, the user will see the following message:



If the user does not want to proceed with the action taken, select 'Cancel'. The user will be returned to the 'Run' screen. If the user wants to continue with the action regardless of the plan alert, select 'OK'. By selecting 'OK' the user is acknowledging that the unit has been scanned at an invalid work cell, but production can resume as normal.

If a unit has been scanned out of sequence order, as sequenced by capacity plans, the user will see the following message:



The 'Alerts' screen displays the items that were not scanned at the previous work cells. The following fields exist in the 'Plan Alerts' grid:

- **Item** – Order-Item identifier.
- **Part** – Part name.
- **Size** – Size of the part, including width, height, and thickness.
- **Work Cell** – ‘Work Cell’ where the unit was planned prior to the current work cell.
- **Station ID** – Station ID where part was rejected. Will display as empty if part has not been rejected.
- **Code** – Reject code from Core. Will display as empty if part has not been rejected.
- **Date** – Date the part was rejected. Will display as empty if part has not been rejected.
- **Schedule** – Schedule ID.
- **Unit** – Unit number.
- **Master Key** – Unit sub-component numbers. These can be found on the unit production label. The use of the Master / Parent Keys is required if the user is scanning in ‘Part Updating Mode’. If these keys are not included, a message stating ‘Invalid Barcode’ will appear unless the ‘Allow Ordered Part Scan’ is checked. Otherwise, the entering of the Master / Parent Keys is optional.
- **Parent Key** – Unit sub-component numbers. These can be found on the unit production label. The use of the Master / Parent Keys is required if the user is scanning in ‘Part Updating Mode’. If these keys are not included, a message stating ‘Invalid Barcode’ will appear unless the ‘Allow Ordered Part Scan’ is checked. Otherwise, the entering of the Master / Parent Keys is optional.

If the user does not want to proceed with the action taken, select ‘Cancel’. The user will be returned to the ‘Run’ screen. If the user wants to continue with the action regardless of the plan alert, select ‘OK’. By selecting ‘OK’ the user is acknowledging that the unit has been scanned at an invalid work cell, but production can resume as normal.

Note: Because Opti-Temp can accept multiple lites at a time (either by running ‘Dynamic’ mode or by using ‘Always accept on pattern advance’), the alerts screen will prompt once with alerts (for the items about to be accepted), instead of with each one.

Lite Orientation

A user might want to ensure that lites are oriented in a specific way so that roller wave distortion is consistent across all lites in a single project. This can be accomplished through the use of the TRDIR attribute. The valid values this attribute can return are below:

- **0** – Setting this attribute to 0, or not using this attribute at all, will leave the orientation in an unchanged state that adheres to the settings that are currently in place.
- **1** – Setting this attribute to 1 will force a lite to use a horizontal orientation where the width is placed down as the base of the lite.
- **2** – Setting this attribute to 2 will force a lite to use a vertical orientation where the height is placed down as the base of the lite.

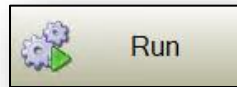
Batch Mode

The image below represents Opti-Temp in ‘Batch’ mode. This mode organizes items by ‘Tempering’ *releases*, generated in FeneVision Opti-Glass, then by part. In ‘Batch’ mode, patterns that have already been created in Opti-Glass are run through Opti-Temp.

- **Refresh** – Each time the user changes one of the filters or updates information, select Refresh to apply the filter.
- **Manual** – used if a piece of glass is physically at the tempering machine, fully cut and ready to be tempered, but no release was created for it. See the 'Manual' section below for more information

Running in Batch Tempering

To begin an optimization, select the release or part to run, and select the Run button.



A 'Tempering' optimization, unlike a 'Cutting' optimization in Opti-Glass or Opti-Break, will not reveal any stock selection screens. It is assumed that the size of the tempering bed, as defined in machine setup, will always be the size on which lites are placed. Opti-Temp will load the pattern based on the optimization that occurred in Opti-Glass.

FeneVision Opti-Temp - MAIN.TempLoad
Release: 278 Pattern: 1-1 Part: GL060.CL---6 mm (1/4") Clear Yield: 81.1 %

Reject
☐ Show with dimensions
Print Labels

Next Pattern
Previous Pattern

Stop

Pattern	Yield	Size	Descript	Pos	Rack	Work Route	Total	Accepted	Rejected	Remaining
1	81.1...	204 x 130	GL060.CL	1	T278-1		17	0	0	17
2	59.7...	204 x 130	GL060.CL	2	T278-3		5	0	0	5
3	39.8...	204 x 130	GL060.CL							
4	65.6...	204 x 130	GL100.CL							
5	65.2...	204 x 130	GL100.CL							
6	40.7...	204 x 130	GL100.CL							

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Rack Moving

The 'Rack Move' screen will appear at any point when the 'Rack List' in the bottom right will be updated. When the first pattern is generated, the 'Rack Move' screen appears to tell the user what racks need to be moved into the rack positions. When a rack has been completed, the screen will appear again showing the user two things:

1. The rack that should be moved *out*.
2. The rack that should be moved *in* to replace it.

This screen can be accessed at any time by selecting the gray space outside of the stock sheet. The 'Rack Moves' screen will reappear.

The following steps outline the use of the 'Rack Move' functionality:

1. When starting the run, the 'Rack Move' screen will appear to tell the user how to position the racks around the tempering bed.

Rack Move			
	Out	In	
1	Empty	41-M1	
2	Empty	47-JSHA16	
3	Empty	47-JSHA17	
4	Empty	47-JSHA18	
5	Empty	49-M1	
N6	Empty	50-M3	
N7	Empty	51-M5	
N8	Empty	62-M1	
			

2. The user should position the racks according to the 'Rack Move' screen. The 'Racks List' at the bottom right of the screen will update to show each rack and its position around the tempering bed.

Pos	Rack
1	50-M3
2	47-JSHA16
3	47-JSHA17
4	47-JSHA18
5	49-M1

3. As the user accept patterns racks will begin to fill up. Once every lite designated for a rack has been completed, the rack move screen will reappear to inform the user to move that rack out and move a new rack in.

Rack Move			
		Out	In
1		41-M1	50-M3 
2			47-JSHA16
3			47-JSHA17
4			47-JSHA18
5			49-M1
N6		50-M3	61-M59 
N7			51-M5
N8			62-M1
			

4. Based on the 'Rack Move' screen, the following changes are indicated:
 - a. Rack Position 1 (41-M1) and Rack Position N6 (50-M3) must be moved out. Rack 41-M1 has been completed.
 - b. Rack Position N6 (50-M3) is moved up to Rack Position 1 so it will now be optimized with priority rather than being optimized as buffer.
 - c. A new rack (61-M59) is pulled into the buffer position of Rack Position N6.
 - d. Rack Positions 2, 3, 4, 5, N7, and N8 are not moved at all.
5. Select the green checkmark, removing the 'Rack Move' screen from view.
6. The tempering bed can now continue with the next patterns.

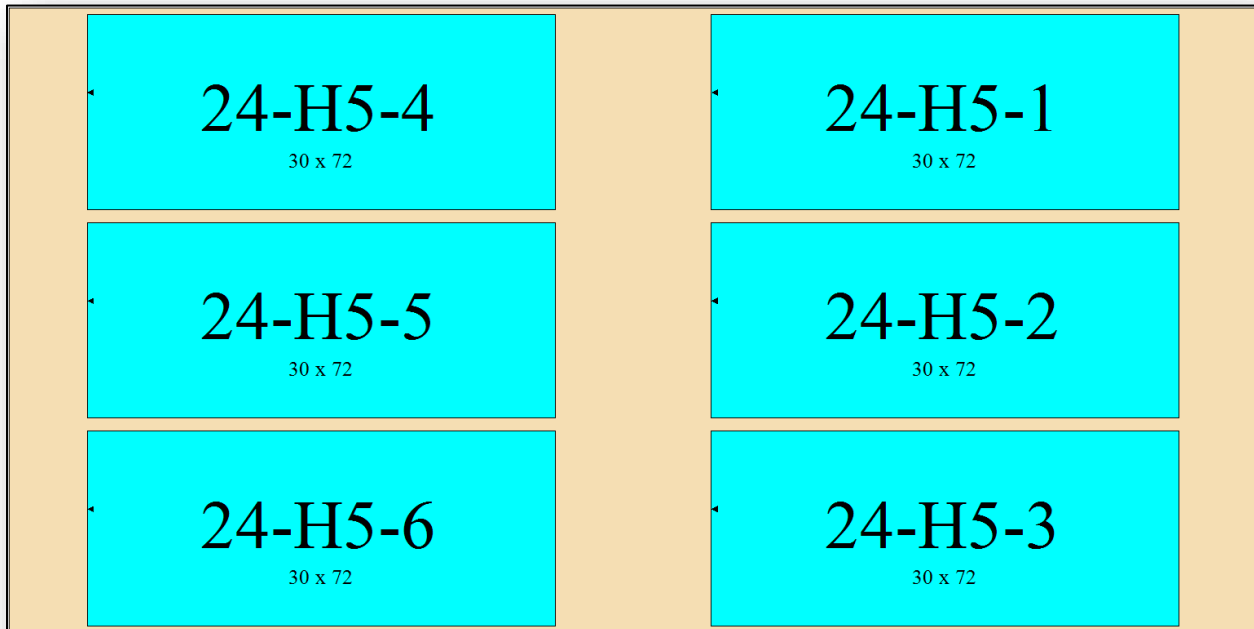
Action Buttons

The following action buttons are available within the run screen.

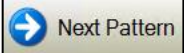
-  **Reject** – Rejects a lite of glass. Opti-Temp will submit the lite as a remake to re-optimize at cutting. The application will remove the lite, and its area is blank.
-  **Show with dimensions** – When checked, displays the measurement of the lite placement on the tempering bed relative to the '0' location.
 - **Show with Dimensions on:**



☐ **Show with Dimensions off:**

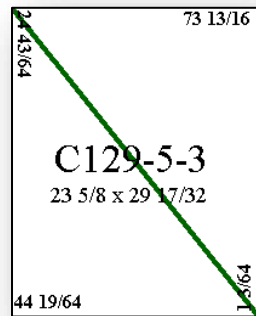


-  **Print Labels** – Send identifying information to printer. This button turns red when Opti-Temp has sent the information.

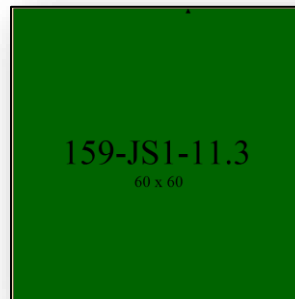
-  – Advances to the next pattern. Users may also select the hotkey, F12, to advance to the next pattern.
-  – Allows the user to view previous patterns. Users may also select the hotkey, F11, to go to the previous pattern.
-  – Returns the user to the run selection screen.

Accepting / Rejecting Lites

When the user clicks on a lite, the pattern is rendered 'Accepted'. The lite will appear on the pattern as represented in the image below:

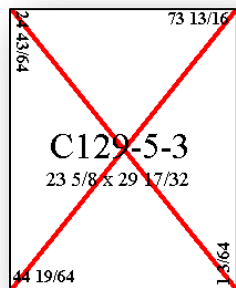


(Show Dimensions checked)

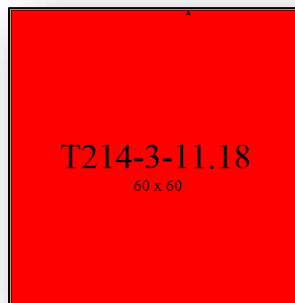


(Show Dimensions unchecked)

Users can reject a lite by first clicking Reject, then clicking on the lite to reject. The lite will appear on the pattern as represented in the image below before a prompt displays in order to submit the lite for cutting, removing the lite from the pattern:



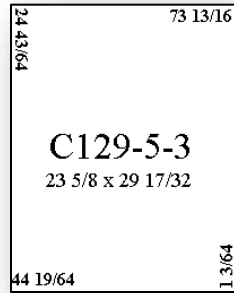
(Show Dimensions checked)



(Show Dimensions unchecked)

Note: Rejected / Removed items will not display on the pattern at an 'Unload' station if an unload station is configured. Additionally, when optimizing at an 'Unload' station, rejecting a lite does not remove the lite from the pattern. These lites will be sent to Opti-Glass as a remake.

By default, lites will maintain this status. Additionally, if the user selects a lite after assigning a status, Opti-Temp clears the status. The lite will appear on the pattern as represented in the image below:



The user selects 'Next Pattern' to advance to the next pattern. At the last pattern of the run, the screen will not advance when pressing the 'Next Pattern' button. Selecting the 'Stop' button will return the user back to the main screen of Opti-Temp.

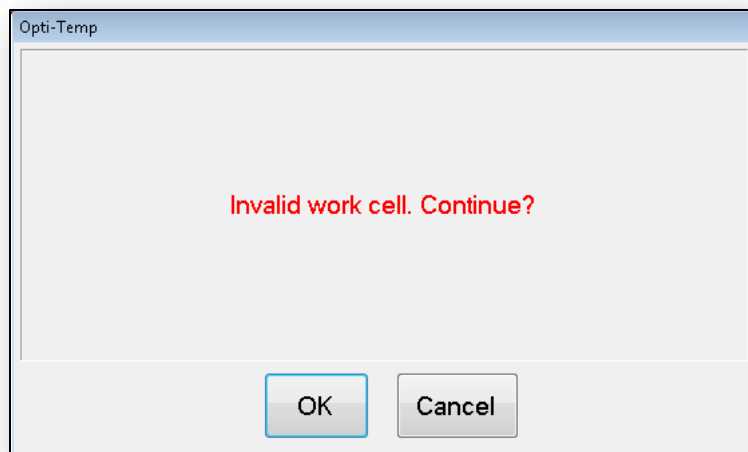
Note: Typically, the rack displayed as the source rack at the 'Load' Station is the same as the destination rack at the 'Unload' station. However, Opti-Temp supports re-racking by selecting the 'Batch w/ Exit Racks' run mode via Opti-Glass machine setup; therefore, the destination rack at the 'Unload' station may be different from the source rack displayed at the 'Load' station.

Plan Alerts

With 'Plan Alerts' enabled, the previous work cell in the sequence order will be checked for a completion status. If 'All previous work cells' is checked, all work cells the item has passed through before the current work cell in the sequence order will be checked. If an item that has capacity plans is scanned at a work cell that is not found in the capacity sequence or is scanned out of plan sequence order (*'Capacity Planning' in FeneVision Core is required*) the user will be informed properly.

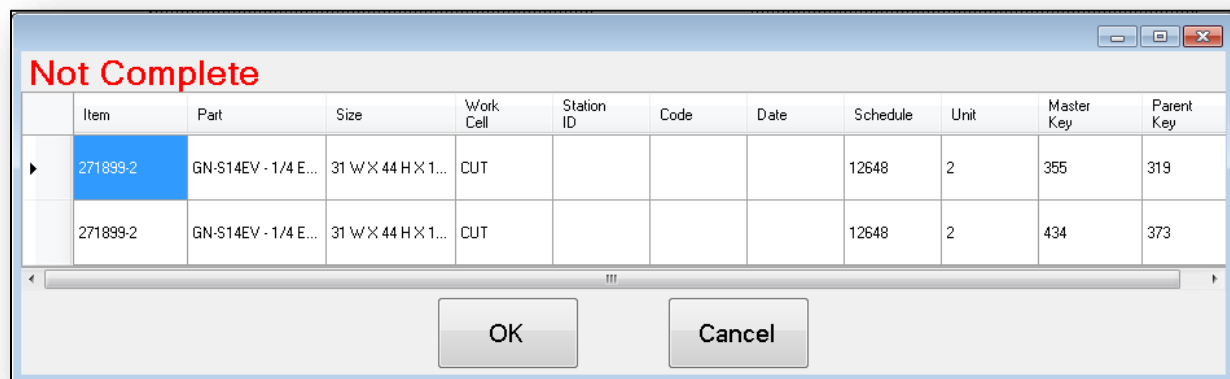
For example, if a 2-lite IG unit is being scanned, one lite goes from CUT to TEMP while the other lite only goes to CUT. If the next cell in the plan is IG and the orderable part is planned there, the alert will check the previous cell for each part so that it is actually checking to confirm if the first lite was scanned at TEMP and if the second lite was scanned at CUT.

If a unit has been scanned at a station tied to a work cell that is not part of the capacity plans, the user will see the following message:



If the user does not want to proceed with the action taken, select 'Cancel'. The user will be returned to the 'Run' screen. If the user wants to continue with the action regardless of the plan alert, select 'OK'. By selecting 'OK' the user is acknowledging that the unit has been scanned at an invalid work cell, but production can resume as normal.

If a unit has been scanned out of sequence order, as sequenced by capacity plans, the user will see the following message:



The 'Alerts' screen displays the items that were not scanned at the previous work cells. The following fields exist in the 'Plan Alerts' grid:

- **Item** – Order-Item identifier.
- **Part** – Part name.
- **Size** – Size of the part, including width, height, and thickness.
- **Work Cell** – 'Work Cell' where the unit was planned prior to the current work cell.
- **Station ID** – Station ID where part was rejected. Will display as empty if part has not been rejected.
- **Code** – Reject code from Core. Will display as empty if part has not been rejected.
- **Date** – Date the part was rejected. Will display as empty if part has not been rejected.
- **Schedule** – Schedule ID.
- **Unit** – Unit number.

- **Master Key** – Unit sub-component numbers. These can be found on the unit production label. The use of the Master / Parent Keys is required if the user is scanning in 'Part Updating Mode'. If these keys are not included, a message stating 'Invalid Barcode' will appear unless the 'Allow Ordered Part Scan' is checked. Otherwise, the entering of the Master / Parent Keys is optional.
- **Parent Key** – Unit sub-component numbers. These can be found on the unit production label. The use of the Master / Parent Keys is required if the user is scanning in 'Part Updating Mode'. If these keys are not included, a message stating 'Invalid Barcode' will appear unless the 'Allow Ordered Part Scan' is checked. Otherwise, the entering of the Master / Parent Keys is optional.

If the user does not want to proceed with the action taken, select 'Cancel'. The user will be returned to the 'Run' screen. If the user wants to continue with the action regardless of the plan alert, select 'OK'. By selecting 'OK' the user is acknowledging that the unit has been scanned at an invalid work cell, but production can resume as normal.

Note: Because Opti-Temp can accept multiple lites at a time (either by running 'Dynamic' mode or by using 'Always accept on pattern advance'), the alerts screen will prompt once with alerts (for the items about to be accepted), instead of with each one.

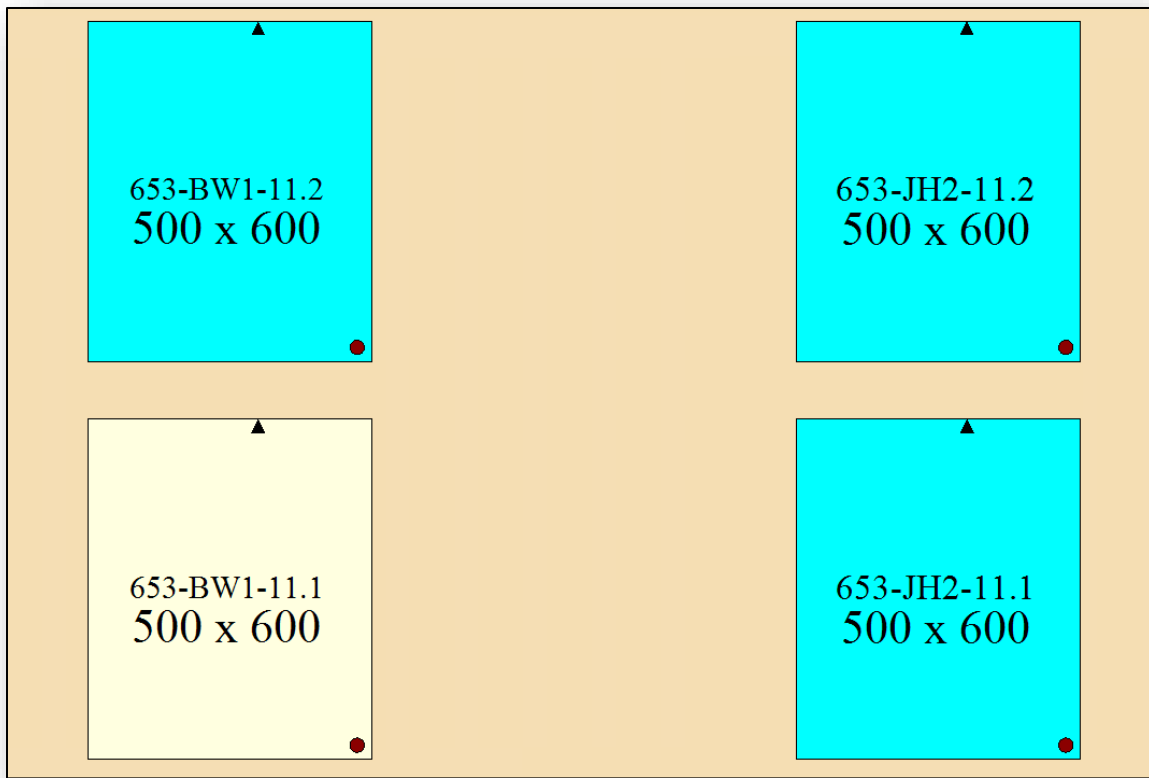
Lite Orientation

A user might want to ensure that lites are oriented in a specific way so that roller wave distortion is consistent across all lites in a single project. This can be accomplished through the use of the TRDIR attribute. The valid values this attribute can return are below:

- **0** – Setting this attribute to 0, or not using this attribute at all, will leave the orientation in an unchanged state that adheres to the settings that are currently in place.
- **1** – Setting this attribute to 1 will force a lite to use a horizontal orientation where the width is placed down as the base of the lite.
- **2** – Setting this attribute to 2 will force a lite to use a vertical orientation where the height is placed down as the base of the lite.

Manual Patterns

In both batch and dynamic mode the user can select the Manual button to create patterns from manually added lites. This can be useful if the glass is present at the station and ready to be tempered, but not already on a pattern. Both remakes and non rejected lites can be used to create new manual patterns.



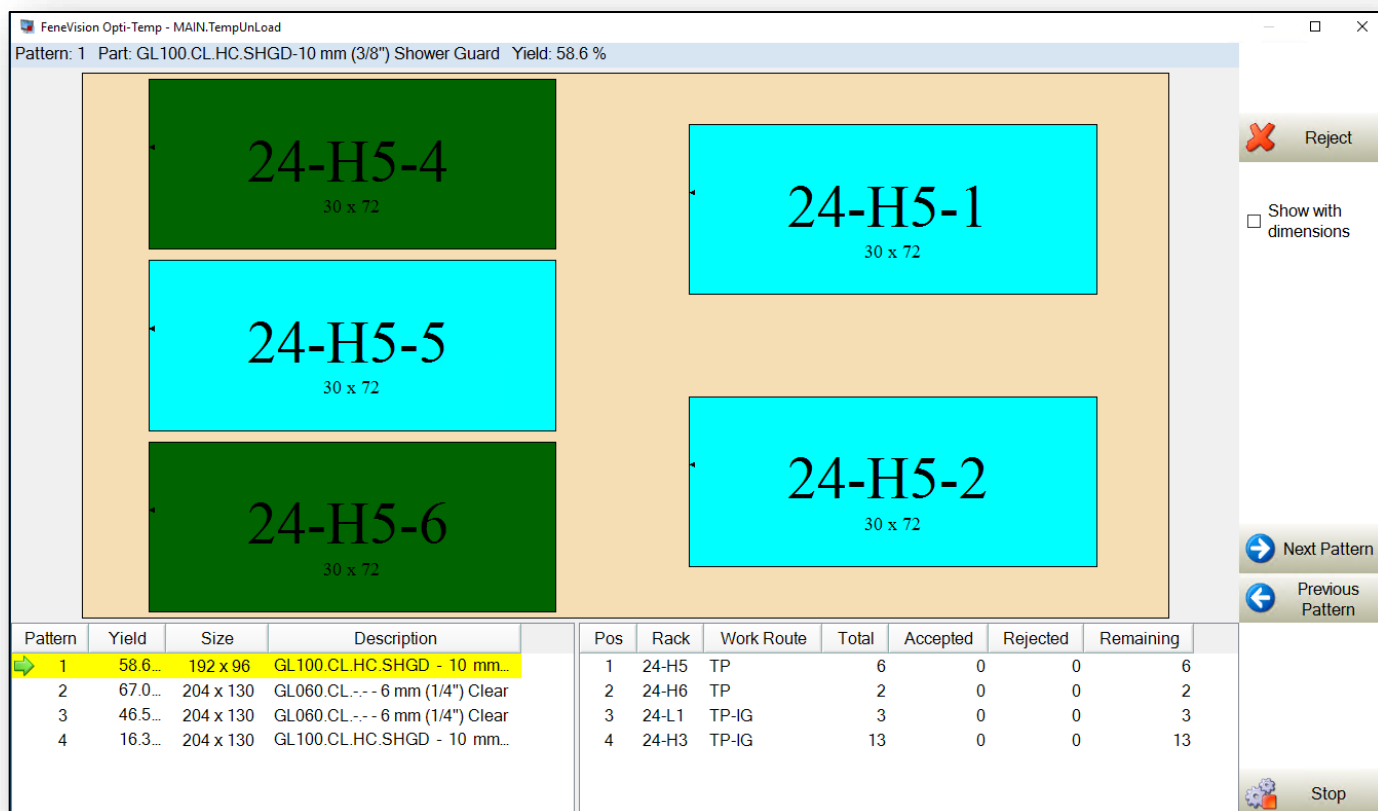
After generating patterns lites that were previously rejected will be colored differently than lites that are not rejects.

Unload

Instead of optimizing, the 'Unload' stations will display the ready patterns that are "fed" to it by its 'Load' station. The Unload station is directly connected to the Load station via the setup screen. (See the Settings section below for more information). Once the user selects 'Run', a timer begins to search for new patterns every 30 seconds.



At 'Unload', the user is able to accept or reject glass by tapping out the glass in the same fashion done at the Load station. As there is no optimizing, there is no need to replace any glass. Rejecting a lite does not remove the lite from the pattern. These lites will be sent to Opti-Glass as a remake to be placed on a new release. Previous navigation is limited to four patterns; once the user navigates to the fifth pattern, Opti-Temp removes pattern number one from the list.



Note: If using Batch mode with exit racks, users will see the same rack moving screens as seen during the Load station.

Exiting

To exit the FeneVision Opti-Temp application, select the 'Close' icon in the upper right-hand corner of the main screen.

Setup

Upon startup of Opti-Temp, the 'Run' screen (shown below) will display. To access the Opti-Temp 'Setup' screen, the user must select ALT+S from this screen. The 'Setup' screen includes the 'Database' tab and the 'General' tab.

System Requirements

The FeneVision Opti-Temp application has specific hardware and software requirements. Please reference the FeneVision Hardware and Software Requirements document.

Installation

There is typically only one setup application that needs to be run to install Opti-Temp. Although the software and hardware installation is not difficult, individuals with Microsoft Windows and computer setup experience should be responsible for the setup.

This section will identify the steps required to install the Opti-Temp application.

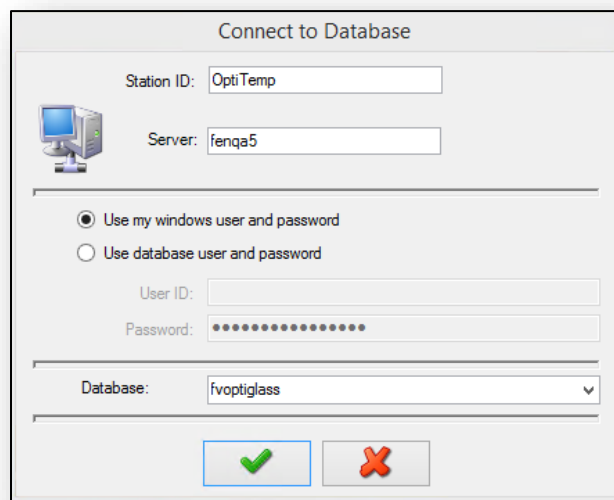
Program

To install the Opti-Temp application, complete the following steps:

1. Locate the Opti-Temp installation program.
2. Double click the installation file to begin installation.
3. An installation wizard will launch the install of the Opti-Temp application.
4. A dialog box will appear that contains the license terms. Users must accept these in order to proceed with the installation.
5. Choose the typical install.
6. The application typically places an application icon automatically on the user desktop. Use this to start the application.
7. When installing Opti-Temp on a computer for the first time, it will be necessary to activate application. Contact FeneTech for more information.

Initial Setup

Double clicking on the FeneVision Opti-Temp icon on the users' desktop launches the application. The first time Opti-Temp opens, the 'Connect to Database' screen will appear asking the user to specify the server and database.

A screenshot of the 'Connect to Database' dialog box. The dialog has a title bar with the text 'Connect to Database'. Inside, there is a computer icon on the left. To the right of the icon, there are two text input fields: 'Station ID:' with the value 'OptiTemp' and 'Server:' with the value 'fenga5'. Below these fields are two radio buttons: 'Use my windows user and password' (which is selected) and 'Use database user and password'. Below the radio buttons are two more text input fields: 'User ID:' and 'Password:' (the password field is masked with dots). Below these fields is a dropdown menu labeled 'Database:' with the value 'fvoptiglass'. At the bottom of the dialog are two buttons: a green checkmark button and a red X button.

Each physical station using Opti must maintain a unique 'Station ID'. Attempting to use the same 'Station ID' for multiple stations can cause conflicts with parameters. Stations will automatically be added to the stations list in FeneVision Core after going into the settings screen for any new station.

Note: If the location is changed for a station, this will be updated in the stations list of Core as well, as StationIDs must be unique across all locations.

If it is necessary to change the server or database information in the future, start the application while holding down the SHIFT key. This will cause the above screen to display as if it is being started for the first time.

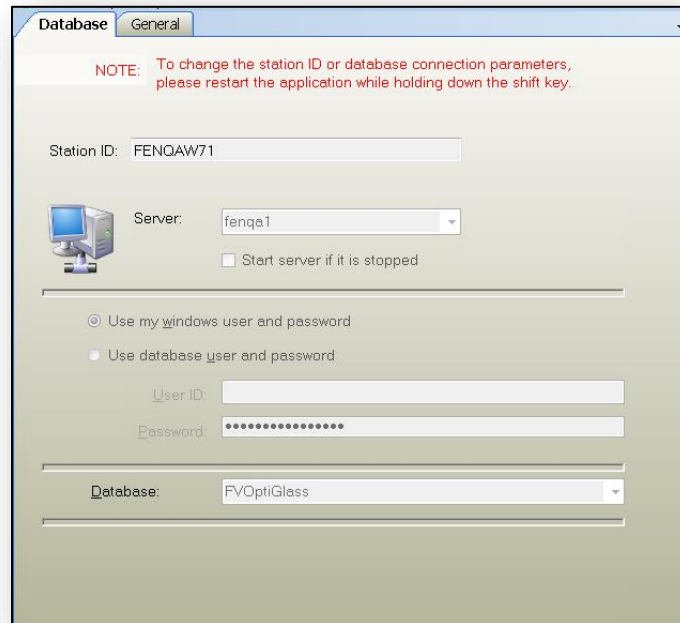
Settings

Upon opening FeneVision Opti-Temp, configure the settings for the Station. To edit the settings, simultaneously press ALT+S on the keyboard. A login screen will appear, and the proper permissions are required to access the 'Settings' screen. These permissions can be granted through Opti-Glass. The 'Settings' screen will appear as seen in the image below.

Database Tab

The 'Database' tab contains information regarding the user's database connection. This page is read-only.

Note: Users must make any modifications to this information by restarting the application while holding down the SHIFT key as shown in the initial setup section above.



The screenshot shows a window titled 'Database' with a 'General' tab selected. At the top, a red note states: 'NOTE: To change the station ID or database connection parameters, please restart the application while holding down the shift key.' Below this, the 'Station ID' is set to 'FENQAW71'. A server icon is next to the 'Server' dropdown, which is set to 'fenqa1'. There is an unchecked checkbox labeled 'Start server if it is stopped'. Two radio buttons are present: 'Use my windows user and password' (selected) and 'Use database user and password'. Below these are fields for 'User ID' and 'Password' (masked with dots). At the bottom, the 'Database' dropdown is set to 'FVOptiGlass'.

General Tab

The 'General' tab provides the user with options for the current station.

The screenshot shows the 'General' tab of the FeneVision Opti-Temp software. The interface is organized into three main sections: 'General', 'Pattern Display', and 'Label Printing'.
 - **General Section:** Features a 'Machine' dropdown menu currently set to 'Temper'. Below it are checkboxes for 'Logon Required', 'Disable Rack Prompts', 'Always Accept on Pattern Advance' (checked), and 'Accept on Pattern Stop' (checked). There are also checkboxes for 'Enable Plan Alerts' and 'All Previous Cells' (checked). Radio buttons for 'Load' (selected) and 'Unload' are present, along with a 'Load Station ID' dropdown and a 'Refresh Interval' spinner set to 30 seconds.
 - **Pattern Display Section:** Includes a 'Metric' checkbox and a group of checkboxes for display options: 'Show Base/Lower Right', 'Show Side Numbers', 'Show Short Side', 'Show Shape 90° Corners', 'Show Edgework', and 'Show Rack Side', all of which are checked.
 - **Label Printing Section:** Contains checkboxes for 'Enable Label Printing', 'Print Label on Accept', and 'Print All for Pattern'. A 'Patterns to Print in Advance' spinner is set to 0.
 - **Bottom Fields:** Includes a 'Glass Label' dropdown set to 'Label' and a 'Printer Name' text field containing 'Microsoft XPS Document Writer'.

The 'General' tab is separated into three distinct sections - 'General', 'Pattern Display', and 'Label Printing'.

- **General**

- **Machine** – Drop-down to indicate tempering machine for this station. This machine name must match the machine set up in FeneVision Opti-Glass.

Note: Setup for a tempering machine must be done in Opti-Glass. Refer to the Opti-Glass User Manual for the steps necessary in setting up a valid tempering machine.

- **Logon Required** – Checkbox to require logon for each instance of tempering in Opti-Temp.
- **Disable Rack Prompts** – When checked, user will not receive prompts indicating that Opti-Temp is moving racks during a run.
- **Always accept on pattern advance** – If checked, upon selecting 'Next Pattern', Opti-Temp will accept every lite that does not have a status on the pattern being left. If no rejects are present, the entire pattern is accepted at once.
 - **Accept on Pattern Stop** – When checked, users that stop a run mid-pattern will have the rest of the lites on the pattern marked as accepted.
- **Accept By Lite** – Allows lites to be approved individually before an entire pattern is approved. This allows accepted lites to be available at an unload station immediately after being accepted.
- **Enable Plan Alerts** – When checked, enables 'Plan Alerts'. Informs the user if a unit is scanned out of plan sequence order, or if a unit is scanned at a station that is not a work cell on that unit's plan sequence. Disabled if 'Unload' is checked.

- **All Previous Cells** – When checked, indicates that all previous work cells will be checked to ensure that all units have been completed at each previous cell, not just the last cell.

Note: In order to take advantage of the 'Plan Alerts' feature, 'Capacity Planning' in Core is required.

- **Load** – Indicates that the station is a 'Load' station. Optimization occurs here. This is where the user will place the glass into the oven based upon the patterns generated.
- **Unload** – Indicates that the station is an 'Unload' station. This allows the user to accept or reject lites that have been broken while in the oven (*optional*).

Note: It is possible to run Opti-Temp with a 'Load Station' only. The 'Unload' functionality allows for updating the status of items after Opti-Temp has tempered them.

- **Load Station ID** – Indicates the associated load station that will “feed” the current Unload station patterns. This setting remains enabled in the event that the station being configured is a middle station that will feed an unload station.
- **Refresh Interval** – Frequency with which Opti-Temp checks for new patterns at 'Unload'. (*Disabled when current station is a 'Load Station'*).
- **Pattern Display**
 - **Metric** – Checkbox to indicate measurements in metric. Imperial measurements serve as the default.
 - **Show Base/Lower Right** – Marked by a pentagon shape that is placed near the lower right corner of the unit. Point of the shape is on the base of the unit.
 - **Show Side Numbers** – Side numbers displayed on lites next to each edge. Side numbers will appear on DXFs as well.
 - **Show Short Side** – Marked by a black triangle. Shows shorter width or height of lite as ordered.
 - **Show Shape 90° corners** – Indicates if a corner of a shape is 90 degrees. Only displayed on shapes (since rectangles have all 90° corners). Marked by a black rectangle  in the corner.
 - **Show Edgework** – When checked, will allow the user to set a color at the 'Edgework Code' level. If the color is set, lines in that color will be drawn on the pattern displays to indicate which sides contain edgework.
 - **Lite Tag Format** – Format in which the Lite Tag will display information. This tag can be formatted with any combination of these tags:

Ex. <RACK>-<SLOT>

- **<RACK>** – The 'RackTag' field in the database.
- **<RACKID>** – The internal RackID generated by the system.
- **<SLOT>** – Slot in which the lite is to be placed.
- **<ORDER>** – Order number to which the lite belongs.
- **<ITEM>** – Line item number to which the lite belongs.
- **<L2RACK>** – The level 2 rack. If no level 2 rack exists, the level 1 rack will be displayed.
- **<L2SLOT>** – The level 2 slot. If no level 2 rack exists, the level 1 rack and slot will be displayed.
- **<SCHEDID>** – Schedule number.
- **<UNITID>** – Unit number.
- **<MASTERKEY>** – Identifier of the part. Used in barcodes.
- **<PARENTKEY>** – Identifier of the part's parent in the BOM. Used in barcodes.

- **Label Printing**

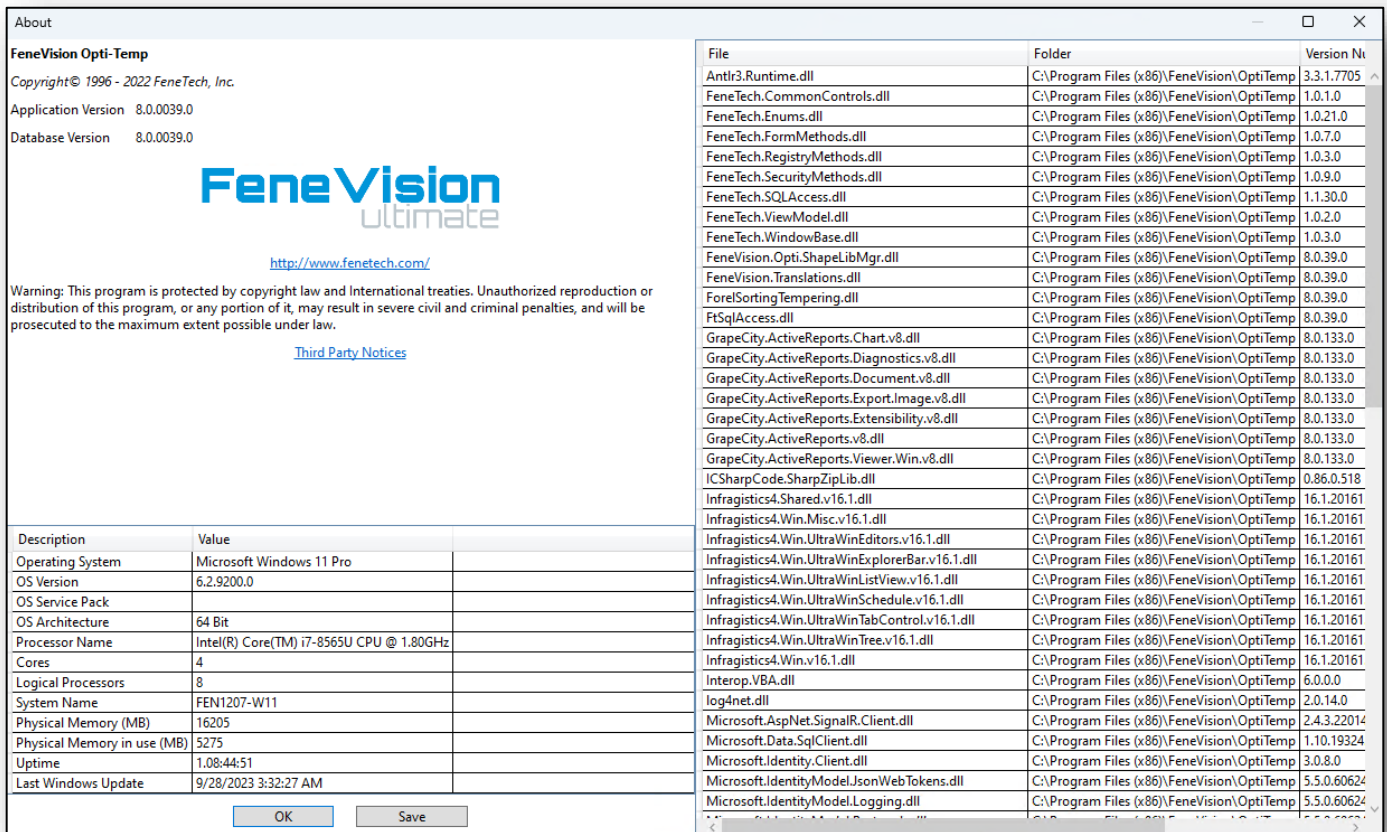
- **Enable Label Printing** – When checked, allows the user to print glass labels for each lite displayed on a pattern.

Note: In order to print labels, the user must have 'Reporting Services' configured in addition to configuring the label printing functionality in Opti-Glass.

- **Print Label on Accept** – When checked, upon the user accepting a lite, the associated label will print.
- **Print for All Pattern** – Prints all labels for the pattern when the pattern first appears at breakout.
- **Glass Label** – Drop-down to select which SSRS reports to use for the glass label.
- **Template File** – Specifies the file path of the label template that the template file defines the formatting of the label. Select the ellipses (...) button, when enabled, to browse.
- **Printer Name** – Specifies the label printer. Select the ellipses (...) button to browse.

About

Users may access the 'About' screen by selecting F1. The application version number and the database version number are shown within this screen. The application version number should match the database version number.



Help

Users are able to access the most up-to-date user manuals from the FeneVision Opti-Glass application. See the FeneVision Opti-Glass user manual for additional steps to access the full user manual directory.