DELMIAWorks

# Introduction to the Basics

Release: 2022

# Contents

# Initial Data Entry

Several modules must contain data before the system can become fully operational. The following section details the initial data entry steps. The following information assumes that your hardware and network is operational.

Initial data entry includes *static data,* which is loosely defined as "information that does not normally change on a day-to-day basis." This kind of information includes some of the following:

- GL Chart of accounts, (See Accounting Setup in the Accounting Manual) GL Year and Period Maintenance, System Parameters, Terms, Tax Codes, Cost Elements)
- System Parameters and Lists, (See Setting up the System Parameters)
- Customers (See Customer Maintenance)
- Vendors (See Vendor Maintenance)
- Raw Materials (plastics, blends, inserts, packaging) (See Inventory Management)
- Costing values (labor rates, markup tables--if the quoting package will be used)
- Work Centers
- Shop Calendar
- Manufacturing Configurations (BOM-Manufacturing Configurations in the Manufacturing Manual).

These items should be entered in the order listed. Completing the entry of the manufacturing configurations is a pivotal moment in **EnterpriseIQ**. Once created, the user can begin order entry, shipping, invoicing, scheduling and all other activities that revolve around the part number created.

### Coding Systems

The one common element these items have is that they all require a coding or numbering system to identify each unique item. For example, all customers need a customer code. Further, Inventory items use both an item code and a description.

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**Note**: DELMIAworks recommends not using % in fields that can be searched on. This is a reserved character used for wildcard search in both Oracle and Delphi.

**Note**: Data copied and pasted from Excel can cause issues.

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# Manufacturing Types

`There are several default Manufacturing Types in EIQ. Below is a list with a brief description of each:

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|---|---|
| **ASSEMBLY** | Similar to Generic BOM except Cycle Time on BOMs is in Hours instead of Seconds.<br>**Note**: The Cycle time for the Assembly Mfg Type in the Estimating module is in seconds and not hours. When converting an Assembly manufacturing type Quote to BOM the system will convert the cycle time to hours. |
| **ASSY1** | Utilizes BOMs with processes attached that call out work centers, tools, labor and quality requirements. Uses Assembly Track and Assy Data for reporting and tracking. Labor reporting is done for each process and components are backflushed during labor reporting. |
| **ASSY2** | Same as ASSY1 except Work Centers are associated to the processes, and to the Assembly Line. |
| **ASSY3** | Similar to the other ASSY types except an Assembly Line is associated to the BOM, and by default, Final Assembly is used to report production.<br>(Please see the ASSY Manufacturing documentation for more details on these MFG Types). |
| **BLOWMOLD** | Similar to Injection BOM except Runner/Sprue is changed to "Parison/Flash". |
| **COMPLEX** | Similar to Generic BOM except it has an icon to Designate Child Complex BOMs (this brings up a window called "Complex Visual BOM" where you can enter in additional info). Designed to simplify the scheduling process where multiple WO's are involved in producing a product and they are done on multiple work centers that make up a complex line. When a WO for the complex BOM is set up in first position on the Complex Line, all child work orders will automatically also be set up on their work centers in the line. (See Complex MFG Type BOMs for more information). |
| **COMPOUND1** | The Compound1 manufacturing type is used to create items with a unit of measure based on a weight such as grams or pounds. This manufacturing type is similar to Extrusion2 where there is a Lbs/Hr field, however there is no primary material. The item produced is made up of several components which also must have a weight type unit of measure. The components are assigned on the item details tab similar to the Masterbatch manufacturing type. (See Compound1 for more information). |
| **DIECAST** | Similar to Injection except Runner/Sprue is changed to "Runner/biscuit". |
| **EXTRUSION** | Item is Part Length with a typical unit of measure in feet. The BOM includes Feet/Lb and Lbs/Hr. Production is reported as a total length. (See Extrusions - General BOM Information for more information on the Extrusion MFG Types). |

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| **EXTRUSION2** | Item is in part weight with a typical unit of measure in pounds. The BOM includes Lbs/Hr. Production is reported in total Lbs. |
| **EXTRUSION3** | Item is in part weight with a typical unit of measure in eaches. The BOM includes Lbs/Hr. Production is reported in total parts. |
| **GENERIC** | The most basic BOM structure used for manufacturing that does not fit any of the other more specific types. Like other standards, generics can consume finished goods, components, and packaging, and can include labor and overhead. (See Generic Standards for details). |
| **INJECTION** | Primary material, tooling info, cavitation and part weight information. (See Creating a New BOM for details). |
| **JOBSHOP** | Designed for toolmakers, die makers, and other short run, discrete manufacturers utilizing Generic BOMs. It provides visual routing and fast creation of new projects based on existing routing templates It simplifies production based on longer run times and tiered manufacturing processes, including coring, lathing, drilling, grinding and milling. It's recommended to have a separate EPlant for handling JobShop parts separate from regular manufacturing processes. For JobShop, you create a new project from the JobShop module and then build out the routing info with a BOM set up for each step in the routing process. (See the JobShop documentation for more information). |
| **JOBSHOP2** | Similar to JobShop in that it is designed for toolmakers, die makers, and other short run, discrete manufacturers. This is based on the ASSY1, ASSY2, or ASSY3. It brings together the JobShop module and Assembly Track in one place. (See the JobShop2 documentation for more information). |
| **MBATCH** | The Masterbatch manufacturing type is used to create items with a unit of measure based on a weight such as grams or pounds. The item produced is made up of several components which also must have a weight type unit of measure.<br>▪ Item details tab has icon to add components based on quantity or percentage instead of calling out for a primary material (similar to Compound1).<br>▪ Production Summary info for "Batches/Hr" and "Hours/K Batches".<br>▪ Cycle Time is called "Batch Time", Actual and Standard Cavitation is called "Act Batch Size" and "Std Batch Size", no Part Weight<br>(See Masterbatch MFG Type for details). |
| **OUTSOURCE** | For Outsource operations. The Center Type is changed to "Vendor" and Cycle Time is changed to "Days/K" (days required to get 1000 parts), there are also fields for a "Flat Ratio" cycle time and "Drop Ship". There's no Tooling or Production Summary data. (See Outsourcing below for details). |
| **PM** | No BOM's are created for this MFG Type. It is used if you wish to set up PM Cells for using the PM Capacity Schedule tool. The PM MFG Type is only used in Maintenance, Repair and Overhaul. It will not be visible in BOMs, Work Centers, Scheduling, Production Reporting, and RealTime. (See the Maintenance, Repair and Overhaul help file for more information). |

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| **REWORK** | Same as Generic BOM. Used in conjunction with creating RMA rework work orders for Rework type work centers. (See Mfg Rework Order for details). |
| **RIM** | Similar to an Injection BOM except Runner/Sprue is called "Flashing". The cycle time defaults to minutes and not seconds. Shift Backflush can only be "Based on total cycles at shot weight. The Eff Factor is called "Yield Factor", Production Summary also has a "Parts/Hr" value. |
| **ROTATIONAL** | Similar to Injection BOM except no Runner/Sprue field, and cycle time defaults to minutes and not seconds. |
| **SFOAM** | The same as Injection BOM, however in the Work Center module, the Center Type is changed to "Platen Type". |
| **SLITTING** | Used for slitting rolls of material to specific thicknesses. Similar to EXT1 as it has Feet/Lb and Lbs/Hr. (See Slitting for details). |
| **STAMPING** | Similar to Injection BOM except Runner/Sprue is changed to "Waste Material". |
| **TFORM2** | Fields for Gauge, SPG, Tool Width, Tool Length, Sheet Weight, and Skeleton Weight. Designed for inputting sheets that have native UOM of Each and are dispositioned in Each (includes additional fields for Rail and Clamp values). |
| **THERMOFORM** | Fields for Gauge, SPG, Tool Width, Tool Length, Sheet Weight, and Skeleton Weight. Designed for continuous feed input. (See Thermoform - General BOM Information for information on Thermoform and TForm2 MFG Types). |
| **THERMOSET** | Same as Injection BOM. |
| **TREATMENT** | This manufacturing type is used for processes such as heat treatment and annealing where multiple items are processed at one time. All items that require a specific Treatment are included in the BOM. |

## ASSY vs. Generic Comparison

| MFG TYPE | WORK CENTERS | BOMS | PROCESS/ OPERATIONS | SCHEDULING | PROD/LABOR REPORTING |
|---|---|---|---|---|---|
| **ASSY 1** | Work Centers are associated to the processes | Processes are added to the BOM (required) | Process (required) contain Center Types, Materials, Cycle Times, Yield, Labor, etc. | Work Orders/ Processes are added to ASSY Track, and Finite Scheduling (optional) | ASSY Track, or ASSY Data; backflushing is done when Process is completed. FG item is added to inventory when Final Reporting is done. |

| | | | | | |
|---|---|---|---|---|---|
| **ASSY 2** | Work Centers are associated to the processes and Assembly Line | Processes are added to the BOM (required) | Process (required) contain Center Types, Materials, Cycle Times, Yield, Labor, etc. | Processes are scheduled on work centers in scheduling similar to ASSY1 | ASSY Track, or ASSY Data; backflushing is done when Process is completed. FG item is added to inventory when Final Reporting is done. |
| **ASSY 3** | Work Centers are associated to the processes and Assembly Line | Processes are added to the BOM (required); Assembly Line is associated to the BOM | Process (required) contain Center Types, Materials, Cycle Times, Yield, Labor, etc. | Work orders are scheduled on work centers in Finite Scheduling | ASSY Track, or ASSY Data; Components are backflushed at Final Assembly by default. Optionally, components can be backflushed when reporting labor instead of at final assembly if the 'Backflush Each Process' option is checked for the MFG Type. |
| **GENERIC** | Work Centers Types are associated to the BOM | Required fields include center type, cycle time (seconds); optional fields scrap%, labor, and eff % | Operations are additional steps; can include cycle time and rate, and are optional | Work orders are scheduled on work centers in Finite Scheduling | Prod Rep by Shift / PRLS<br>Prod Rep by WO<br>PRA |
| **ASSEMBLY** | Work Centers Types are associated to the BOM | Required fields include center type, cycle time (hours); optional fields scrap%, labor, and eff % | Operations are additional steps; can include cycle time and rate, and are optional | Work orders are scheduled on work centers in Finite Scheduling | Prod Rep by Shift / PRLS<br>Prod Rep by WO<br>PRA |

| Generic & Assembly MFG Types | ASSY MFG Types |
|---|---|
| • 1 BOM = 1 Part # | • 1 BOM = 1 Part # |
| • 1 Work Order | • 1 Work Order |
| • 1 data point entry | • Each process is a data point entry |
| • Cost per BOM | • Cost per Process |

**Compound vs. Masterbatch**

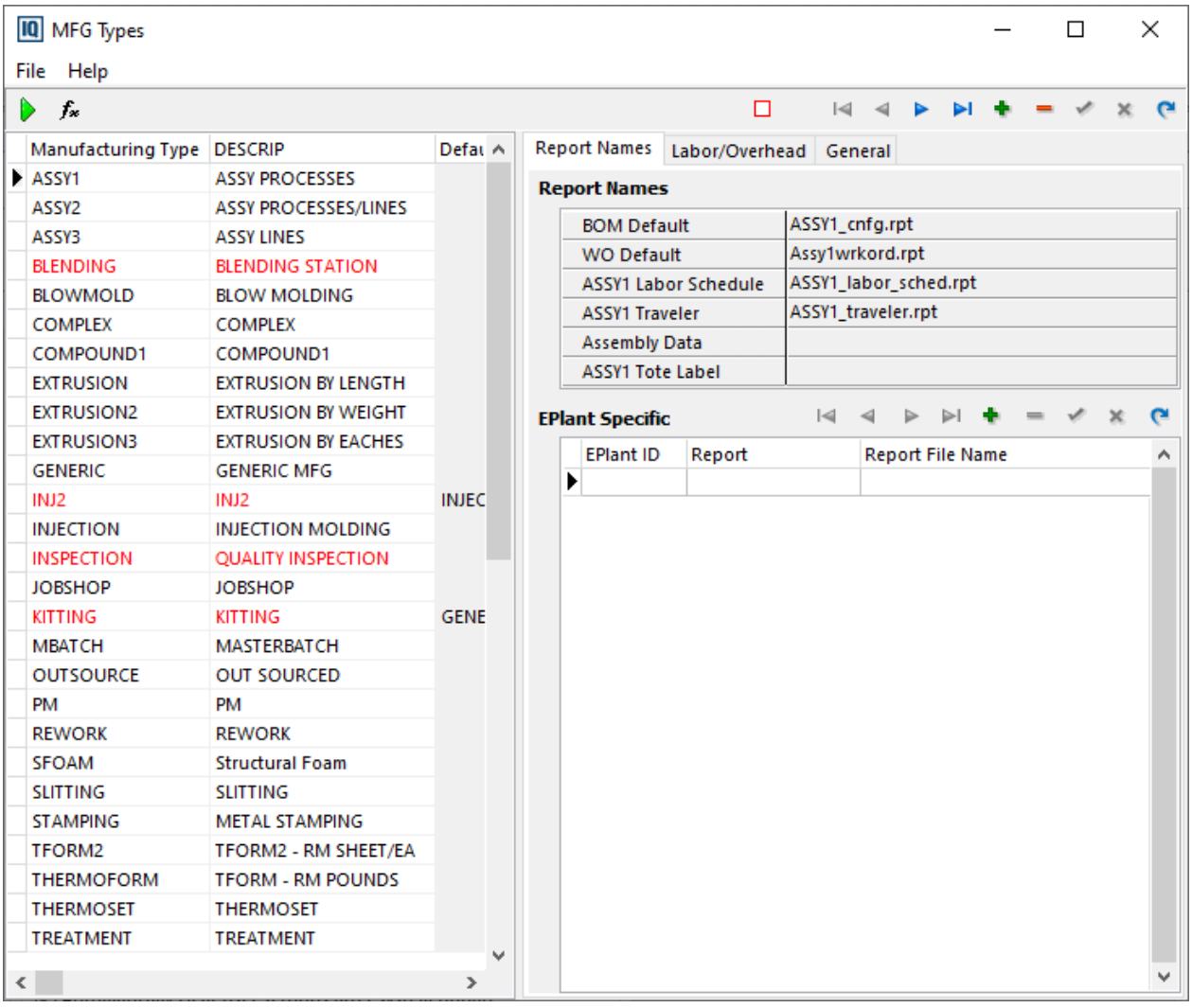
| MFG TYPE | COMPOUND | MASTERBATCH |
|---|---|---|

| | | |
|---|---|---|
| **Cycles Based On / Cycle Time** | Lbs/Hr | Batch Time in Secs |
| **Item Details > Item Info** | Item Weight > Lbs / Gr / Oz | Std Batch Sz / Act Batch Sz |
| **Assign Batch Components** | By Percentage / By Qty & % / Parts Per | By Percentage / By Qty & % / Parts Per |
| **Production Reporting** | Total Cycles X Batch Size = Good Parts (Lbs) + Reject (Lbs | Total Lbs = Good Lbs + Reject Lbs |

## Modify or Add MFG Types

To modify or to add additional manufacturing types, follow the steps below.

- From the EIQ Launcher Bar, click on **File|Manufacturing|Mfg Setup|Mfg Type**. The **Modify Manufacturing Types** screen will appear.



- Highlight the Mfg Type to modify and make the change.
- If adding in a new type, click on the **ADD [+]** function key located on the Navigator bar.
- From the Select Mfg Type form choose the Predefined or User Defined tab.

**Predefined** - This tab is used to add predefined manufacturing types available in the system. Select the drop down list and choose from the supported manufacturing types.

**User Defined** - This tab is used to create user defined manufacturing types. Enter the name in the Mfg Type field (apostrophes are not allowed) and select the manufacturing type the user defined type should default to from the drop down list of system supported manufacturing types. Once the manufacturing type is selected, the options on the right side of the MFG Types screen will be updated based on the selected default type. To function properly the predefined type the user defined type is based on must be active in the MFG Type list for non ASSY types. When a user defined type ASSY manufacturing type is created without having the predefined ASSY type created, the system will still make the Assembly Track and Assembly Process Maintenance modules visible after logging back in.

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**Note**: When naming multiple user defined manufacturing types, ensure that the names are unique in ways other than just special characters (for example, not “TYPE#NAME” and “TYPE/NAME”). This will ensure that the different types will be able to have their own User Defined Forms associated with them.

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**Notes:**

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Once BOMs are created using the user defined manufacturing type the default type cannot be changed. If BOMs have not been created and the user wants to change the ‘default to’ type, the user defined manufacturing type will need to be deleted and then recreated.

If a user does not select a 'Default To' MFG Type, it will default to Generic.

If a user attempts to create a user defined manufacturing type with the same name as a predefined manufacturing type a warning will appear stating, "This is a standard mfg type and is not available to utilize in a User Defined mfg type."

When naming multiple user defined manufacturing types, ensure that the names are unique in ways other than just special characters (for example, not “TYPE#NAME” and “TYPE/NAME”). This will ensure that the different types will be able to have their own User Defined Forms associated with them.

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# Reports Names Tab:

Assign the appropriate BOM and WO **reports** by clicking on the search button to right of these fields. The BOM and WO reports can be EPlant specific if desired. Select the EPlant ID and then select the report using the search button. When generating reports using speed buttons in the BOM or WO module, the report that prints will be based on the EPlant the user is logged into.

# Labor/Overhead Tab:

Set the labor and overhead cost element associated with the manufacturing type.

- **Default Labor Rates** - Default Labor Rates may also be setup from within this screen as well. These rates can be overridden when setting up a manufacturing configuration by clicking on **Options|Misc. Parameters** from within the BOM screen or by utilizing the employee levels in the labor field of the BOM. Rates can be set for Current, Future, Budget, and Forecast. If these costs are populated, the system will use these instead of the current cost for calculating the applicable cost such as Future Cost.The same cost elements assigned to the center type will be used for these calculations.

- **Labor posted from Time & Attendance** - When checked the labor will not post to translog from floor dispositioning. Labor will be posted from Time & Attendance only. When floor dispositioning the system will not put an actual cost into the translog for labor for that manufacturing type. It removes the actual labor entry from the floor disposition/backflush routine so that only actual labor is picked up in PIT from the Time and Attendance records. If it is not checked and labor is reported using Time and Attendance there will be a double hit to labor. Note: During production reporting the employee hours information can only be edited if the user has security rights to do so. A Status Exception will appear stating "Mfg Type is setup to have labor posted from Time & Attendance". By default, if users enter labor in production reporting it will post to translog, therefore Time and Attendance users should not enter labor in production reporting.

  - **Include Manual Labor from PRS** - If the 'Labor posted from Time & Attendance' option is checked this option can also be checked to include manual labor information from Production Reports by Shift (PRS). If the 'Labor posted from Time & Attendance' option is not checked this option will be grayed out. When checked it allows users who do not have Time & Attendance setup for all EPlants to still report labor from PRS. This can also be checked at the MFG Cell level. When determining if manual labor should be included from PRS the system will look at the MFG Cell first using the hierarchy below:

If 'Include manual labor from PRS' is set as 'Yes' on the MFG Cell the system will include both manually entered labor and labor posted from Time & Attendance.

If the MFG Cell is set to 'N' the system will not include manual labor from PRS.

If this field is not set at the MFG Cell level the system will use what is set for the MFG Type.

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**Note:** When 'Labor posted from Time & Attendance' is checked and 'Backflush on Clock Out' is also checked, when clocking out and reporting zero good parts, only Labor hours, the Actual Cost is updated to include the Actual labor dollars recorded for all labor reported. This Actual Cost will be updated on the Location when parts are put in to inventory, and captured in IACJ.

**Note**: When the 'Labor posted from Time & Attendance' is enabled on the MFG Type and the 'Include Manual Labor from PRS' is not checked, if a user manually adds labor to the Employee Hrs on the Production Report, the user will need to close the production report and go to Task Clock Maintenance to post those manually added labor records before dispositioning the production report.

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- **Use Labor Rate to calculate Actual Labor** - If this option is checked, when calculating actual labor in Actual Costing, instead of using the employee charge rate, the system will use the Mfg Type Labor Rate. The calculation is (Mfg type labor rate * Production Hours)/Quantity.

- **Variable Overhead** - The calculation for Variable Overhead can be *Work Center Based* or *Labor Based*. If 'Work Center Based' is selected, standard and actual overhead will be calculated as usual using the center rate. If 'Labor Based' is selected with a rate filled in then the standard and actual overhead costs will be based on the labor rate entered for the manufacturing type. If a rate is not filled in, the overhead will be 0. See Standard Cost Calculations - For Non Extrusion MFG Types in the Accounting manual for additional information.

- Variable Overhead generates its own IACJ file - its header references the Variable Overhead Translog record. Users can drill down in IACJ to view further details.

- **Fixed Overhead** - A Fixed Overhead Cost Element can be assigned to the MFG Type. When the Overhead is work center based the system will use the rates associated to the work centers. If the overhead is labor based, enter the rate in the Fixed field. **Note**: The Labor Based Rate Fixed rate is not currently used in an Engineering Quote calculation for Prod Cost. The Variable rate can be used.

Fixed Overhead generates its own IACJ files - its header references the Fixed Overhead Translog record. Users can drill down in IACJ to view further details.

- **Overhead Posted from Time and Attendance** - This option is only available when the option 'Labor Posted from Time and Attendance' is checked and 'Work Center Based' is not checked. With this option enabled, an Overhead record is posted to the Translog (Transactions Log) along with the Labor record.

- The Total Calculated Hours are used for the Variable Overhead Quantity. If the Work Order is scheduled when the Labor record is posted, the Variable Overhead will post as the following:

- (Calculated Labor Hours) * (Variable Overhead Center Cost of the Work Center on which the Work Order is scheduled)

- If the Work Order is not scheduled when the Labor record is posted, the default rate currently set in the MFG Type -> Labor/Overhead -> Labor Based Rate -> Variable field will be used:

- (Calculated Labor Hours) * (MFG Type Labor Base Rate Variable Overhead Cost)

- This feature also applies to PRW (Production Reporting by Work Order). Since both the Labor and Overhead Translog records have the same batch and sub batch records, they are linked in Post Inventory Transactions (PIT). However, the Labor and Overhead records will not display in PRW when they are posted - they will only display in PIT.

- The following hierarchy will be used to capture Overhead cost elements.
  - Cost Element on the Work Center assigned to the Labor record.
  - If no Work Center is assigned to the Labor record, use the Cost Element on the Manufacturing Type.
  - If no Cost Element is found on the Manufacturing Type, use the Overhead Cost Element(s) on the Item.

**Note:** When 'Labor posted from Time & Attendance' is checked and 'Backflush on Clock Out' is also checked, when clocking out and reporting zero good parts, only Labor hours, the Actual Cost is updated to include the Actual Overhead dollars recorded for all labor reported. This Actual Cost will be updated on the Location when parts are put in to inventory, and captured in IACJ.

**Note:** When 'Overhead Posted from Time and Attendance' is checked, variable overhead is still calculated and associated with the correct FG_MULTI record when a clock out occurs and 0 good parts are reported.

**Note:** When 'Overhead Posted from Time and Attendance' is checked, the FGMULTI_COGS also tracks labor and overhead posted from Time and Attendance, so the COGS amounts are still calculated correctly.

- Fixed Overhead records will post from Production Reporting and Floor Dispositions as they currently do:
- (Number of Parts) * (Fixed Overhead Posted from Time and Attendance)
- If an MFG type does not have 'Overhead Posted from Time and Attendance' checked and Task Clock Labor hours associated ot the MFG type are posted from Task Clock IN/OUT Maintenance, Variable Overhead will NOT post to Translog.
- If a floor disposition occurs involving an item associated with an MFG type that has both 'Labor Based Rate' and 'Overhead Posted from Time and Attendance' checked, the Variable Overhead will not post to Translog until the Labor record is also posted.
- If an item is associated with an MFG type that has both 'Labor Based Rate' and 'Overhead Posted from Time and Attendance' checked, the system does not use the value in the 'Production Hours' field for the Overhead calculation when the Production Report Line is dispositioned because the Variable Overhead record has not been posted to Translog yet. The Variable Overhead record will not be posted to Translog until the Labor record is posted.
- If 'Overhead Posted from Time and Attendance' is checked and Actual Costing is enabled, whenever Labor records are posted to Translog, Fixed Overhead records are also posted to Translog. The Fixed Overhead record in Translog will mimic the Variable Overhead record created in Translog whenever Backflush on Clock OUT occurs with Standard Costing enabled. The Fixed Overhead Actual Cost posts as the following:
- (Number of Parts) * (Fixed Overhead Cost of the Cost Element's Standard Cost)

**Note:** The Fixed Overhead cost is only the top level item's Fixed Overhead Cost - costs of components are not included in the calculation.

**Note:** The TA_LABOR table holds the Number of Parts records.

**Note:** The 'Overhead Posted from Time and Attendance' option is designed to use PRS (Production Reporting by Shift and PRW (Production Reporting by Work Order) modules as its reporting methods. Attempting to use other reporting methods may result in errors.

**Note:** Labor based overhead is not applicable to the Treatment MFG Type and will be grayed out so users will be unable to select this option.

# General Tab:

- **Shift Backflush Rules** - This option is available for applicable Mfg Types (Injection, Blow Molding, Extrusion 1, Extrusion 2, Extrusion 3, Rotational, SFOAM, Stamping, and Thermoset). From this setting the user can establish the default Shift Backflush Rule for a Manufacturing Type. When creating new BOMs for a Mfg Type with a default Shift backflush Rule the system will assign the default rule automatically. The default Shift Backflush Rule is also used when converting a quote to BOM for the designated Mfg Type.

- **Backflush on Clock Out** - If this option is checked when the user clocks out of a task they will be prompted with the Floor Disposition screen. From the floor disposition screen the user can enter the quantity of parts produced while clocked in to the task. *Note*: This option requires RealTime to tie the floor disposition transactions to Production Reports. For Non RT users please see the "Non RT Backflush" option below.

- **Non RT Backflush** - If the Backflush on Clock Out option is checked the Non RT Backflush option becomes available. With both the Floor Dispo and the Non RT Backflush checked when the user clocks out of a task they will be prompted to disposition parts from the work order they clocked out of and backflush components. This backflush is not tied to the production report. The transactions are made in inventory and tied to the labor record.

- **Use Yield % on BOM** - If this box is checked the BOM 's associated to the MFG Type will say 'Yield %' instead of 'Scrap %'.

- **RT parts to go based on scans** - This option is available for all Mfg Types except ASSY1, ASSY2, ASSY3, Outsource and JobShop. If this is checked, a warning message will display, 'You must close and reopen the RTServer.exe for this to take effect'. Once RTServer is restarted RealTime monitoring parts to go count, as well as any other field calculated from Parts to Go, including Shift Parts and Total Parts will not be changed until an RF scan / floor disposition transaction is done. Cycles will accumulate, up time, downtime, etc will be monitored. Note: Rejects will not affect parts to go.

**Note**: For User Defined MFG Types this is a pass through feature from the default MFG Type. For example: If the standard Injection MFG Type is checked on RT Parts to Go is based on scans, then all UD MFG Types with the default as Injection will decrement by scans and not cycles.

- **Include scrap in By-Product weight calc** - This option only applies to the Thermoform MFG Type. With this option checked if scrap is added to the main form of the BOM, it will be included in the by-product weight on the item details tab.

- **Logical Work Center Support** - This option only applies to the Injection, Die Cast, Generic, Extrusion, Extrusion 2 and Extrusion 3 Manufacturing Types, or user defined types based on those MFG Types. This is designed to create logical work centers running multi-position mold frames. When this option is checked, on work centers, a tab called 'Change Over' appears. Please see the ***Logical Work Center https://my.iqms.com/cfs-file.ashx/__key/Technote/Logical_2D00_Work_2D00_Centers.pdf*** TechNote for more information.

- **Do not round up dependent demand** - With this checked the dependent demand will not be rounded up to the next whole number on dependent work orders. If this option is checked, the quantities will be calculated and displayed with full decimal precision to mirror the BOM Tree explosion. This setting also applies to the 'Explode Forecast' tool in the Forecast module. When exploding a Sales Analysis Forecast, the quantity for dependent demand will be rounded up to the nearest whole number unless this option is checked for the relevant Manufacturing Type. This applies to all MFG Types except MBATCH, JobShop, ASSY1/2/3, EXTRUSION2, SLITTING, COMPOUND1, and OUTSOURCE. Important Note: Any MFG Type that makes an item in EACH will round, regardless of this setting.

- **Std costing calc to consider family tool part weights** - This option only applies to the TFORM2 Mfg Type. When this is checked the standard cost calculation for TFORM2 items will take into account the part weight of each member of the family tool. The calculation will be very similar to the standard cost calculation for the THERMOFORM Mfg Type.

- **Add Floor Disposition Out Qty to Calculated Usage** - This applies to all Mfg Types except ASSY 1, 2, and 3. If this is checked the out disposition quantity will be added to the calculated material usage during production reporting by shift. If it is not checked it will replace the calculated material usage in the production report. Note: This applies only if the work center has the 'Floor Actual Material Usage' option checked.

- **Use SN Labels to Control MTO Dispositions** - When this option is set to Yes, MTO releases will be combined on work orders rather than getting a work order for each release (including multiple customers/orders). All other allocation functions of MTO will remain the same, only bucketing is different. When printing labels, the Order # drop down will reflect the customer for that order on the label. This option can be set at the Manufacturing Type level, which will override the default setting in System Parameters->Purchase Order and Sales Order Setup tab. Choices in the drop down are System Default, Yes, and No. 'System Default' will look at the global setting. A selection of 'Yes' will enable the 'Use SN Labels to Control MTO Dispositions' functionality for the specific Manufacturing Type. If 'No' is selected the functionality will not apply to that particular Manufacturing type.

- **Auto Substitute BOM** - When this setting is enabled, when attempting to add a work order to the first position (in EIQ or ShopData), the system will look to see if the BOM on the work order is already scheduled in the first position on a logical work center. If the same BOM is already scheduled/running on a logical work center, and the user is trying to add it to a different logical work center then a substitute BOM will be created before adding the work order. A security enabled warning message will appear: "Attempting to schedule this work order on a different logical work center than the currently running BOM. What do you want to do?" The warning message that surfaces will give the user the option to 'Create a substitute BOM' or 'Do not create substitute BOM'. There is also a "Do not show again" check box. Note: This option is visible on all MFG Types but will not affect anything unless the MFG Type also has 'Logical Work Center Support' enabled.

- **Plug Value** - This is used for informational purposes only.

- **Disposition all Hard Allocated raw material when work order is marked "Prod Finished"** - This option can be set at the Manufacturing Type level so that when materials are backflushed for a work order that has been marked 'Prod Finished' either by selecting 'Workorder xxx is finished' when performing a setup in RealTime™ or Scheduling, or when it is manually checked in the production report, all hard allocated materials will be removed from inventory instead of the calculated required quantity. For example, if the quantity hard allocated is 1500 and the required quantity based on what was manufactured is 1250, the system would remove the 1500 when this is checked, if not checked it would remove 1250. If some required material was not hard allocated the system will calculate the material usage using the standard method, i.e. by evaluating total cycles and parts counted, etc.

- The system will look at the Work Center/Manufacturing Cell that the work order actually ran on when verifying whether or not the options are checked. This also applies to Non-RealTime Production Reporting by Shift (PRS). If a work center/Manufacturing Cell is selected that differs from the one the BOM has assigned, the Work Center/Manufacturing Cell in PRS will be used.

There are three options that can be selected from the drop down list: Yes, No, and System Default.

- Yes - When Yes is selected the option is enabled at the this level.
- No - When no is selected the option is not enabled at this level and the system will not continue looking at the hierarchy.
- System Default - By default it is set to 'System Default'. If system default is selected the system will evaluate the hierarchy.

A mouse-over hint is available when hovering on the setting that will let the user know which level of hierarchy will be used for both options (Disposition all Hard Allocated... and Freeze Consumption...), and what the values are. For example, "All hard allocated materials will be consumed. Consumption beyond hard allocated will not be frozen. Hierarchy Level = System".

The hierarchy for this option is:

**1** Work Center

**2** Manufacturing Cell

3 Manufacturing Type

4 Production Reporting by Shift Parameter

**Note**: This feature is available for all MFG types except ASSY2, ASSY3, and COMPLEX.

- **Freeze consumption beyond hard allocated** - This option will be available if the 'Disposition all Hard Allocated raw material when work order is marked "Prod Finished"' option is checked. If this option is enabled and 'Prod Finished' is checked for the work order, the system will not consume more material than what was hard allocated.

**Note**: When dispositioning the item the system will show material/components that were not hard allocated to the WO and only freeze consumption of material/components that were hard allocated but have been brought to zero through Return to Inventory or consumption.

## General Tab for Assembly MFG Types (ASSY1, 2 and 3):

- **Process Certification** – (This only applies to ASSY1) Select the desired process certification from the drop down list. The Certified tab in Assembly Process Maintenance will adjust depending on the selection made here. There are two choices:

- Certified Jobs – (Default) - Users can specify job requirements for running the process. This will limit which employees can log into a specific process. Only those employees with an active certification level high enough for the specific job can log into the process.
- Certified Employees – With this option selected individual employees will be certified on a process rather than a job.

- **No Supervisor required for Final Assembly** – This option controls whether a supervisor is required to enter the Final Assembly in AssemblyData.

**Note**: The 'Process Certification' and 'No Supervisor Required for Final Assembly' settings will be determined by the default predefined ASSY MFG type for any user defined MFG Types based on the ASSY type. The reason for this is the potential to have the same process linked to multiple BOM's.

- **Dispo IN and OUT Locations –** A disposition In and Out location can be entered here. Click on the ellipsis button and select a location from the pick list. The Mfg Type dispo designated locations will fit into the hierarchy after the Mfg Cell dispo designator locations for both IN and OUT locations. This option is also available on user defined MFG Types that are based on the ASSY Type.

- **Use Percent Complete Reporting** - (For ASSY1 and ASSY2 MFG Types) - If this option is checked, when reporting labor for an ASSY1/ASSY2 work order/process, a percentage can be reported against a process instead of entering a quantity. In Assembly Track and JobShop, the Progress bar in the Process Details will display the last percent complete that was reported. Material attached to the process being reported on will not be backflushed until Final Assembly Reporting.

- **Consume Raw Material by Process** - If the 'Use Percent Complete Reporting' option is selected this option is available. If this option is unchecked, in Assembly Track-> Labor Reporting, the Report Consumed Materials tab will be hidden. Material will be backflushed upon Final Assembly. If this option is checked, in Assembly Track-> Labor Reporting, the Report Consumed Materials tab will be visible to enter a value of components to be backflushed. Upon Final Assembly the system will not backflush material.

- **Backflush Each Process** - (For ASSY3 only). If this option is checked, when clocking out of a process in AssemblyData or labor reporting in Assembly Track, the system will backflush the components. When performing Final Assembly, it will not backflush the components. This allows users to be able to finite schedule a work order to an Assembly Line and still allow for backflushing at each process.

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**Note**: If this option is not checked, the Processing Time on the BOM must be calculated using the Process Throughput Map button. If it is not calculated the system will have no way to know when material(s) are required so it will assume it will end on the last day.

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- **Launch Final Assembly Reporting on designated process** - If this is checked users can designate a single process in the Assembly BOM that will launch the "Final Assembly Reporting" form. The Assembly BOM can only have one process designated as "Final Assembly Reporting".

- **Use SN Labels to Control MTO Dispositions** - When this option is set to Yes, MTO releases will be combined on work orders rather than getting a work order for each release (including multiple customers/orders). All other allocation functions of MTO will remain the same, only bucketing is different. When printing labels, the Order # drop down will reflect the customer for that order on the label. This option can be set at the Manufacturing Type level, which will override the default setting in System Parameters->Purchase Order and Sales Order Setup tab. Choices in the drop down are System Default, Yes, and No. 'System Default' will look at the global setting. A selection of 'Yes' will enable the 'Use SN Labels to Control MTO Dispositions' functionality for the specific Manufacturing Type. If 'No' is selected the functionality will not apply to that particular Manufacturing type.

- **Auto Substitute BOM** - When this setting is enabled, when attempting to add a work order to the first position (in EIQ or ShopData), the system will look to see if the BOM on the work order is already scheduled in the first position on a logical work center. If the same BOM is already scheduled/running on a logical work center, and the user is trying to add it to a different logical work center then a substitute BOM will be created before adding the work order. A security enabled warning message will appear: "Attempting to schedule this work order on a different logical work center than the currently running BOM. What do you want to do?" The warning message that surfaces will give the user the option to 'Create a substitute BOM' or 'Do not create substitute BOM'. There is also a "Do not show again" check box. **Note**: This option is visible on all MFG Types but will not affect anything unless the MFG Type also has 'Logical Work Center Support' enabled.

- **Plug Value** - This is used for informational purposes only.

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For more information on the ASSY MFG Types please refer to the ASSY Manufacturing documentation.

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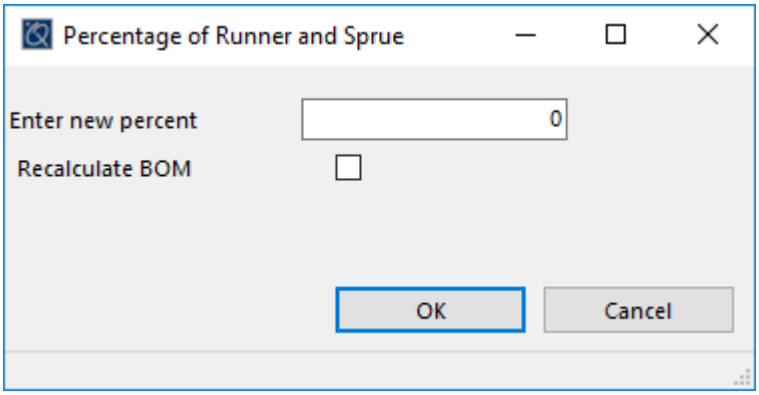
# File Menu:

**Alter Lbs/K Calculation** - This option is only available to the Injection and Diecast MFG Types, and for Custom MFG Types that default to Injection and Diecast. Injection and Diecast MFG Types can have a different percent. There can only be one % value for Injection and custom MFG Types like Injection, and the same is true for Diecast and MFG types like Diecast.

From the File menu select the 'Alter Lbs/K Calculation' option. A screen will appear for users to enter in a different percent of the runner and sprue to be used when calculating the Lbs/K for BOM's associated to the selected manufacturing type. This defaults to 0.




After entering a new percent the user can check the 'Recalculate all BOM' box to have the system recalculate the Lbs/K for all BOM's associated to the selected manufacturing type.

When users do not check the Recalculate BOM box, what is calculated depends on where the changes are made:

- When on a Diecast BOM and the user goes to Configure->Mfg Types, selects Diecast and changes the % but does not check Recalculate BOM. When they exit the form only the BOM they were on will recalculate.
- When on an Injection BOM and the user goes to Configure->Mfg Types, selects Diecast and changes the % but does not check Recalculate BOM. When they exit the form no BOMs are recalculated.
- When on a Diecast BOM and the user accesses Mfg Types from the Launcher File menu or from Lists in System Parameters, when they change the % and do not check Recalculate BOM, when they exit Mfg Types and refresh the BOM form that BOM is recalculated but other Diecast BOMs are not.
- If the BOM form is not open and the user accesses Mfg Types from the Launcher File menu or from Lists in System Parameters, when they change the % and do not check Recalculate BOM, when they exit Mfg Types, no BOMs are updated.

Example Calculation:

The Alter Lbs/K value only applies when AA - AB < Cavity * Part Weight

AA is the Shot Weight, taking into account runner/sprue and scrap = (Cavity * Cavity Weight + Runner/Sprue) / Yield

AB is the Shot Weight * regrind percentage = AA * (Regrind / 100)

Example: Cavity * part weight is 12.05 and Regrind is 5%

AA = (1 * 12.05 + 12.05)/ .95

AA = 25.3684

AB = AA * (Regrind / 100)

AB = 25.3684 * .05

AB = 1.26842

AA - AB = 24.1

24.1 is not less than 12.05, so with these numbers the Alter Lbs/K value is not used

If Regrind is 75%:

AB = 25.3684 * .75

AB = 19.0263

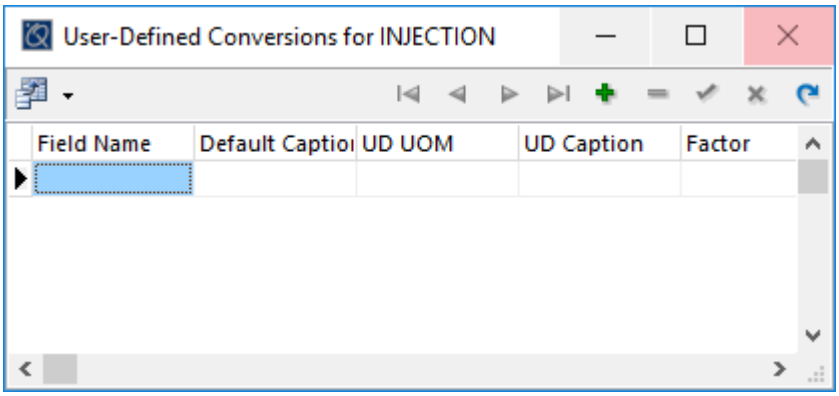
AA - AB = 6.3421

6.3421 is less than 12.05, so with these numbers the Alter Lbs/K value is used.

Please see Calculations for LBS/K Cycles for more information.

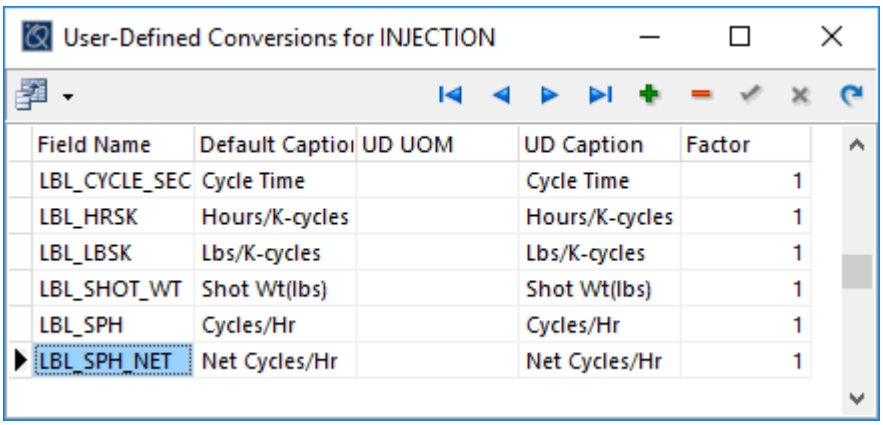
# User Defined Conversion Factor

Each MFG Type has default values for the basic calculations such as cycle time and shots per hour. This function allows the user to override the defaults and create user defined factors for a specific MFG Type. Select the  speed button to open the form to input the conversion information for the highlighted MFG Type. The form will be empty when first opened.



Select the speed button on this form to add all of the fields available for creating user defined conversions, or select the arrow down button next to the speed button to choose a single item.

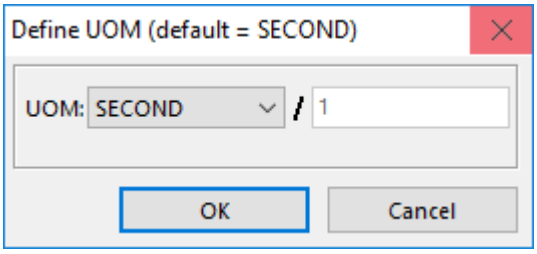
For each field selected the Default Caption will fill in automatically.




| Field Name | Default Captio | UD UOM | UD Caption | Factor |
|---|---|---|---|---|
| LBL_CYCLE_SEC | Cycle Time | | Cycle Time | 1 |
| LBL_HRSK | Hours/K-cycles | | Hours/K-cycles | 1 |
| LBL_LBSK | Lbs/K-cycles | | Lbs/K-cycles | 1 |
| LBL_SHOT_WT | Shot Wt(lbs) | | Shot Wt(lbs) | 1 |
| LBL_SPH | Cycles/Hr | | Cycles/Hr | 1 |
| LBL_SPH_NET | Net Cycles/Hr | | Net Cycles/Hr | 1 |

The user can change the caption and/or the unit of measure:

- **UD UOM** - To change the unit of measure, double-click in the UD UOM field and the following Define UOM form will appear:




Choose the desired unit of measure (Second, Minute, Hour, or Day) from the drop down list and select OK. The user defined caption will fill in automatically with the selected UOM but can be overridden. The Factor field is based on the UOM chosen and cannot be edited.

- **UD Caption** - To change the caption that appears on the BOM form for this MFG Type enter the information in the UD Caption field.

# Labor Rates

Labor rates can be setup in several areas within EIQ, each with a slightly different focus. For example, the quote module contains labor rates for quoting, default values are part of the Manufacturing Type system, and individual rates can be assigned to the BOM or Manufacturing Cell.

### Manufacturing Types

Each type (Injection, Outsource, Generic, etc.) maintains a default labor rate. This hourly figure is used by EnterpriseIQ to calculate labor based on how the part is made. This value can be over written within each BOM.

From within any BOM, click the Configure menu option and select Mfg Type. Enter an appropriate hourly value in the Default Labor Rate field.

### Manufacturing Cells

If manufacturing cells are being used, labor rates may be assigned to the cells which will override the default rate set in the Manufacturing Type (see Manufacturing Cells below).

### Individual Rates per BOM

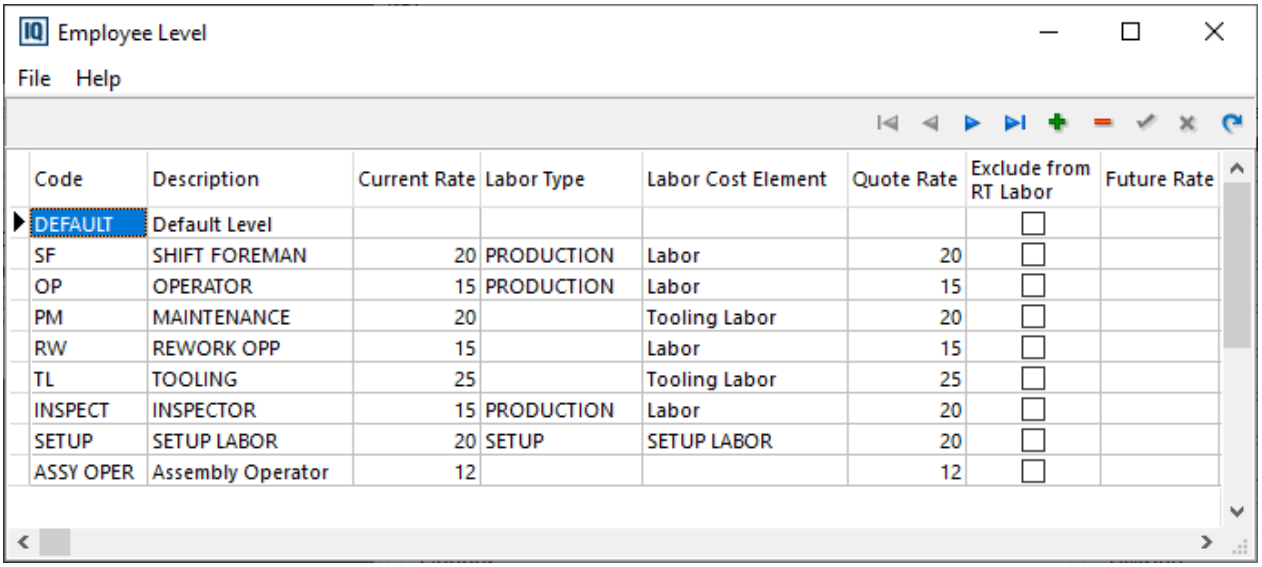
From within the **Manufacturing Configuration** screen:

- Click on **Options|Misc. Parameters.**
- From within the Misc. Parameters screen, click on the tab entitled "Labor Rate."
- If wishing to override the default Labor Rate, enter in a different amount here and press [**OK**] to accept. The labor rate entered here effects only the current BOM.

### Employee Levels

The labor rate used for specific BOM's can also be overridden by setting up Employee Levels and then attaching the specific levels to the BOM in the labor field on the General BOM Info tab.

Employee Levels are set up in **Sys Setup/System Parameters/Lists/Employee Levels**. An unlimited number of employee levels may be set up from this form.




| Code | Description | Current Rate | Labor Type | Labor Cost Element | Quote Rate | Exclude from RT Labor | Future Rate |
|---|---|---|---|---|---|---|---|
| DEFAULT | Default Level | | | | | ☐ | |
| SF | SHIFT FOREMAN | 20 | PRODUCTION | Labor | 20 | ☐ | |
| OP | OPERATOR | 15 | PRODUCTION | Labor | 15 | ☐ | |
| PM | MAINTENANCE | 20 | | Tooling Labor | 20 | ☐ | |
| RW | REWORK OPP | 15 | | Labor | 15 | ☐ | |
| TL | TOOLING | 25 | | Tooling Labor | 25 | ☐ | |
| INSPECT | INSPECTOR | 15 | PRODUCTION | Labor | 20 | ☐ | |
| SETUP | SETUP LABOR | 20 | SETUP | SETUP LABOR | 20 | ☐ | |
| ASSY OPER | Assembly Operator | 12 | | | 12 | ☐ | |

A Default level code is automatically created. To create additional employee levels click on the **ADD (+)** button and enter in the code, description, and labor rate.

**Labor Type** - This field is used to establish the type of labor the employee level is. The labor type can be Production or Setup. The user has the choice to have the setup labor broken out on the standard cost for a manufactured item. To separate the setup labor select the 'Break out Labor Costs including Setup' option in System Setup->System Parameters->Inventory Setup tab and create Employee Levels as Setup types. Without both these settings, setup labor will be calculated like normal labor.

When the standard cost is calculated the system will check to see if this option is on and if so will break out the labor costs to the cost elements attached to any employee levels on the BOM. For “Setup” types, the system will look at the number of setup hours on the BOM X the number of operators for that type X the rate for the level / the standard run qty.

**Labor Cost Element** - Each employee level can have a specific cost element associated with for use in standard costing.

Once this list is created the user may attach specific employee levels to BOM’s. Multiple levels may be attached to a BOM. This allows the user to control various labor rates for each BOM.

### Labor Rate Hierarchy

Below describes the hierarchy of how the system will determine the standard labor rate:

1. First the system will use the employee levels set up for each BOM if other than the default is used. If the Default employee level is used the system will look at the following for the labor rate:
2. BOM/Options/Misc Parameters/Labor tab.
3. Mfg Cell.
4. Mfg Type.

For ASSY, the Cost Element hierarchy for labor when reporting Process WIP as follows:

1. Employee Maintenance > Misc. tab
2. Assembly Process Maintenance > Standard Cost tab
3. MFG Type > Labor/Overhead tab
4. "Labor" (text)

# Manufacturing Cells

### Manufacturing Cells

Cells allow a logical grouping of work centers. A manufacturing cell may consist of only one work center or several like work centers. For example, the user may want to separate the smaller work centers from the larger work centers. **EnterpriseIQ** also supports a filter option, allowing the display of work centers based on certain criteria.

**NOTE**: Make sure to set up all cells in advance before scheduling or trying to access cells from within RealTime™. The user may create as many cells as needed, including multiple RealTime™ cells. However, any non-RealTime™ machines must be placed in a separate cell.

### Notes on Using Cells

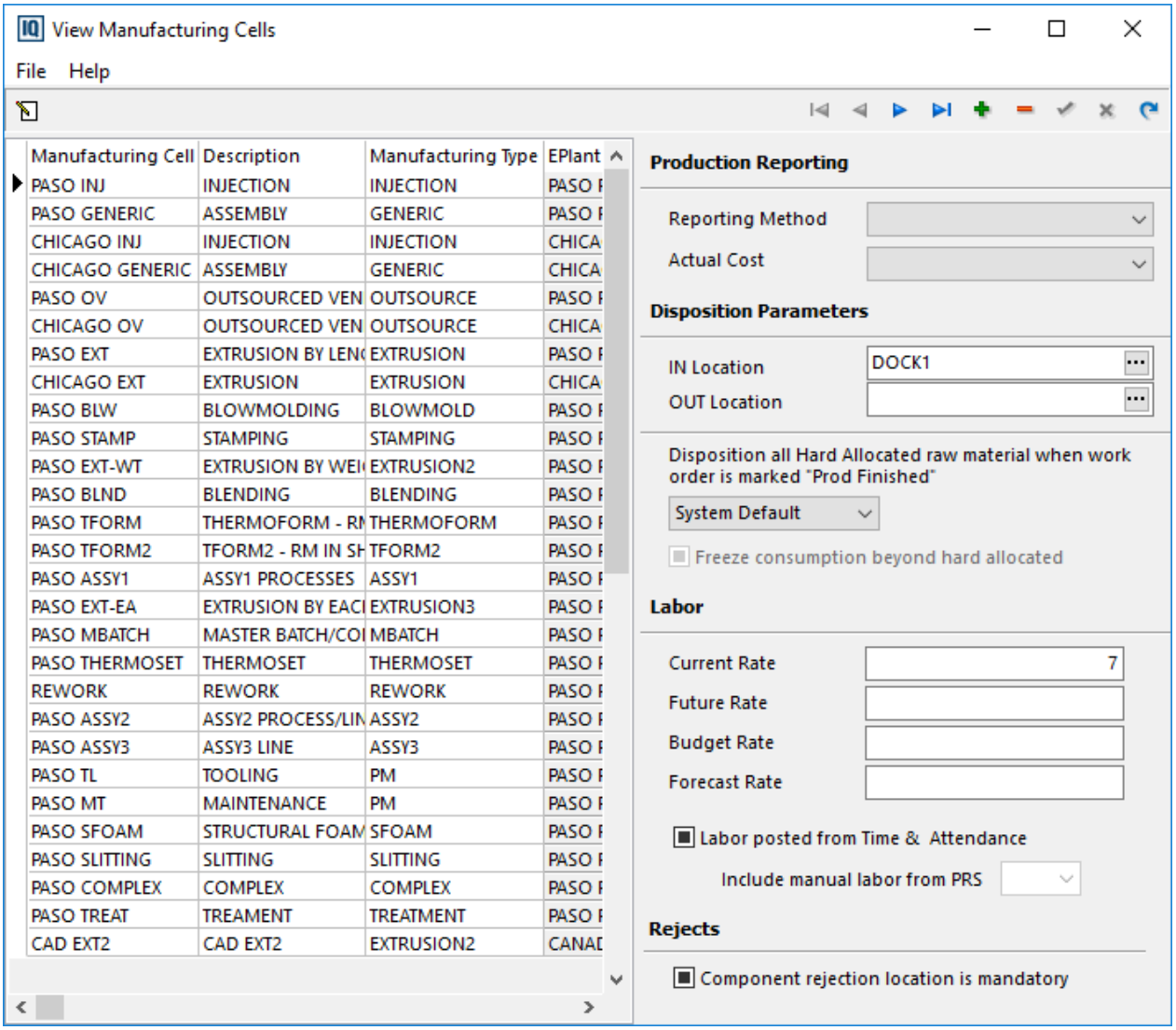
The Manufacturing Cell was designed as a separate area to do scheduling and production reporting. A company with manufacturing being performed in two separate buildings might consider using cells to schedule jobs at each building and report on production separately.

Once this function has been set up in the system, the user can create manufacturing standards that are used exclusively by a particular cell or shared by all cells. The user can then schedule these standards to run on work centers that are numbered differently for each cell and report the production being made by each.

### Setting Up Cells

To setup Cells, from within the Work Center menu:

- Select **Options** from the menu.
- Select **View MFG Cells.** The following screen will be displayed:


View Manufacturing Cells
File
Help
Manufacturing Cell
Description
Manufacturing Type
EPlant
PASO INJ
INJECTION
INJECTION
PASO GENERIC
ASSEMBLY
GENERIC
CHICAGO INJ
INJECTION
INJECTION
CHICAGO GENERIC
ASSEMBLY
GENERIC
PASO OV
OUTSOURCED VEN
OUTSOURCE
CHICAGO OV
OUTSOURCED VEN
OUTSOURCE
PASO EXT
EXTRUSION BY LEN
EXTRUSION
CHICAGO EXT
EXTRUSION
EXTRUSION
PASO BLW
BLOWMOLDING
BLOWMOLD
PASO STAMP
STAMPING
STAMPING
PASO EXT-WT
EXTRUSION BY WEI
EXTRUSION2
PASO BLND
BLENDING
BLENDING
PASO TFORM
THERMOFORM - RM
THERMOFORM
PASO TFORM2
TFORM2 - RM IN SH
TFORM2
PASO ASSY1
ASSY1 PROCESSES
ASSY1
PASO EXT-EA
EXTRUSION BY EAC
EXTRUSION3
PASO MBATCH
MASTER BATCH/COI
MBATCH
PASO THERMOSET
THERMOSET
THERMOSET
REWORK
REWORK
REWORK
PASO ASSY2
ASSY2 PROCESS/LIN
ASSY2
PASO ASSY3
ASSY3 LINE
ASSY3
PASO TL
TOOLING
PM
PASO MT
MAINTENANCE
PM
PASO SFOAM
STRUCTURAL FOAM
SFOAM
PASO SLITTING
SLITTING
SLITTING
PASO COMPLEX
COMPLEX
COMPLEX
PASO TREAT
TREAMENT
TREATMENT
CAD EXT2
CAD EXT2
EXTRUSION2
CANAD
Production Reporting
Reporting Method
Actual Cost
Disposition Parameters
IN Location
DOCK1
OUT Location
Disposition all Hard Allocated raw material when work order is marked "Prod Finished"
System Default
Freeze consumption beyond hard allocated
Labor
Current Rate
7
Future Rate
Budget Rate
Forecast Rate
Labor posted from Time & Attendance
Include manual labor from PRS
Rejects
Component rejection location is mandatory

- To add MFG Cells click on the **ADD [+]** function key located on the Navigator bar. Enter a cell designation, such as 1 or a location. Once a MFG Cell has been input, it *CANNOT* be edited. (The Description and other information can be edited but not the MFG Cell name).

- Input a description of the cell. Press [**Tab**] to go onto the next field.

- Click once on this field and click on the arrow down key to select a MFG Type from the list. Two different MFG types cannot be in the same MFG cell.

- EPlant Name - This is the EPlant associated to the MFG Cell.

- Division/Warehouse - If using the Division/Warehouse functionality, select the appropriate Division/Warehouse to be associated with the manufacturing cell. (Please see the ***Warehouse/Division https://my.iqms.com/cfs-file.ashx/__key/Technote/Warehouse_2D00_and_2D00_Divisions.pdf*** Technote for more information).

- **Additional Cell Information**

| | |
|---|---|
| **Production Reporting Method** | A production reporting method can be selected for individual Manufacturing Cells. The options are:<br>▪ Production Report by Shift (PRS) - This is the default method (standard production reporting per shift). When a new cell is created it will default to this setting.<br>▪ Production Report by Labor/Shift (PRLS) - With this option selected, the system will create a row for all employees logged into Time and Attendance, into a 'WC' task, with the number of parts floor dispositioned by them. Basically, if more than a single employee has worked on the work center / work order during the shift, the system will add a new line for the second, third, etc employees. The good parts for each labor (Dayprod) row is the number of parts that the employee has floor dispositioned.<br>▪ Production Report by Work Order (PRW) - If this is selected the system will suppress creating a production report for that Cell and production reporting must be done from the PRW module. Note: Finished work orders (RTServer counted down Parts to Go to zero) are not deleted when they are removed from first position if they are running in a Manufacturing Cell that is marked as Production Reporting by Work Order (PRW).<br>▪ Production Reporting through Task Clock (PRTC) - Available for cells associated with Generic and User Defined cells based on Generic Mfg types, PRTC allows administrators to set lower and upper thresholds based on a percentage of how many good parts are being put into inventory versus the BOM Net Cycles/Hour. For example, if cycle time is 8 hours on the BOM and 1 part is expected within the 8 hours, labor is posted automatically if the user clocks in for 8 hours and production reports 1 good part within that time. If the same user does not report 1 good part within 8 hours, the labor is not posted since production does not fall within the set threshold. The Task Clock Group Reviewer function, set under the Misc tab in Employee Maintenance, grants individual employees the rights to review and post unposted Task Clock entries at the end of a work order to ensure all labor and overhead is posted against it when they clock out. The Group Reviewer function can be set for the entire manufacturing cell by checking the 'Labor posted from Time & Attendance' setting to expose the 'Enable Group Review' option, and checking the 'Enable Group Review option. |

| | |
|---|---|
| **Include posted labor in threshold** | This check box is available for generic manufacturing types when the 'Production Reporting through Task Clock' option is selected. When checked, posted labor is included in threshold calculations. |
| **Actual Cost** | This controls at what point the system performs the actual cost calculations when reporting by shift (PRS) or by labor/shift (PRLS). This option will be grayed and cannot be used with the PRW option.<br>▪ Calculate Actual Cost 'By Shift' - This is the default method. Actual costs are calculated during production reporting.<br>▪ Calculate Actual Cost 'By Work Order Reconciliation' - With this option selected the actual cost will not be calculated until they are reconciled for the work order on the Process Cost->Reconcile WO Act Cost tab. When the WO is removed from the first position in scheduling, HIST_ILLUM_RT.ACTUAL_END_TIME will be populated, which will trigger HIST_ILLUM_PART.RECONCILE_WO to 'Y'. In Process Cost – Reconcile WO Act Cost, the work order will be available to reconcile the cost. The From field was when the work order was setup. The To field is today's date. These dates will be used to query TRANSLOG. A button to 'Reconcile Cost' will be available once an Average Actual Cost and Total Trans Quantity are populated. Once cost is reconciled, FGMULTI actual cost will be populated/updated and the work order will be removed from WO reconciliation. Please note that PIT transactions should not be posted prior to WO reconciliation. Otherwise, standard cost may be used instead of actual cost. |

| | |
|---|---|
| **Disposition Parameters** | A Disposition In and Out location can be set at the Manufacturing Cell level. When populated the system will look to see if the cell has a disposition location when determining the location to disposition product into or out of. Select the ellipsis button in the field and select the location from the pick list.<br>The hierarchy is:<br>For Non-ASSY1/ASSY2/ASSY3 MFG Types the Disposition Hierarchy is:<br>**1** Hard Allocated to the work order<br>**2** Mfg # default designator<br>**3** Default Designator<br>**4** Designated Work Center location<br>**5** Mfg Cell Dispo locations<br>**6** FIFO<br>**7** Temporary<br>For ASSY1/ASSY2/ASSY3 MFG Types the Disposition Hierarchy is:<br>**1** Hard allocated to the work order<br>**2** Mfg # default designator<br>**3** Default designator<br>**4** Designated work center location (if the process IS scheduled in Finite Scheduling)<br>**5** Designated work center location (if the process IS NOT scheduled in Finite Scheduling, but IS scheduled on the Dispatch List)<br>**6** MFG Cell Dispo locations<br>**7** MFG Type Dispo locations<br>**8** FIFO<br>**9** Temporary |

| | |
|---|---|
| **Disposition all Hard Allocated raw material when work order is marked "Prod Finished"** | This option can be set at the Manufacturing Cell level so that when materials are backflushed for a work order that has been marked 'Prod Finished' either by selecting 'Workorder xxx is finished' when performing a setup in RealTime™ or Scheduling, or when it is manually checked in the production report, all hard allocated materials will be removed from inventory instead of the calculated required quantity. For example, if the quantity hard allocated is 1500 and the required quantity based on what was manufactured is 1250, the system would remove the 1500 when this is checked, if not checked it would remove 1250.<br><br>If some required material was not hard allocated the system will calculate the material usage using the standard method, i.e. by evaluating total cycles and parts counted, etc.<br><br>The system will look at the Work Center/Manufacturing Cell that the work order actually ran on when verifying whether or not the options are checked. This also applies to Non-RealTime Production Reporting by Shift (PRS). If a work center/Manufacturing Cell is selected that differs from the one the BOM has assigned, the Work Center/Manufacturing Cell in PRS will be used.<br><br>There are three options that can be selected from the drop down list: Yes, No, and System Default.<br>▪ Yes - When Yes is selected the option is enabled at the this level.<br>▪ No - When no is selected the option is not enabled at this level and the system will not continue looking at the hierarchy.<br>▪ System Default - By default it is set to 'System Default'. If system default is selected the system will evaluate the hierarchy.<br><br>A mouse-over hint is available when hovering on the setting that will let the user know which level of hierarchy will be used for both options (Disposition all Hard Allocated... and Freeze Consumption...), and what the values are. For example, "All hard allocated materials will be consumed. Consumption beyond hard allocated will not be frozen. Hierarchy Level = System".<br><br>The hierarchy for this option is:<br>**1** Work Center<br>**2** Manufacturing Cell<br>**3** Manufacturing Type<br>**4** Production Reporting by Shift Parameter<br><br>Note: This feature is available for all MFG types except ASSY2, ASSY3, and COMPLEX. |
| **Freeze consumption beyond hard allocated** | This option will be available if the 'Disposition all Hard Allocated raw material when work order is marked "Prod Finished"' option is checked. If this option is enabled and 'Prod Finished' is checked for the work order, the system will not consume more material than what was hard allocated.<br><br>Note: When dispositioning the item the system will show material/components that were not hard allocated to the WO and only freeze consumption of material/components that were hard allocated but have been brought to zero through Return to Inventory or consumption. |

| | |
|---|---|
| **Labor Rate** | A standard labor rate can be attached to individual Manufacturing cells. If the 'Default' employee level is selected for a BOM the labor rate associated with the cell will be used if there is one. If not, the system will use the labor rate associated with the Manufacturing type.<br><br>Rates can be set for Current, Future, Budget, and Forecast. If these costs are populated, the system will use these instead of the current cost for calculating the applicable cost such as Future Cost.The same cost elements assigned to the center type will be used for these calculations. |
| **Rejects** | **Component rejection location is mandatory** - Check this box to require users to select a location/lot for rejected components from ShopData Rejects, RT Production Monitoring Rejects, Assembly Track Labor Reporting, AssemblyData Labor Reporting, and RT Station Rejects. If checked and a location/lot is not selected an error will appear stating: 'A component reject location is mandatory. Please select a location'.<br><br>This option is unchecked by default. If unchecked users can optionally select a location/lot for rejected components, but it will not be required. |

When finished adding the cell information, click on the SAVE function key (the check mark) located on the Navigator bar to save this information.

**Note:**

If you plan to setup cells and are currently using the scheduling and production reporting modules and RT Server, you will need to follow the above steps plus what is listed below to avoid production reporting problems.

You will need to run the Setup routine for all jobs currently running in the first position.

1. Go to the production schedule module
2. Schedule downtime in position one for all work centers hooked up to RealTime
3. The job currently running will move to position 2 on the press
4. Select this job and drag and drop to position 1 again
5. Delete the scheduled downtime
6. Repeat for all work centers hooked up to RealTime

### Deleting Cells

To DELETE a cell:

- Highlight the cell to delete and choose the **Delete** [-] function key located on the Navigator bar. A prompt will appear asking for confirmation of this action.
- Select [**OK**] to delete, or [**Cancel**] to exit.

---

**Note:** Any work center attached to that cell will now have a null or empty cell name and will need to be reassigned.

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**1**

# Work Centers

Before a schedule can be created, valid work centers must be defined. The **IQMS** RealTime™ system and schedule modules are based on Work Orders loaded onto the work centers.

### What is a Work Center?

Work centers are used to describe the type of machinery used to build the parts. Examples of work centers may include injection or blow molding machines, extrusion machines, die casting machines, pad printers, heat stamping centers, and assembly operations.

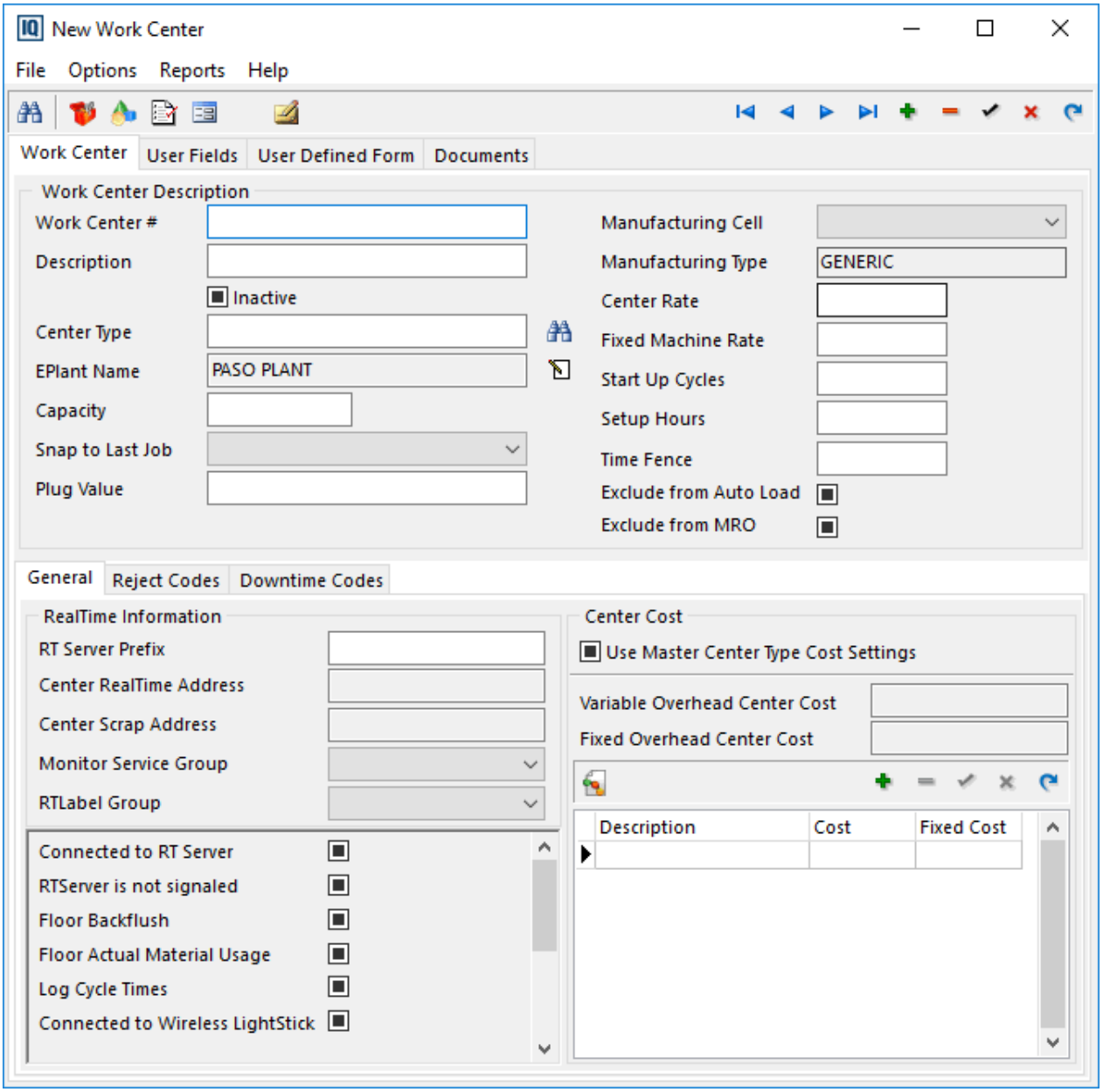
### Work Centers and Cells

Work centers can be included in *manufacturing cells*. Cells, described in detail earlier in this section, allow the grouping of work centers. Cells are often used to separate certain machines by size or process, which allows **EnterpriseIQ** to schedule and report on production by these groups. If cells are going to be used, be sure to set them up in advance.

To access the **Work Center** module, complete the following steps.

- Select the **Work Center** module from the **EIQ Launcher Bar.**
- From the pick list that will appear, click on "New" located in the bottom right hand corner of the screen. Select the MFG Type or MFG Cell form the selection criteria form, then the work center form for the selected MFG Type/Cell will appear.

## Entering Work Centers




**EnterpriseIQ** supports the entry of **unlimited** number of work centers into the system. Enter in the information as outlined below in the Work Center Field Listing.

### Work Center Description Information

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| **Work Center #** | Enter a unique identification number. This is an alphanumeric field that may hold up to 25 characters.<br><br>To enter a list in numerical order, the user may need to "pad" the first machines with a 0. For example, enter work center one as "1" and work center eleven as "11", work center 11 will display on the pick list just after work center 1. The user should enter work center one as "01", work center two as "02" and so on for them to show in numerical order.<br><br>If you are using EnterpriseIQ's Maintenance, Repair and Overhaul module this number will be the equipment number in MRO as well. |

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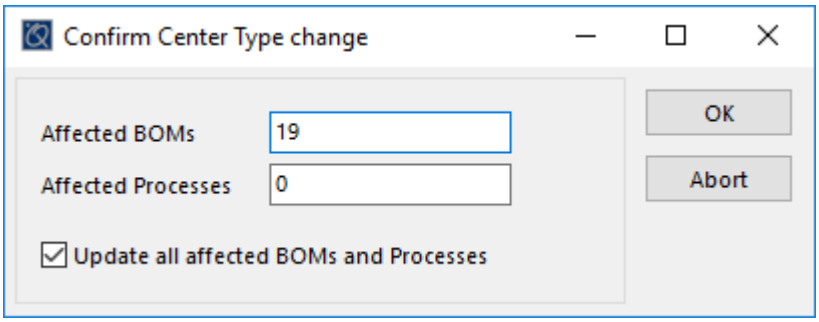
| **Description** | Used for further description of the work center. This field is displayed on the work center picklist. It should be used to fully describe the work center. This field is mandatory, if it is not populated a warning will appear, 'Field, Description, must have a value'.<br><br>This field can also be used to designate the machine number should the user ever choose to renumber work centers. If work centers are renumbered the actual work center number should not be changed due to the effect on the historical data. However, the user can use the description field to include the work center number which can be changed if necessary without affecting the historical data. Many screens throughout EnterpriseIQ such as Scheduling, RealTime™, and ShopData can be sorted using the description field. |
| **Inactive** | If this box is checked the work center will be hidden from pick lists, Finite Scheduling, and the RT Monitor. |
| **Center Type** | The **Type** is used to "group" similar work centers, usually by size or other similar measurement of throughput. This mechanism allows the system to understand that you have one or many machines that share common characteristics.<br><br>Select the Type field from the pick list. This list comes from the Master Center Type table and includes center types associated to the EPlant the user is logged into, or ones with no EPlant assigned. If a user associates a type without an EPlant to a work center while logged into an EPlant, the system will add a work center type+eplant record in the database. See Master Center Types for details on creating and editing center types. A new center type can be added from the picklist by selecting the New button, however, this will only allow the user to add the center type and not the cost information. The cost information can be added at a later time in the Master Center Types form.<br><br>Outsource: If setting up this work center as Outsource (for items not being processed in-house), the user must select a Manufacturing Type from the arrow down list in that field first, and then go back to the Type field and click on the pick list to associate a vendor with this work center.<br><br>SFOAM: This field is called Platen Type.<br><br>If the user attempts to modify the Center Type on the work center, a warning will appear stating how many BOMs or Processes are affected.<br><br>  <br><br><br>A check box is available to update all affected BOMs and Processes. If this is checked the system will change the center type on the affected BOMs and Processes. If it is not checked the system will just change the center type on the work center without changing the affected BOMs and Processes. (Security can be placed on this check box). If Abort is selected no changes are made to the work center's center type. |
| **Capacity** | Informational Only. It is a numeric field only. May be up to 10 digits in length. This information will display at the bottom of the finite schedule.<br><br>For example: For injection type work centers this usually designates the barrel size in ounces or can be used to designate shot weight. |

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| **EPlant Name** | Used with the Enterprise module to define the EPlant associated to the work center. |
| **Snap to Last Job** | Selecting the function Snap to Last Job tells the system not to place any idle time between the end of one work order and the start of the next work order. This option can be set up per work center by selecting a value from the drop down list. Select Yes to always have the system Snap To Last Job. Select No to not activate this feature. Select System Default to use the setting in the Scheduling module. If this field is left blank it will use the System Default. |
| **Plug Value** | This is used for informational purposes only. |
| **Manufacturing Cell** | Use this field to attach a work center to a designated cell. Click on the arrow down near this field, and choose the appropriate cell from the pick list.<br>**Note**: Signaled and non-signaled work centers should not be in the same manufacturing cell. This should not be done since the shift change is done by cell, and if the work center is not signaled the system will look for floor dispositions, and if there are signaled and non-signaled in the same cell it will cause some work centers to not to be a part of the production report. |
| **Manufacturing Type** | Manufacturing type describes the work center as belonging to a particular “type” of manufacturing (i.e. Injection, Generic, Extrusion, Outsource, etc.). |
| **Center Rate** | Enter the machine rate. This field is used only for quoting. It will populate the Center Rate field in Engineering Quotes. |
| **Fixed Machine Rate** | Enter the Fixed machine rate. This field is used only for quoting. It will populate the Fixed Machine Rate field in Engineering Quotes. |
| **Start-up Cycles** | This is the number of shots required to “dial in” a tool. It is used to determine the pounds of material used for quoting purposes. |
| **Setup Hours** | The number of hours required to set up for the process for this work center. This information is used for quoting purposes. |
| **Time Fence** | A work center may store a Time Fence, used with the Auto Loading feature of the scheduling module (the system also maintains a Global Time Fence value). This value, stored in days, will hold the position of any job(s) scheduled on this work center for the number of days listed here. During Auto Loading, EnterpriseIQ will not move or reschedule jobs within this time fence. |
| **Exclude from Auto Load** | If this option is checked the system will exclude this work center from the auto load process in the finite schedule. |
| **Exclude from MRO** | If this box is checked the system will not add the work center to Maintenance, Repair and Overhaul. A message will appear stating, "This work center will not be associated with MRO - are you sure you want to continue?" The MRO and Association Manager options will be grayed out (Options menu). Security can be placed on the check box (not the message).<br>If the box is unchecked after being checked, the system will create a record in MRO. The user will see this message, with a Yes and No button, "About to associate this work center with MRO - are you sure you want to continue?"<br>If a user attempts to check this box for a work center that has tasks they will receive an "Master has detail records. Cannot delete or modify" error.<br>Note: The default security roles have all been set with ‘Enabled’ unchecked. This is to help prevent possible deletion of the entire MRO record by accident after updating security roles. |

### Center Cost

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| **Center Cost**<br><br>**(Fixed and Variable Overhead)** | The center cost is the variable and fixed costs associated to the work center. This information is used in standard cost calculations.<br><br>If the 'Use Master Center Type Cost Settings' option is checked this information will come from the Work Center Type table. It cannot be edited from the work center module. Changes can be made to costs from the center type table for a specific center type and be applied to all work centers with that type. See Master Center Types for more information.<br><br>If the 'Use Master Center Type Cost Settings' option is not checked users can change the information from this section of the module. Add a cost element by clicking on the [+] in the Center Cost section of the form and select the element from the arrow down list. Enter the variable and fixed costs associated to the work center. More than one cost element can be assigned to a work center. The multiple cost elements will total to the Center Cost which is what the system will use in calculating the Overhead standard cost for manufactured items.<br><br>The default work center variable cost can be manually overridden for each item in Inventory. Go to Mfg tab - Inventory - STD Costing tab. From the STD Costing Tab, select the Center Cost field and enter the work center cost to be used for this particular item. This will be the variable center cost used to calculate the standard cost of the item.<br><br>Note: When a user checks the Work Center 'Use Master Center Type Cost Settings' checkbox. 'All Standard Costs for Manufactured Items that use this Center Type must be recalculated and rolled to avoid variances when processing Post Inventory Transactions. See Help Files for more information. Do you want to continue?' Security can be placed on the Yes button.<br><br>See Standard Costs for Manufactured Items for information on recalculating and rolling costs. |

### RealTime™ Information

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| **Connected to RT Server** | Check this box if the work center is monitored by the RealTime™ server. See Assigning the Work Center to RealTime information.<br><br>If checking 'Connected to RT Server' causes the user to exceed their RT Licenses, a warning is surfaced 'You are about to exceed your RT License quantity, do you wish to proceed?' When selecting No, 'Connected to RT Server' will be unchecked. If the user selects Yes, the edit will be posted and the count and licensed fields will turn red on the RealTime Addresses Board. |
| **RT Server is not signaled** | Check this box if the work center is not connected to the RT server. NOTE: A machine may have both boxes checked, it may be monitored by RT but not actually connected. The advantage to this is a line item will be created automatically for production reporting purposes, but no actual cycle data will be supplied. This does require an RT address.<br><br>Note: If no work center (signaled or non-signaled) in the system makes a cycle through the entire shift then no production reports will be created. If any work center does receive a cycle, then a production report will be created for the MFG Cells.<br><br>Note: When this is checked, the Total Cycles field on the Production report will automatically populate with the total Floor Dispositions during that shift. |

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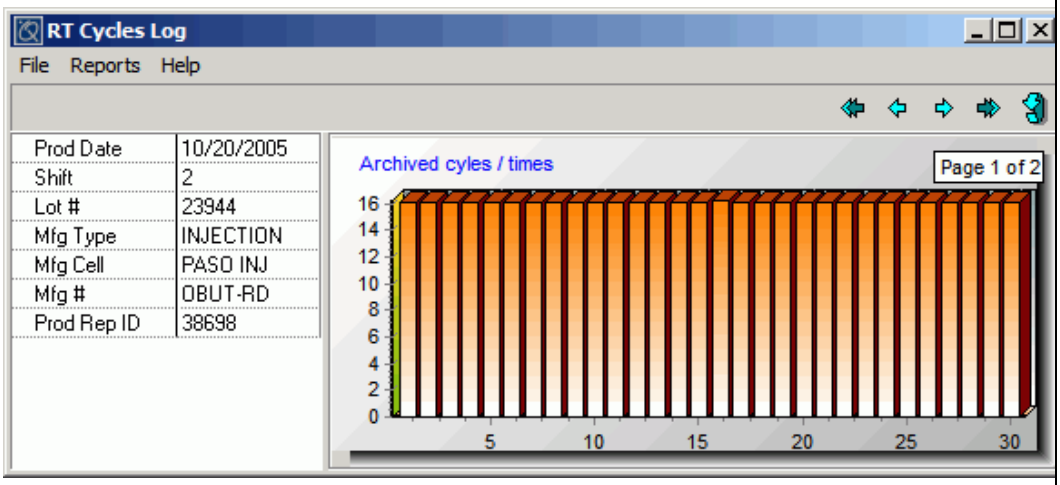
| **Floor Backflush** | This feature is used by IQRF or WMS for work centers that do not signal RealTime™. If checked, when items are scanned into inventory from the work center, the backflushing of the raw materials will occur automatically. If not checked, the materials used to produce the parts will not be removed except through production reporting.<br><br>With an RT Address assigned to a non-signaled work center, the production report shows floor disposition records are automatically completed. Material details are not included in the production report, but are shown within the transaction log. Users can manually add 'Non-RT' records to disposition additional Good Parts through Production Reporting. |
| **Floor Actual Material Usage** | With this option checked users can enter the actual amount of primary material used during Floor Dispositions in Shop Data. This will replace the calculated material usage in production reporting.<br><br>Note: This should only be checked on Work Centers for MFG Types that use primary materials. |

**Log Cycle Times**

If this option is checked the system will log cycle times for the work center. This is designed for trouble shooting cycle times and should not be set for all work centers as it will fill up a lot of drive space. This information can be viewed from RealTime™ (File->View Cycles Log) and Production Reporting (Right Click->View Archived Cycles).




This feature is not designed as a cycle counter. The production report will contain the correct cycles. RT Cycle Log only picks up information when the machine is in run mode, where the production report counts every cycle.

**Note**: The table that stores the cycles will grow quite large and it may be necessary to use IQPurge to delete old information. The following SQL block will delete records older than 90 days. (Please see the ***IQPurge https://my.iqms.com/cfs-file.ashx/__key/Technote/IQPurge.pdf*** TechNote for more information.

```
declare
   v_days    number:= 90;
   I         number;
begin
   loop
      I:= 0;
      for v in (select id from illm_cycle_hist where timestamp <= sysdate - v_days order by id)
      loop
         delete from illm_cycle_hist where id = v.id;
         I:= I + 1;
         commit;
         exit when I > 300;
      end loop;
      exit when I = 0;
   end loop;
end;
```

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| **Connected to Wireless Lightstick** | Optionally users can connect a wireless status indicator to a work center which includes four lights on a stick.<br>▪ Green - Running within standard cycle threshold<br>▪ Blue - Running faster than standard cycle threshold<br>▪ Red (Solid) - Running slower than standard cycle threshold<br>▪ Red (Flashing) - Overrunning of job is occurring<br>▪ Yellow - Work center is down<br>If this option is checked RTServer will send a signal to the wireless indicator (mote) based on the LightStick address.<br>For additional information on LightSticks please see the ***RealTime Lightstick***™ https://my.iqms.com/cfs-file.ashx/__key/Technote/RealTime_2D00_LightStick.pdf TechNote. |
| **LightStick Address** | If the Connected to Wireless LightStick is checked this field will become visible. Enter the address associated to the LightStick.<br>For **Wireless** RealTime™, the LightStick address must match the work center address.<br>For **Wired** RealTime™, this address represents the LightStick address. |
| **Use Dedicated Output** | The Use Dedicated Output is for use when a wired RT System is used in conjunction with a wireless LightStick system that requires multiple gateways. The reason for this is that a wired system can potentially span multiple rooms or buildings which a single wireless gateway cannot cover. When a single wired RT Box does span multiple wireless gateways, then it must be configured this way. |
| **RT Server Prefix** | The RT server prefix (i.e. SND) - used only if multiple RT boxes at the same site. |
| **Center RealTime Address** | The RT address assigned to the work center. This is populated by EIQ when an address is assigned. |
| **Center Scrap Address** | An additional RT address assigned to the work center to collect scrap data. |
| **Monitor Service Group** | This field is used in RealTime Process Monitoring. Service Groups can be created (Work Center Options menu) and then assigned to work centers. Then from the RealTime Process Monitoring Service users can set a specific Service Group to be monitored. If the service group is not set in the RealTime Process Monitoring Service, the service will operate on all work centers that do not belong to a service group. For more information please see the ***RT Process Monitoring TechNote https://my.iqms.com/cfs-file.ashx/__key/Technote/RealTime_2221_-Process-Monitoring.pdf***. |
| **RT Label Group** | This field is used in the RT Labels Monitor module. RT Label Groups can be created (Work Center Options menu) and then assigned to work centers. From RT Labels Monitor a specific group can be selected to be monitored. For more information please see the ***RT Labels Monitor https://my.iqms.com/cfs-file.ashx/__key/Technote/RealTime_2221_-Label-Monitor.pdf*** TechNote. |

**Note:** When creating a new work center the system determines available hours to be 24/7 instead of what is designated in the Shop Calendar. The system can only recognize the specific shop calendar for the new work center for capacity planning purposes after the Set Default Calendar function is run, the schedule is updated, and RTServer must be stopped/re-started as well.

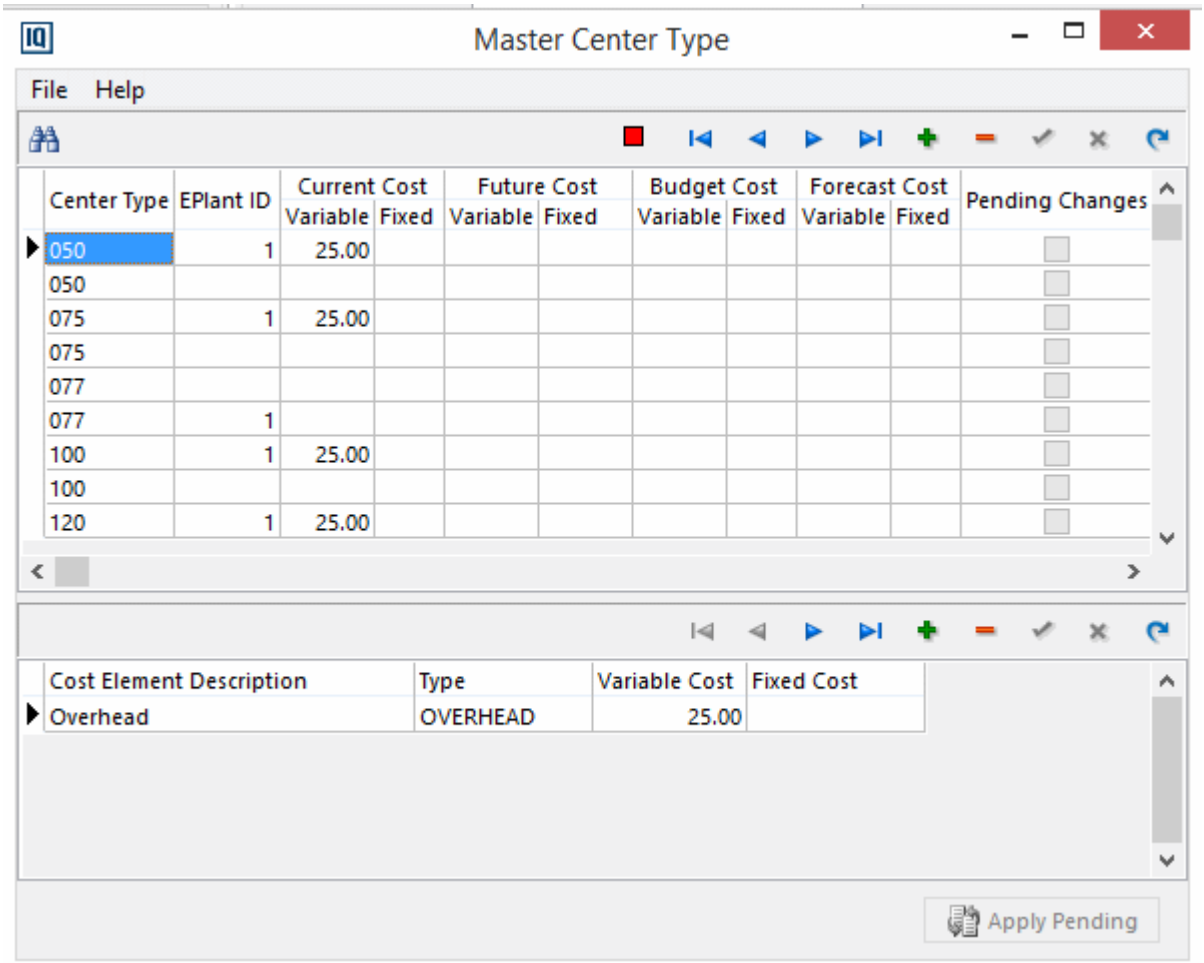
**Note:** When a user creates a User Defined Form field and grants security to that UDF field, if the UDF field is deleted the security to the field is removed. If the UDF field is re-added with the same name, security will need to be reestablished for users.

# Master Center Types

The Master Center Type table lists all of the work center types and their costs. The center types are associated to work centers and processes. Standard Costing will look up the work center type from the BOM and check if there is a work center of this type that has the 'Use master center type cost setting' checked, if there is one the system will use the Master Center Type Current variable and fixed costs. If the system does not find this work center type has any work centers with the 'Use master center type cost' checked, the system will use the costs from the actual work center of this type instead of the Master Center table. If the variable center cost is manually overridden for the item in Inventory (Inventory - STD Costing tab - Center Cost field), the system will use that value instead.

To access this table select the speed button in the Center Cost section of the work center module  .

The following form will appear. (Note: If work centers already exist this table will be populated with all of the center types currently associated to existing work centers and processes).



- To enter a new center type select the insert record button and enter the Center Type in the field. The Center Type table can contain only one Center Type + EPlant combination, the EPlant can be null and used across EPlants. In the case of injection molding machines, the center type is normally the tonnage rating. In the case of an extrusion machine, it is normally the line size. In the case of Generic Work Centers (pad printers, die cutters, blenders, etc.), use wording that describes the capacity of the center. This may be a size or a certain model number. EnterpriseIQ needs this information for costing and so that a capacity can be derived. By assigning a center type to the work center, the system can determine where it needs to be scheduled, and if capacity is available. The Type is also associated to the work order which assists scheduling by telling the system where the job can be run.

- Select the lower insert record button to assign cost elements. Select the cost element from the pick list. If these columns are populated the system will use these overhead cost elements instead of going to the Manufacturing Type table to get the overhead cost elements. This affects both Standard Cost calculations and writing the Overhead information to Translog during Dispositions, Backflushing, etc.

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**Note**: Variances in overhead will occur if the work center type associated to the BOM is different than the one it ran in. For example, if the BOM is supposed to run on a 50 ton work center but it was put in a 75 ton work center and those work center types have a different overhead cost, a variance for the difference in overhead per hour will occur. If the name of the cost element associated to the item is different than the one associated to the work center type the system will put the full overhead amount as a variance. In order to avoid the entire amount of Overhead going to a variance, make sure the cost element on the inventory item when the costs are rolled matches the cost element on the Manufacturing Type of the BOM for that item. This will require associating the same Cost Element on the Manufacturing Type as the one associated to the Master Center Type.

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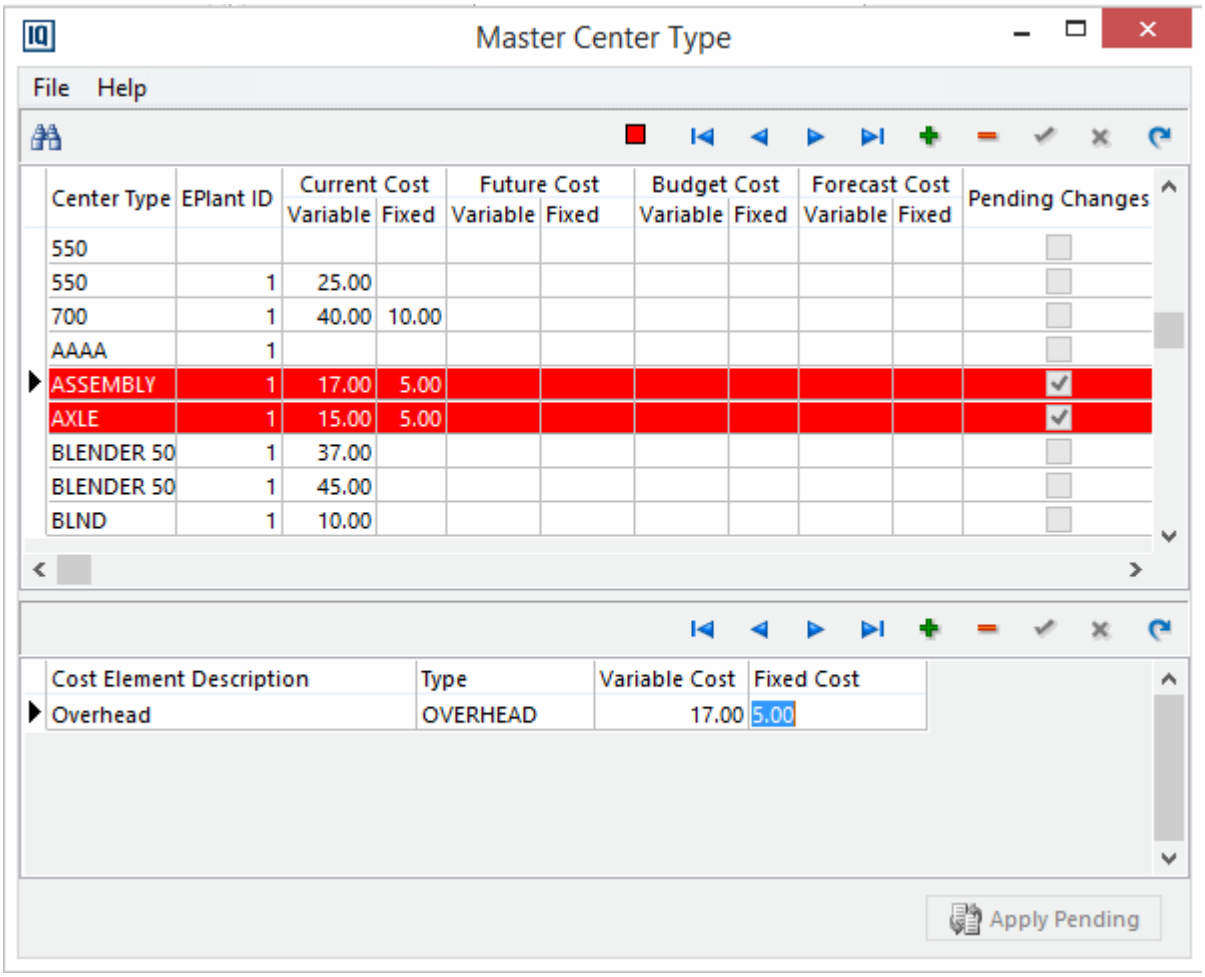
- Enter the Variable and/or Fixed Cost that applies to the cost element for the center type. Multiple Cost Elements can be associated to the center type. The costs will populate in the fields in the top section of this form. When costs are rolled, the variable overhead will be summarized and the cost will use the first variable overhead entered. The fixed overhead will be summarized and the cost will use the first fixed overhead entered.

- Once a new entry is made in this table, or if changes are made to costs on an existing center type the line will be highlighted in red. This indicates that there has been changes to the costs and they have not been applied to the work centers. Select the 'Apply Pending' button and 'Yes' on the confirm message box to update all of the Work Centers of the same Center Type with the new costs. The work center's costs will only be updated if their 'Use Master Center Type Cost Settings' boxes are checked.




### Additional Costs

Values can be entered for Future, Budget, and Forecast variable and fixed costs. If these costs are populated, the system will use these instead of the current cost for calculating the applicable cost such as Future Cost. If costs are not populated for the various costs the system will use the current cost. The same cost elements assigned to the center type will be used for these calculations.

To enter a cost type the value in the grid in the desired cost field.

# Assigning the Work Center to RealTime

In the bottom portion of the Work Center screen, the user can indicate whether or not this work center is to be assigned to the RealTime™ monitoring system by selecting the '**Connected to RT Server**' box. Once this box is checked the user will need to assign a RT Address to the work center. By assigning the address, the work center is added to ILLUM_RT.

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**Note:** If not using the RealTime™ Monitoring System, this option will not be available. If this is the first time at attempting to connect the work center to RealTime™, the fields in this area will be blank.

**Note:** If checking 'Connected to RT Server' causes the user to exceed their RT Licenses, a warning is surfaced 'You are about to exceed your RT License quantity, do you wish to proceed?' When selecting No, 'Connected to RT Server' will be unchecked. If the user selects Yes, the edit will be posted and the count and licensed fields will turn red on the RealTime Addresses Board.

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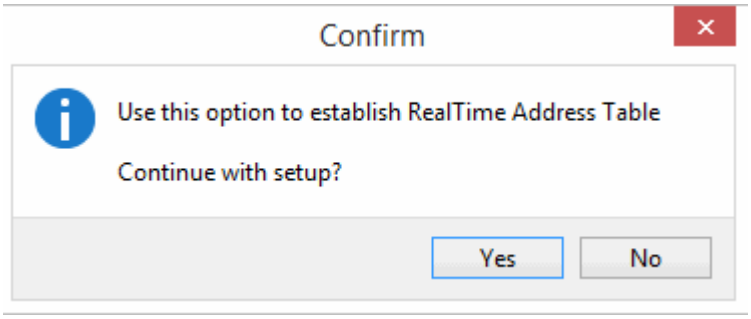
### ASSIGN a RT Address to a Work Center

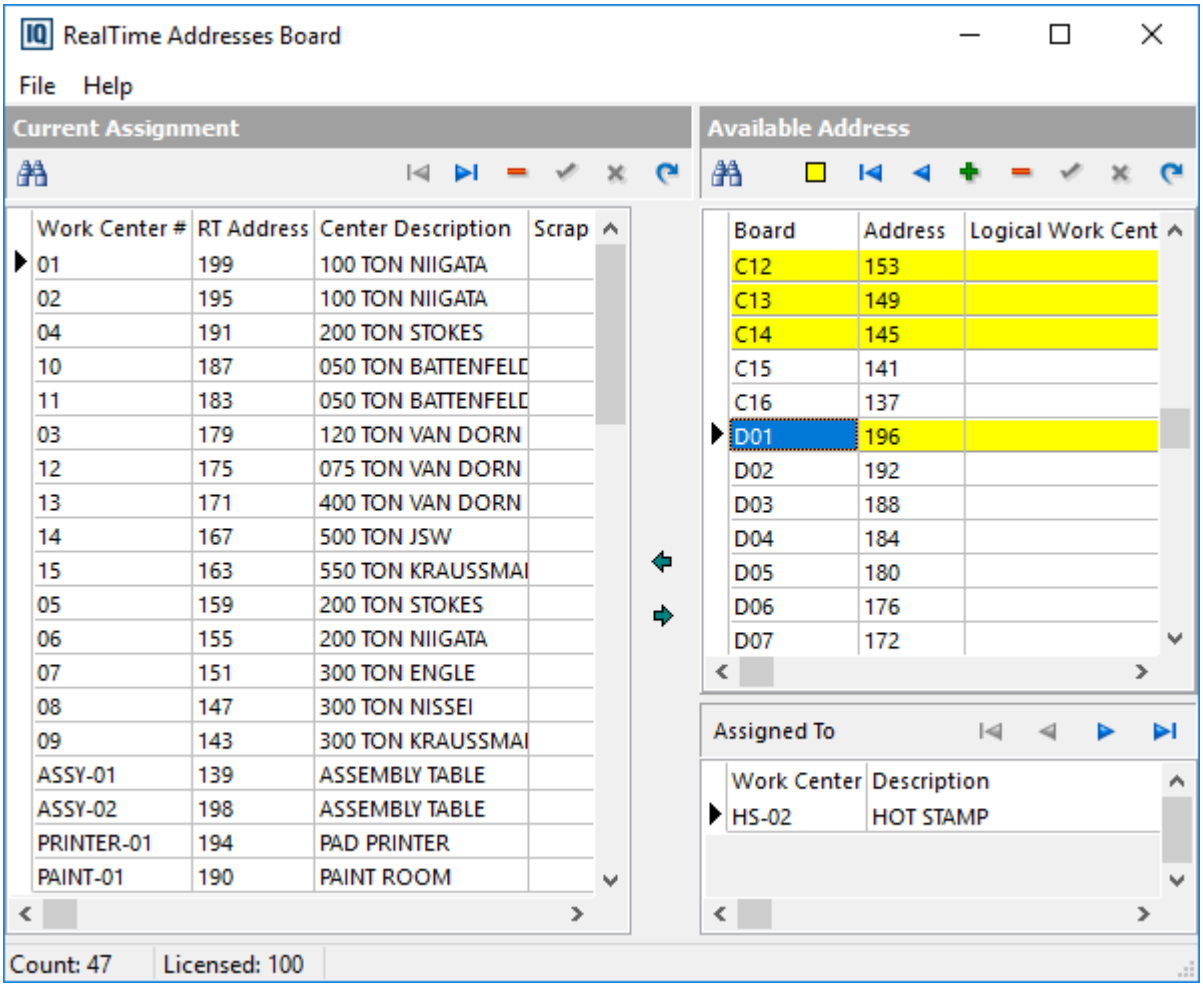
Under Options select **Assign RT Information** the following prompt will appear:



Click on “Yes” to continue with the Setup process, or “No” to cancel.

### Machine Addresses

Upon selecting “Yes,” the first thing that RealTime™ does is check to see if any new machines have been added from Manufacturing. If there have been, it will bring up the first new machine to the screen. If no new machines have been added, it will bring up a pick list of all of the work centers and their existing addresses as shown below. The left side displays work centers and their current RT address assignment. The right side displays the available addresses. Addresses that are assigned to a work center already will display in yellow and the Assigned To field will show which work center(s) it is assigned to.




This chart is to be used to help determine the machine address.

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| **Interface Board** | This is the board contained in the RT box. There can be either 4 interface boards, each with 16 two-pin header connectors that connect to the machines, or two boards with 32 two pin header connectors each. |
| **Connect Location** | This is the designation of the two-pin header on the interface board. |
| **Machine Address** | This is the address that corresponds to the location of the two-pin header on the interface board. |

### To assign an Address to a center

First, make sure the center to assign a RealTime™ address to is highlighted.

Next, select an address to assign to that center and press the “arrow over” button or double click to insert the address into the chart for that work center. The user can also drag and drop the address into the RT Address field.

### Scrap Address

The scrap addresses are used for reversing or rejecting an input. When the system receives a scrap signal it is added to rejects and parts to go are increased. If the work center has an output that can indicate a Rejected Cycle, RT can collect the data for production reporting. However, RT cannot determine the type of reject, this will still need to be done manually from RealTime™ on the 'Enter Part Reject and Attribute Data' form (accessed by selecting the Reject/Scrap entry button), or on the Production Report in the Rejects Reason field. The source in the reject table for a scrap entry captured by the MIU is RS.

An additional MIU is required for reject signals unless the work center has a dry contact closure for this output. A contact closure is hooked up to the scrap address that tells the system that the whole cycle is scrap (not individual parts of a family tool). The system must still get a normal cycle signal even though it is a scrap signal.

Depending on what input on the MMU is used for the reject signal, that input has an RT address and will be assigned to the work center as a Scrap Address in the RealTime™ address board. Assigning the Scrap Address is done in the same manner as a RT Address (from the Work Center module as described above).

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**Note**: When adding the Scrap Address using the arrow button be sure the cursor is in the Scrap Address field or the RT Address will be overwritten. Assigning a Scrap Address does not consume an RT Scrap license, nor does it consume an RT Address license.

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### Deleting or Editing a Center

The RealTime™ address information can be changed by using the technique described above. The address cannot be edited directly from the Address Set Up screen.

To REMOVE a work center from RealTime™, it must be removed from the Assignment list. The 'Connected to RTServer' and/or 'RTServer is not signaled', if applicable, must be un-checked on the work center.

# Other Functions in the Work Center module

### User Fields

There are five character fields and five numeric fields to enter additional information about the work center.

### User-Defined Form

A User-Defined From can be created for the Work Center module. Please see User Defined Forms for details on creating the form.

### Documents

Internal and external documents, and Email Correspondence can be associated to the work center on the Documents tab. Internal and External documents will also be visible from Shop Data. Documents can be set to print with a work order.

**Trace** - Right Click from the header section to access the Trace option.

**RT Process Monitor Work Center Setup** - Select the speed button at the top of the form to access this module. See the RT Process Monitor help files for details.

### Options Menu

- Under **Options** on the menu bar, the user can:

- **Manufacturing Types -** View or add additional manufacturing types from this screen.
- View **Manufacturing Cells -** View or add in additional manufacturing cells from this screen.
- **Cost Elements-** View or edit the cost elements table.
- **Assign RT Information**- This is discussed in the Assigning the Work Center to RealTime™ section. See Assigning the Work Center to RealTime.
- **Service Groups** - Create service groups used in the RealTime Process Monitoring module. Select the insert record button and enter the group description. Link the work center to the group in the Monitor Service Group field.
- **RTLabel Groups** - Create RT Label groups used in the RT Labels Monitor module. Select the insert record button and enter the group description. Link the work center to the group in the RT Label Group field.
- **Shop Floor Disposition Parameters** - see the section below Work Center Disposition Parameters.
- **Labor Cost Rate** - This is the labor cost associated with this work center. This is used in conjunction with Time and Attendance and logging into a sales order. When in the Time & Attendance module, an employee logging in can select a sales order to put their time to. After selecting a sales order from the picklist then the work center picklist comes up. If a work center has a labor cost associated with it, the Time & Attendance will use this labor rate for the labor cost instead of the employees charge rate. This will be used in calculating the **actual** labor cost in process costing.
- **Assign Default Printer** - This is used to define the default printer for a work center printing RealTime™ labels using the RTLabel Monitor. This only applies to Crystal labels not LM labels. Reference the ***RT Labels Monitor https://my.iqms.com/cfs-file.ashx/__key/Technote/RealTime_2221_-Label-Monitor.pdf*** TechNote for more information.

- **MRO -** See the section below on MRO (Maintenance, Repair and Overhaul).
- **Association Manager** - See the section below Association Manager.
- **Show CARs and ECOs** - This will show open CARs , ECOs, MRBs and Deviations for the work center.
- **Where Used** - This brings up a form showing the BOM's that are attached to the work center type. It will display: BOMs with a center type = work center center type regardless of MFG Type, and ASSY1/ASSY2 BOMs that have processes with a center type = work center center type.
- **User Defined Form** - The User Defined form for work centers. The form can also be accesses by clicking on the User Defined From speed button. Refer to the User Defined Forms section on creating user defined forms for more information.

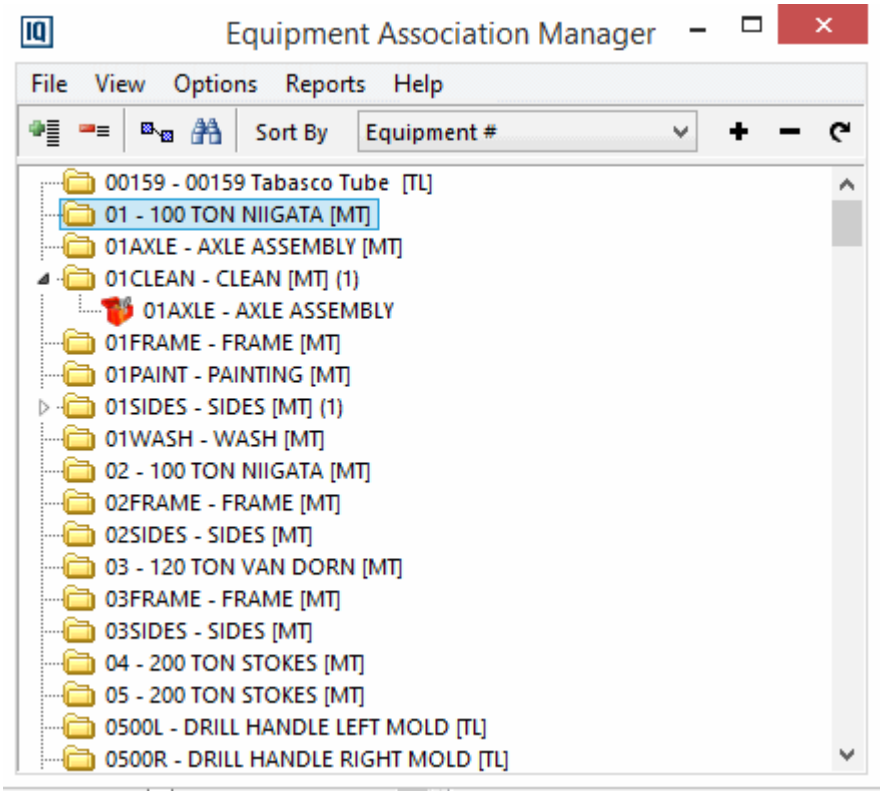
### Report Printing

To print **Reports**, select **Reports** from the main menu bar within the Work center screen.

- Selecting this function will bring up a dialog box listing all reports that are available for printing within this module. The reports can be printed to the workstation screen, sent directly to the printer, or printed to a file.

## Association Manager

The Association Manager allows users to associate equipment with auxiliary equipment. This will enable the system to keep track of usage for all associated equipment. For example, a barrel and screw can be associated to a work center. When the production report is archived the work center, barrel, and screw will all automatically have the total units updated. The auxiliary equipment can be associated to multiple work centers.



To associate auxiliary equipment to a work center, find the work center in the tree. The list can be sorted by Equipment #, Equipment Description, or Equipment Class. Select the desired sort method from the drop down list or from the Options menu->Sort By. To search for a specific equipment select Search from the File menu and a picklist of equipment will appear.

Once highlighted on the desired equipment, right click and select '**Add Equipment**'. Select the auxiliary equipment to add from the picklist. Continue this process until all auxiliary equipment has been added to the appropriate work centers.

The Association Manager is also available in the Preventative Maintenance module.

Other **right click** options from the Association Manager:

**Remove Equipment** - This will remove the link between the auxiliary equipment and the work center. (This will not remove the equipment from the PM module).

**Where Used** - This will bring up a picklist of equipment that the highlighted item is associated to. This option is also available from the speed button  .

**Jump to Preventative Maintenance** - This will jump to the Preventative Maintenance module for the highlighted record.

**Refresh** - This refreshes the screen to display the latest information.

## Checklists

Checklists can be associated to work centers. The checklist will display when a setup is initiated on the work center from EIQ RealTime™, ShopData, and RTStation. Checklists can also be associated to BOMs and Assembly Processes. During a setup the web based Setup Checklist form will appear for the user to enter responses to the checklist items. If a BOM/Process and Work Center both have checklists the checklist will be combined on the same form with the Work Center's checklist listed first. A checklist history is stored for the work center or BOM/Process and can be reviewed at anytime, or used for reports.

---

Note: This requires the IIS Server to be setup and the information populated in System Parameters->Company File Information tab->Web tab in order to view the web based checklist. See the ***IIS Installation TechNote https://my.iqms.com/cfs-file.ashx/__key/Technote/IIS-Installation.pdf*** for more information.

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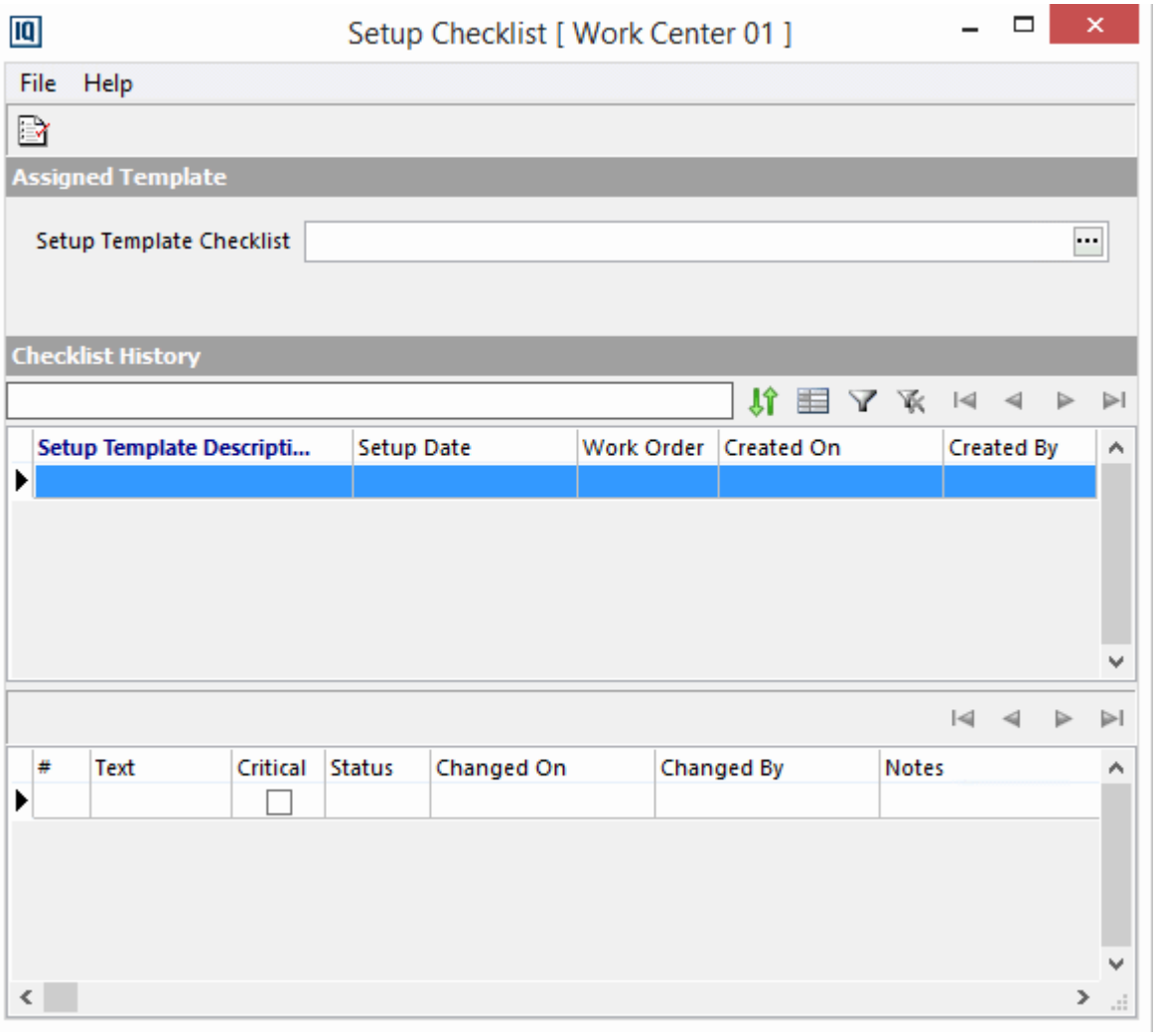
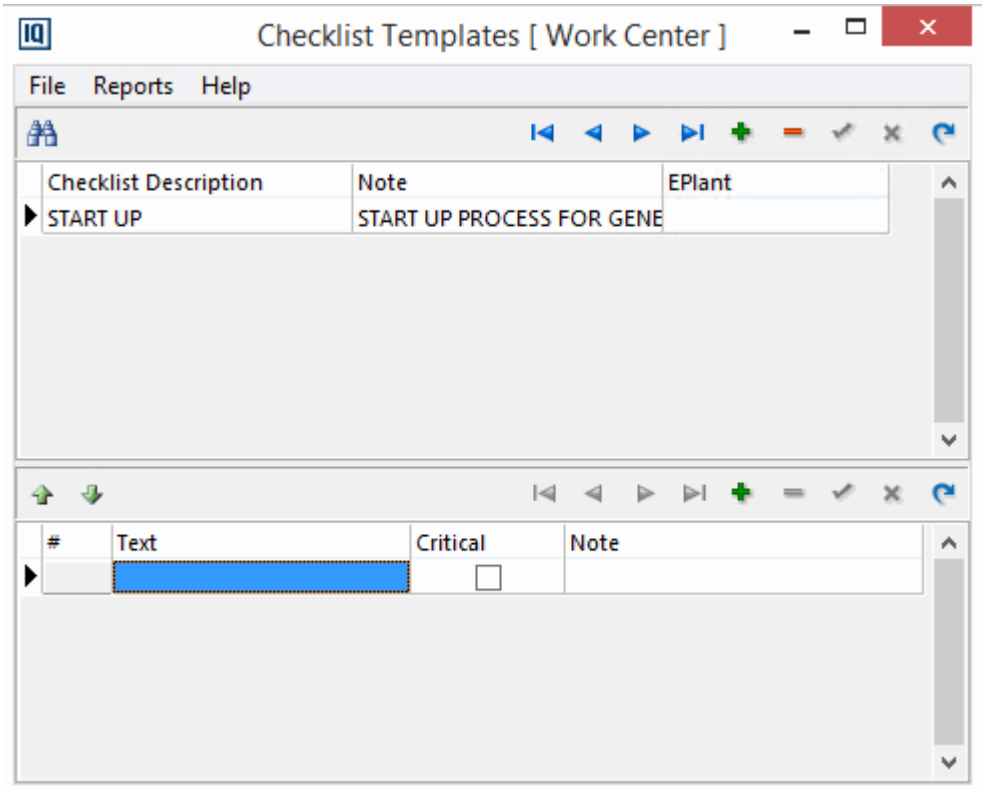
### Setup

To begin to use the checklist functionality checklist templates will need to be created. Select the 'Setup Checklist Templates' button at the top of the Work Center module  to access the checklist for the work center.


Setup Checklist [ Work Center 01 ]
File
Help
Assigned Template
Setup Template Checklist
Checklist History
Setup Template Descripti...
Setup Date
Work Order
Created On
Created By
#
Text
Critical
Status
Changed On
Changed By
Notes

From this form select the template button to access the pick list of checklist templates. Select the 'New' button on the pick list to create a new template. The Checklist Template form will display with a new row created for the user to enter the checklist information.




Enter the data in the form. The top section is a description of the checklist.

| | |
|---|---|
| **Checklist Description** | Enter the description of the checklist (up to 150 characters). |
| **Note** | Enter additional information about the Checklist (255 character limit). |
| **EPlant** | This will populate automatically based on the EPlant the user is logged into when the checklist is created. Users will only be able to see checklists for the EPlant they are logged into. |

Enter the actual checklist items associated to the highlighted checklist record.

| | |
|---|---|
| **Sequence #** | The sequence of the checklist item. The sequence can be changed using the up and down arrow buttons. |
| **Text** | The description of the checklist item. This is a list of steps involved in completing the corresponding Checklist. |
| **Critical** | Check this box if the checklist item is critical. Critical items must have the status column on the checklist populated with Y, N, or N/A in order to complete the setup checklist. |

| | |
|---|---|
| **Note** | A list of responses can be created which will apply to all checklist items. When the employee performs the checklist item they will be able to select from the drop down list, or manually enter a note (if allowed) in the Note field to further describe the outcome of performing the step.<br>To create the list, right click and select 'Edit User Defined List'. Enter the list details in the text field. The Drop Down Style can be selected from the list:<br>▪ Drop Down - Free form data entry.<br>▪ Drop Down List - Predefined Text only.<br>▪ System Default - Will be based on the setting in System Parameters |

Once the checklist template has been created it can be assigned to work centers.

### Assigning a Template

From the work center where the template is to be applied, select the 'Setup Checklist Templates' button at the top of the Work Center module. Select the ellipsis button in the 'Setup Template Checklist' field. Select a template from the pick list.

As setups are performed on the work centers with templates, the system will pop up the web based checklist for employees to respond to the checklist items. This will populate the Checklist History portion of the Setup Checklist form.

### Checklist History

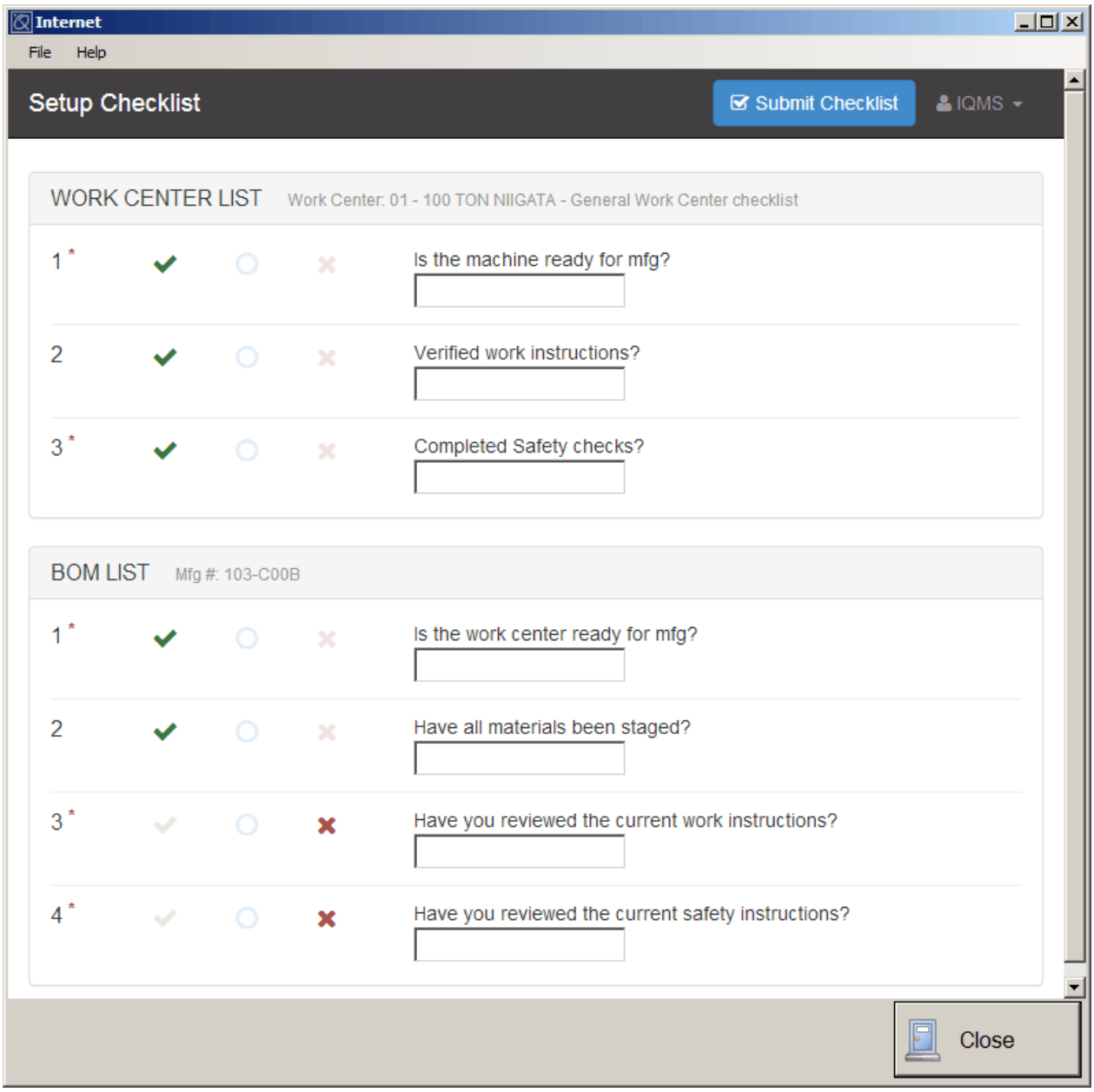
| | |
|---|---|
| **Setup Template Description** | This is the template description associated to the historical record. |
| **Setup Date** | The date/time the work order was setup. |
| **Work Order** | The work order number. |
| **Created On** | Date and time checklist record was created. |
| **Created By** | The user name that created the record. |

The checklist results

| | |
|---|---|
| **Sequence #** | The sequence of the checklist item. |
| **Text** | The description of the checklist item. |
| **Critical** | This box is checked for a critical checklist item. |
| **Status** | The status entered during the checklist process for the item. This will be populated with Y, N, or N/A. |
| **Note** | The checklist note entered by the employee. |

### Checklist

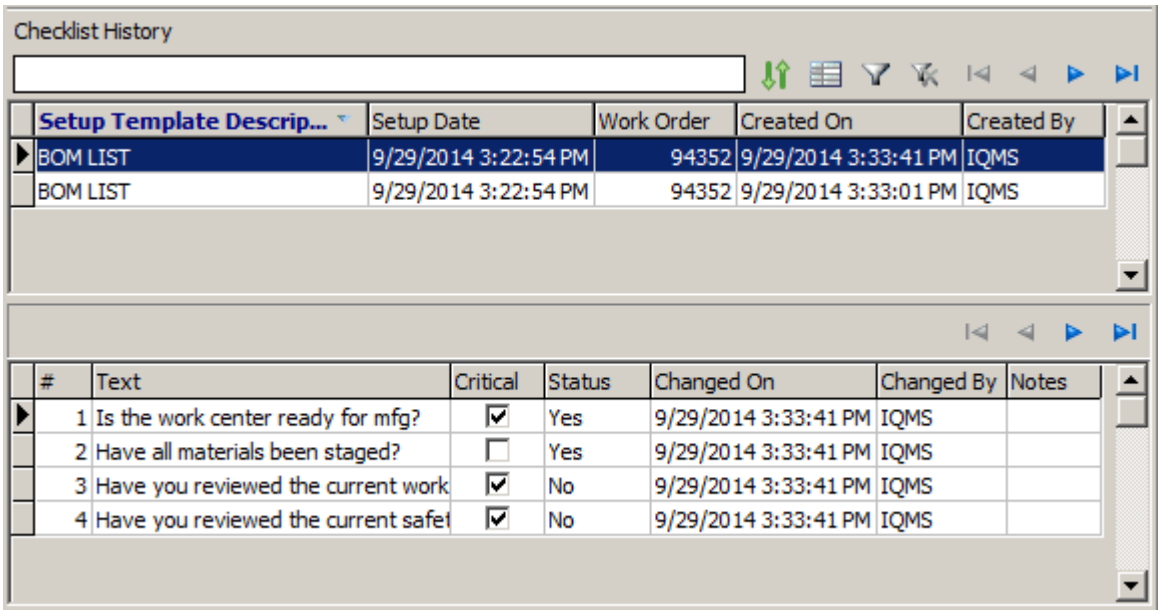
During a setup the web based Setup Checklist form will appear for the user to enter responses to the checklist items. If a BOM/Process and Work Center both have checklists the checklist will be combined on the same form with the Work Center's checklist listed first.



Users can select Yes, N/A, or No for each question. There is also a comment field to enter notes for each checklist item. Once all of the checklist items have been addressed select the Submit Checklist button at the top. If a response is not entered for a critical checklist item (critical checklist items will have a red asterisk next to the number) upon submitting a popup with a Yes and No button will appear stating, 'There are critical items on the checklist that are not marked with a decision. Continue?'. If No is select the user is returned to the checklist to enter a response. If Yes is selected, or if there are no un-answered critical items, a message indicating the checklist has been submitted will display. Select Close to exit the checklist. The work order setup will then be completed.

### Checklist History

The information entered from this form is visible from the Setup Checklist form in the Checklist History section.



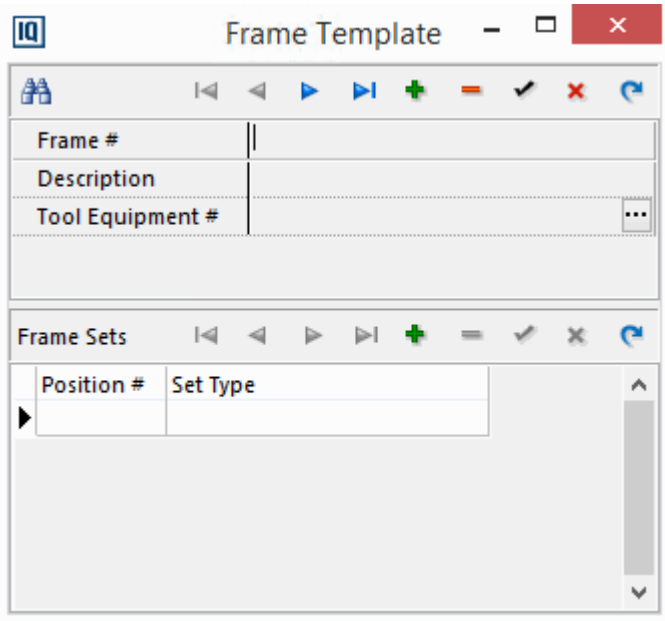
## Logical Work Centers

For the Injection, Die Cast, Generic, Extrusion, Extrusion 2 and Extrusion 3 Manufacturing Types, or user defined types based on those MFG Types, an option is available in the MFG Types module (General tab) to enable Logical Work Center Support. See Modifying Manufacturing Types.

Once this option is checked work centers associated to the MFG Type will have an additional tab called Change Over. From this tab work centers can be changed from a physical work center to a logical one and vice versa.

### Frames

Frame Templates are created from the Work Center module. This is a list of the frames that can be selected when changing over from a physical work center to a logical one. Select 'Frames' from the File menu and the following form will appear:



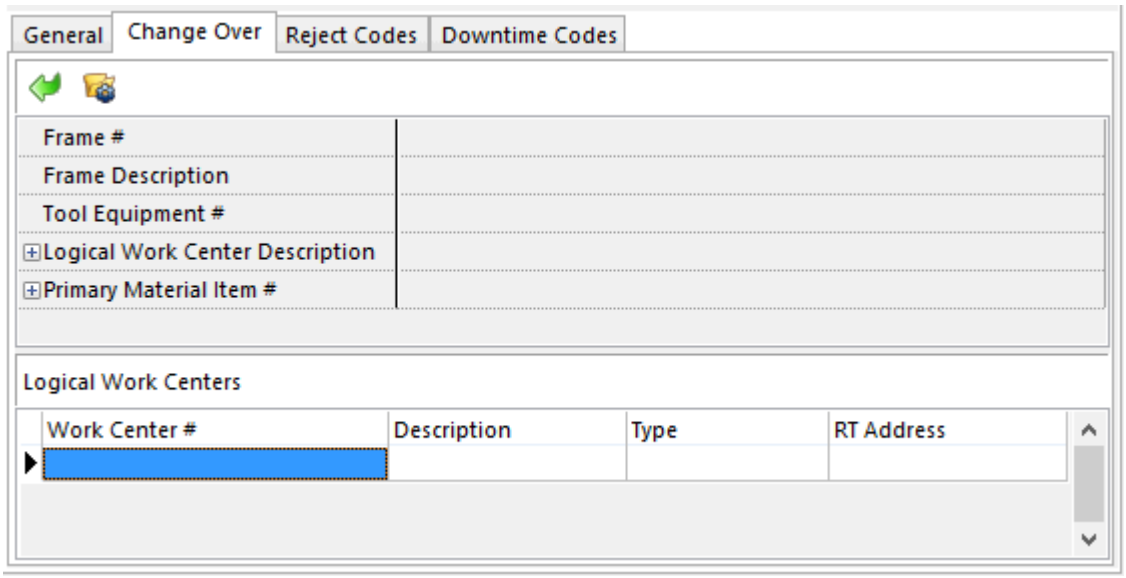

Enter all of the actual frames that can be utilized for insert molding.

| | |
|---|---|
| **Frame #** | Enter the Frame number in this field. |
| **Description** | Enter the description of the frame. |
| **Tool Equipment #** | Select the ellipsis button in this field to access the Preventative Maintenance equipment form. Select an existing PM record from the pick list by selecting the 'Pick' button, or enter the information in the Equipment # and Description fields to add a new tool to Preventative Maintenance. |

| | |
|---|---|
| **Frame Sets** | In the lower section enter the frame set details.<br>▪ Select the insert record (+) button and the Position # field will populate with the next sequential number starting with 1.<br>▪ The Set Type will be used for the logical work center's Center Type. In the Set Type field select the drop down arrow and pick a set type from the list. This list will display center types associated to the logged in EPlant and those without an EPlant assigned. |

### Change Over

Once the set up steps are complete the logical work center functionality can be utilized. When the 'Logical Work Center Support' option is enabled the work centers associated to that MFG Type will have an additional tab in the work center module called 'Change Over'.



*Changing from a Physical Work Center to a Logical Work Center* - When going from a Physical Work Center to Logical Work Center the Physical Work Center must not have work orders scheduled on it. If attempted the user will receive an error stating, "Work center is scheduled - operation aborted." To change over to a logical work center select the Change Over to a New Frame button  . A confirmation box will appear, select Yes to continue. The pick list of Frames will appear to choose from. Select the frame that is set up in the physical work center. The information from the selected frame will populate in the corresponding fields (Frame #, Frame Description and Tool Equipment #).

A logical work center will automatically be created for each frame set. In the example below a frame template with four frame sets was selected so the system created four logical work centers. The work center # is based on the physical work center number and frame number with a numeric value for each frame set (up to 60 characters). For example, Work Center # = 10, Frame = FR4-CR so the logical work center #'s will be 10-FR4-CR-1, 10-FR4-CR-2, etc. All information from the physical work center will carry over to each logical work center including user fields, optional elements, and documents. However, the Work Center Capacity will be empty and the Center Rate, Variable Costs and Fixed Costs will be prorated based on the number of logical work centers created. For example if the variable overhead rate is $25, four logical work centers would have a variable overhead rate of $6.25.

When a **primary material** is associated to a change over the scheduling pool will be filtered to only show work orders that can be run on the center type associated to the logical work centers and that require that specific primary material. To associate a material select the ellipsis button in the field and choose a material from the Inventory pick list. If a material is not assigned users will see all work orders based on the logical work center type for any primary material. Note: This does not apply to the Generic MFG Type because Generic BOMs do not have a primary material.

**Scheduling** is similar to the standard method. The logical work centers will be listed in the schedule instead of the physical work center. If a primary material was selected on the change over tab only jobs using that material will be listed in the scheduling pool. Note: This does not apply to the Generic MFG Type because Generic BOMs do not have a primary material.

For Logical Work Centers different work orders with the same BOM can be scheduled under the same 'Logical Work Center Group' (logical work centers listed on the Change Over tab for the work center), but not in different 'Logical Work Center Groups'. This is similar to physical work centers in that you cannot schedule different work orders with the same BOM on more than one work center.

In Manufacturing Types there is an option available on the General tab called '**Auto Substitute BOM**'. When this setting is enabled, when attempting to add a work order to the first position, the system will look to see if the BOM on the work order is already scheduled in the first position on a logical work center. If the same BOM is already scheduled/running on a logical work center, and the user is trying to add it to a different logical work center then a substitute BOM will be created before adding the work order. A warning message will appear: "Attempting to schedule this work order on a different logical work center than the currently running BOM. If you would like to proceed, a substitute BOM will be created". Users can select OK (to complete the action), Cancel (to abort this action), and there is also a "Do not show again" check box. Note: This option is visible on all MFG Types but will not affect anything unless the MFG Type also has 'Logical Work Center Support' enabled.

Reporting on production does not change in any significant way. You will notice additional records on the Production report itself, since each logical work center is treated as a unique work center during production reporting.

*Changing from a Logical Work Center to a Physical Work Center* - When going from a Logical work center back to a Physical work center the Logical work centers must not be scheduled. If attempted the user will receive an error stating, "Some logical work center(s) are scheduled - operation aborted". To change over to a physical work center select the Change Over to a Physical Work Center button  . A confirmation box will appear, select Yes to continue. All Logical work centers will be deleted.

---

**Note**: In the case of Logical WC's, the system creates/deletes work center records as the frames are added then removed for going back to a Physical WC. When creating a new work center the system determines available hours to be 24/7 instead of what is designated in the Shop Calendar. The system can only recognize the specific shop calendar for the new work centers (Frames) for capacity planning purposes after the Set Default Calendar function is run, the schedule is updated, and RTServer must be stopped/re-started as well.

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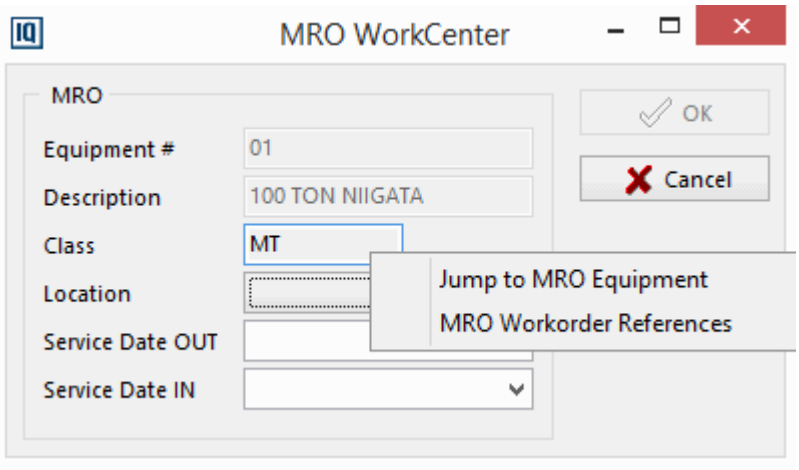
For more information please see the ***Logical Work Center https://my.iqms.com/cfs-file.ashx/__key/Technote/Logical_2D00_Work_2D00_Centers.pdf*** TechNote.

## Maintenance, Repair and Overhaul

This option opens the Maintenance, Repair and Overhaul work center information as shown here. This option can also be accessed from the speed button.



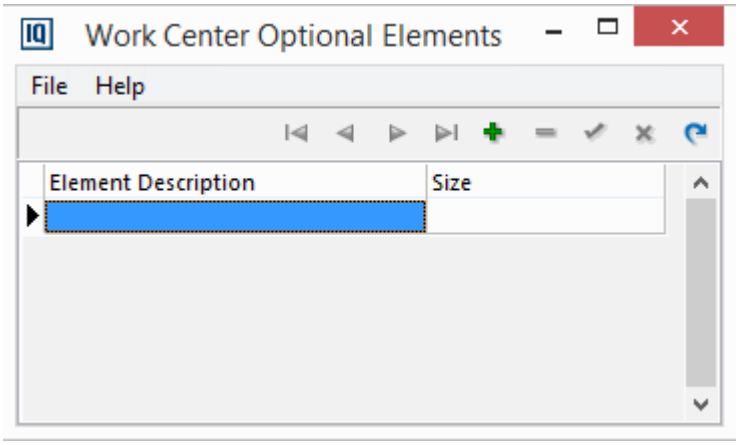
There are two right click options available from the left-hand grid:

- **Jump to MRO Equipment** - This feature is currently unavailable in this version of WebIQ. Please use EnterpriseIQ. From EIQ, this will open the Maintenance, Repair and Overhaul module for this work center.
- **MRO Work order References** - This will display a list the Maintenance, Repair and Overhaul work orders associated to the equipment.

The right click Jump to MRO Work Order feature is currently unavailable in this version of WebIQ.

## Optional Elements

Select the Optional Elements speed button  to access the Optional Elements for where the user can enter an unlimited amount of work center elements and their sizes. This is for informational purposes only.



## Reject and Downtime Codes

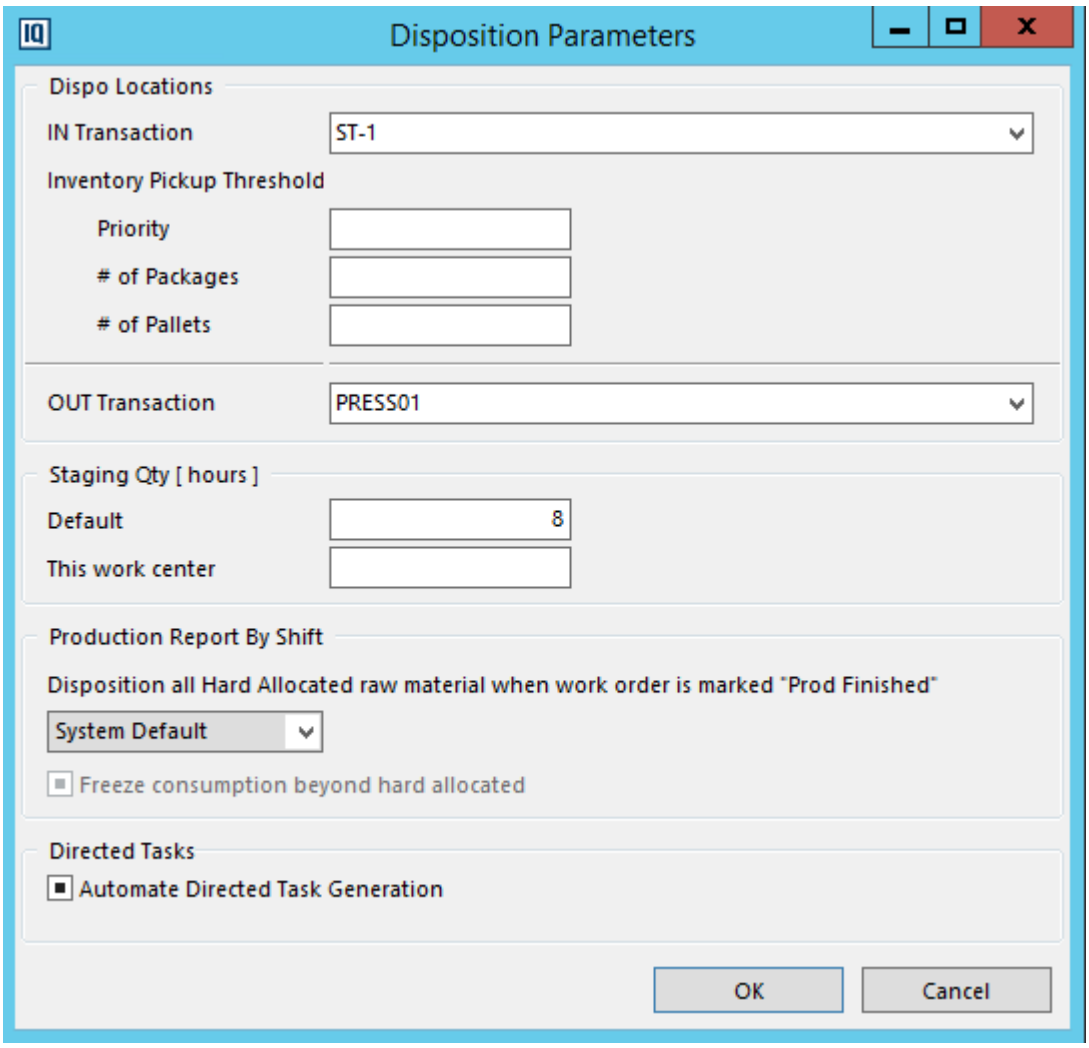
Each Work Center can have specific reject and downtime codes associated to them. When displaying Reject and Downtime Codes in Shop Floor modules (RT Monitoring, RTStation, ShopData, IQRF and WMS) the system will display the sequential codes as follows:

- If there are reject/downtime codes on the BOM Level the system will only show those codes
- If there are reject/downtime codes on the Work Center level the system will only show those codes
- If there are reject/downtime codes on both the BOM and Work Center levels both will be visible
- If there are no reject/downtime codes on either BOM or Work Center levels all codes will display with soft filters on EPlant and the MFG Cell

To associate the codes to a Work Center, select the Reject Codes or Downtime Codes tab. Click on the ellipsis button in the Code field to access the pick list. Only codes associated to the EPlant the user is logged into or null EPlant codes will appear in the list. There is also a soft filter on MFG Cell, where only the codes associated to the MFG Cell associated to the BOM or work center, or those with no cell will appear. Continue this process until all of the desired codes have been added. The sequence of the downtime codes can be changed using the up and down arrow buttons (this feature does not apply to reject codes).

## Shop Floor Disposition Parameters

This allows the user to establish the disposition locations to be based on the work center rather than at the inventory level. If the part is running on this work center and is auto-dispositioned, material will be taken out of the default location attached to the work center in the OUT Location field. If the IN Location field is also set up with a default location, this is where the manufactured product will be automatically dispositioned.




**Note:** If the item has a location set up as a default location associated with the Mfg # or a default designator location the items will go into or be removed from that location and not the one associated with the work center.

In summary the 'hierarchy' for auto dispositioning is as follows:

The **Auto Disposition Sequence**:

1. Hard Allocated to the work order
2. Mfg # default designator

**3** Default Designator

**4** Designated Work center location

**5** Mfg Cell Dispo location

**6** FIFO

**7** Temporary

**Parameter Settings List:**

**IN Transaction** - Select the location for IN Transactions for this work center from the drop down list.

**Inventory Pickup Threshold** - These settings are used for the system to compare the Dispo In items -> BOL Data -> Package or Pallet Items per (depending on the listed Default Packaging Type) to the quantity of items in the Dispo IN location. If the Dispo IN location Qty has any Pickup rows in TRANS_ALERT for this item that are greater than the Work Center based Inventory Pickup Threshold the system will add a row to TRANS_ALERT with: INV_ZONE_ID = the Dispo In LOCATION.WK_INV_ZONE; TRANS_IN_OUT = OUT; ALERT_DESCRIP = "Pickup XXXXXX from LLLLL" where XXXX = the Items Description and LLLL = the LOC_DESC.

- Priority - The choices are: 1= High Priority, 2= Med Priority and 3= Low Priority
- # of Packages
- # of Pallets

When 'Automated Directed Task Generation' is enabled, the system will automatically generate a directed Pickup Request task whenever the number of pallets or packages reaches the 'Inventory Pickup Threshold' for the work center. Directed tasks will only be generated automatically if the system can find a successful transaction plan for the case in which the inventory pickup threshold is hit.

The system uses the following formula to determine when a task will be generated automatically:

If (Quantity of Packages/Pallets at the Pickup Location) - (Sum of All TRANS_ALERT Pickup Tasks for the Location) is Greater Than or Equal To the Package or Pallet Threshold, then a directed Pickup task will be generated automatically.

**OUT Transaction** - Select the location for OUT Transactions for this work center from the drop down list.

**Staging Qty (hours)** - This is the number of hours the system will use to determine the staging quantity of materials required for the 'Work Order Materials & Components' module (ShopData and Assy Data). This defaults to 8 hours but can be changed from this field or a specific value can be assigned to a work center that will override the default.

- Default
- This work center

The system uses the lesser result of the two following equations to determine the staging quantity.

1. (Hours to Go) * (Cycles Per Hour) * (Cavities Per Shot) = Staging Qty

2. (Staging Hours) * (Cycles Per Hour) * (Cavities Per Shot) = Staging Qty

The variables are defined as follows:

Hours to Go = (Shots Required) / (Cycles Per Hour - visible in RealTime and ShopData Work Order Materials and Components as 'Hours to Go')

Cycles Per Hour = (3600 / (Cycle Time)) * (Efficiency Factor - visible in the BOM Production Summary module as 'Net Cycles/Hr')

Shots Required = (Work Order Quantity) / (Cavities Per Shot)

When 'Automated Directed Task Generation' is enabled and the 'Staging Qty (Hours)' exceeds the total run time of the work order, the system automatically generates directed Staging tasks for the work order's full amount.

When the 'Staging Qty (Hours)' is less than the total run time of the work order, then the system generates directed Staging tasks for only the partial amount required to generate the work order.

---

**Note:** It is recommended that users clear material from the staging OUT location before generating a directed staging task - this will prevent users from bringing too much material to the staging OUT location. The 'Materials Required' value is based on RealTime information, so it does not account for any pre-staging or leftover material in the staging OUT location. This may cause users to incorrectly think that the staging OUT location has more capacity when it's actually full.

---

**Disposition all Hard Allocated raw material when work order is marked "Prod Finished"** - This option can be set at the Work Center level so that when materials are backflushed for a work order that has been marked 'Prod Finished' either by selecting 'Workorder xxx is finished' when performing a setup in RealTime™ or Scheduling, or when it is manually checked in the production report, all hard allocated materials will be removed from inventory instead of the calculated required quantity. For example, if the quantity hard allocated is 1500 and the required quantity based on what was manufactured is 1250, the system would remove the 1500 when this is checked, if not checked it would remove 1250.

If some required material was not hard allocated the system will calculate the material usage using the standard method, i.e. by evaluating total cycles and parts counted, etc.

The system will look at the Work Center/Manufacturing Cell that the work order actually ran on when verifying whether or not the options are checked. This also applies to Non-RealTime Production Reporting by Shift (PRS). If a work center/Manufacturing Cell is selected that differs from the one the BOM has assigned, the Work Center/Manufacturing Cell in PRS will be used.

There are three options that can be selected from the drop down list: Yes, No, and System Default.

- Yes - When Yes is selected the option is enabled at the this level.
- No - When no is selected the option is not enabled at this level and the system will not continue looking at the hierarchy.
- System Default - By default it is set to 'System Default'. If system default is selected the system will evaluate the hierarchy.

A mouse-over hint is available when hovering on the setting that will let the user know which level of hierarchy will be used for both options (Disposition all Hard Allocated... and Freeze Consumption...), and what the values are. For example, "All hard allocated materials will be consumed. Consumption beyond hard allocated will not be frozen. Hierarchy Level = System".

The hierarchy for this option is:

1. Work Center
2. Manufacturing Cell

**3** Manufacturing Type

**4** Production Reporting by Shift Parameter

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**Note**: This feature is available for all MFG types except ASSY2, ASSY3, and COMPLEX.

---

**Freeze consumption beyond hard allocated** - This option will be available if the 'Disposition all Hard Allocated raw material when work order is marked "Prod Finished"' option is checked. If this option is enabled and 'Prod Finished' is checked for the work order, the system will not consume more material than what was hard allocated.

---

**Note**: When dispositioning the item the system will show material/components that were not hard allocated to the WO and only freeze consumption of material/components that were hard allocated but have been brought to zero through Return to Inventory or consumption.

---

**Automate Directed Task Generation** - This option, if enabled, activates automated directed task generation at the work center level. If the system-wide 'Automated Directed Task Generation' has been enabled within the Directed Task Monitoring module, this setting doesn't matter - tasks will be generated automatically for all items and all work centers. If the system-wide setting has not been enabled, however, this setting confines the automated directed task generation functionality to only this work center.

---

**Note:** The 'Materials Required' values may get miscalculated if RealTime is already receiving cycle information when the work order for the BOM is loaded into first position.

**Note:** Directed tasks will not generate if Auto Load has scheduled the associated work order into first position.

---

# Virtual Work Centers

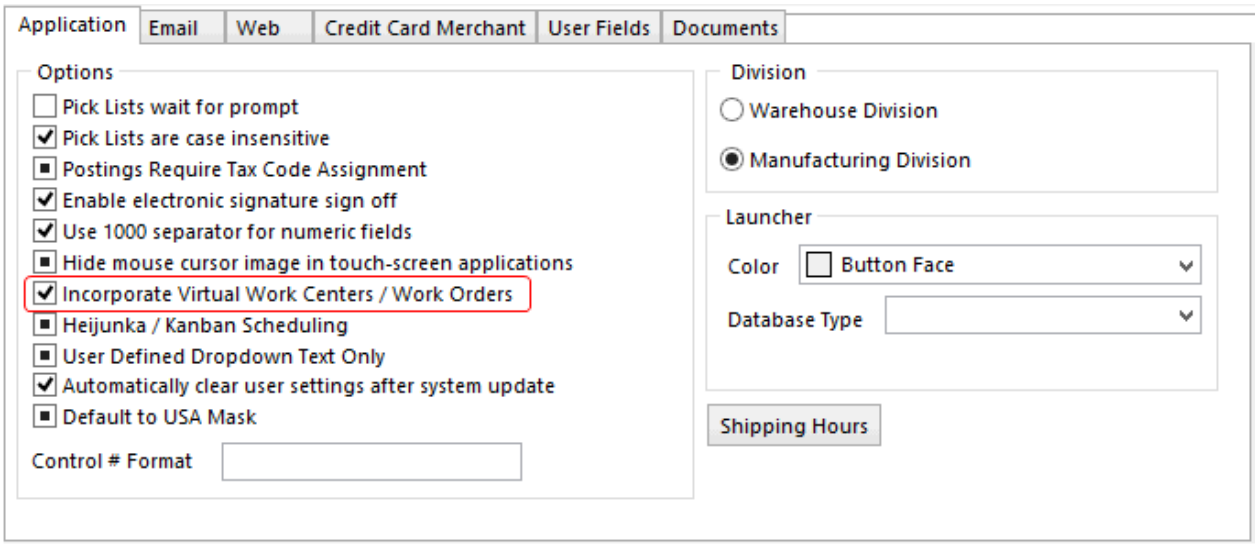
Work centers in EnterpriseIQ can be set up as virtual work centers. This enables the user to schedule and run the same manufacturing number on several work centers at one time. The system will recognize that the actual work centers are associated to a virtual work center and will divide the quantity to manufacture across the associated work centers. The current status of the virtual work center and its associated (child) work centers are visible in RealTime™ and the all the data flows to the production report as a combined value for the virtual work center. After a production report is archived the associated work centers are visible in the archived report and the total units in MRO are updated for each.

## Virtual Work Center Set Up

Several steps need to be made prior to using the Virtual Work Center functionality in EnterpriseIQ.

### System Setup

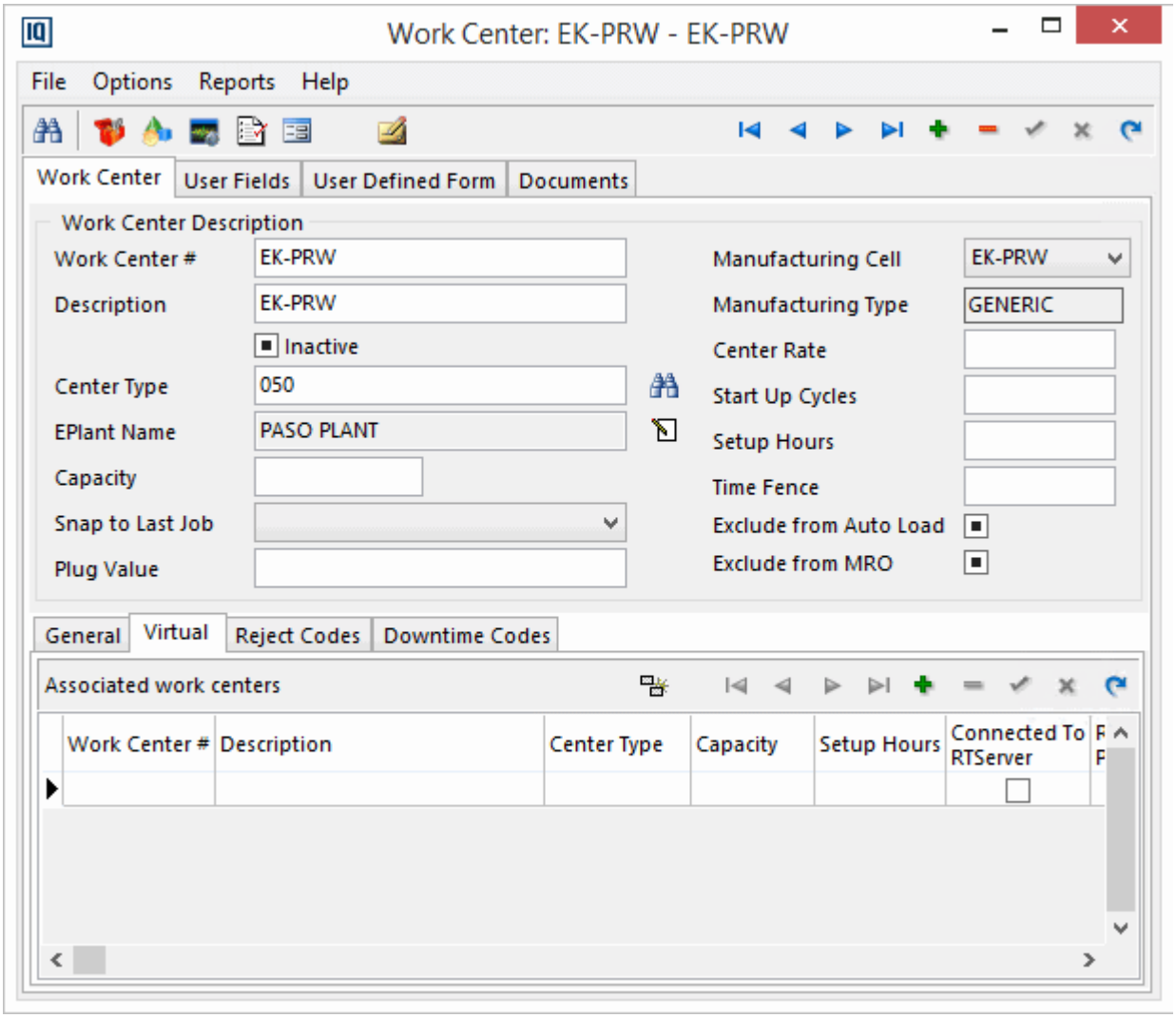
The first set up step is to tell the system to incorporate the virtual work center functionality. From the Sys Setup tab select the System Parameters module. Select the Company File Information tab and then the Application tab. Check the option, "Incorporate Virtual Work Centers / Work Orders".



### Work Centers

Select the Work Centers module on the Mfg Tab. To create a new virtual work center select the New button from the work center picklist or select the Insert (+) button from within the work center module. A blank work center form will appear. Enter the work center description information including the work center #, Description, Center Type, etc. just as you would for any new work center.

From the File menu select 'Virtual Work Center'. This will tell the system that this work center is a virtual work center and an additional tab called Virtual will appear in the lower section.



From the Virtual tab the user will associate the actual work centers that make up the virtual work center. Actual work centers can be added by cloning the virtual work center or by selecting existing work centers from the picklist, or a combination of both methods.

**Clone Virtual Work Center** - To create the work center by cloning the virtual work center, select the clone button  in the lower section. A pop up box will appear to enter the work center #. All of the other information will be copied from the virtual work center such as Description and Center Type but they can be edited by typing over the information in this section.

**Associate Existing Work Center** - To associate an existing work center, select the Insert (+) button or double click in the Work Center # field to access the work center picklist. Select the desired work center from the list. If a work center has work orders scheduled on it, the work center will not be able to associated with a virtual work center. A message will appear that states, 'This work center has work orders scheduled. Remove work orders from schedule for this work center and try again'.

Continue this process until all of the associated work centers have been attached to the virtual work center.

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**Note**: Adding a new child work center to a virtual work center while a job is running will not affect the currently running job. The next job setup will be divided by the number of child work centers associated at the time of setup.

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### RealTime™ Addresses and RT Server

The RealTime™ addresses are always assigned to the associated (child) work centers and not the virtual work center. If an existing work center with a RealTime™ address was attached to the virtual machine, that address will populate the RealTime™ address field on the Virtual tab. If a new work center was created the user will need to check the 'Connected to RT Server' option and then assign the work center a RealTime™ address by selecting 'Assign RealTime Information' from the Options menu.

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**Note**: The work centers that have been associated to a virtual work center are no longer visible in the work center pick lists throughout the system (such as scheduling).

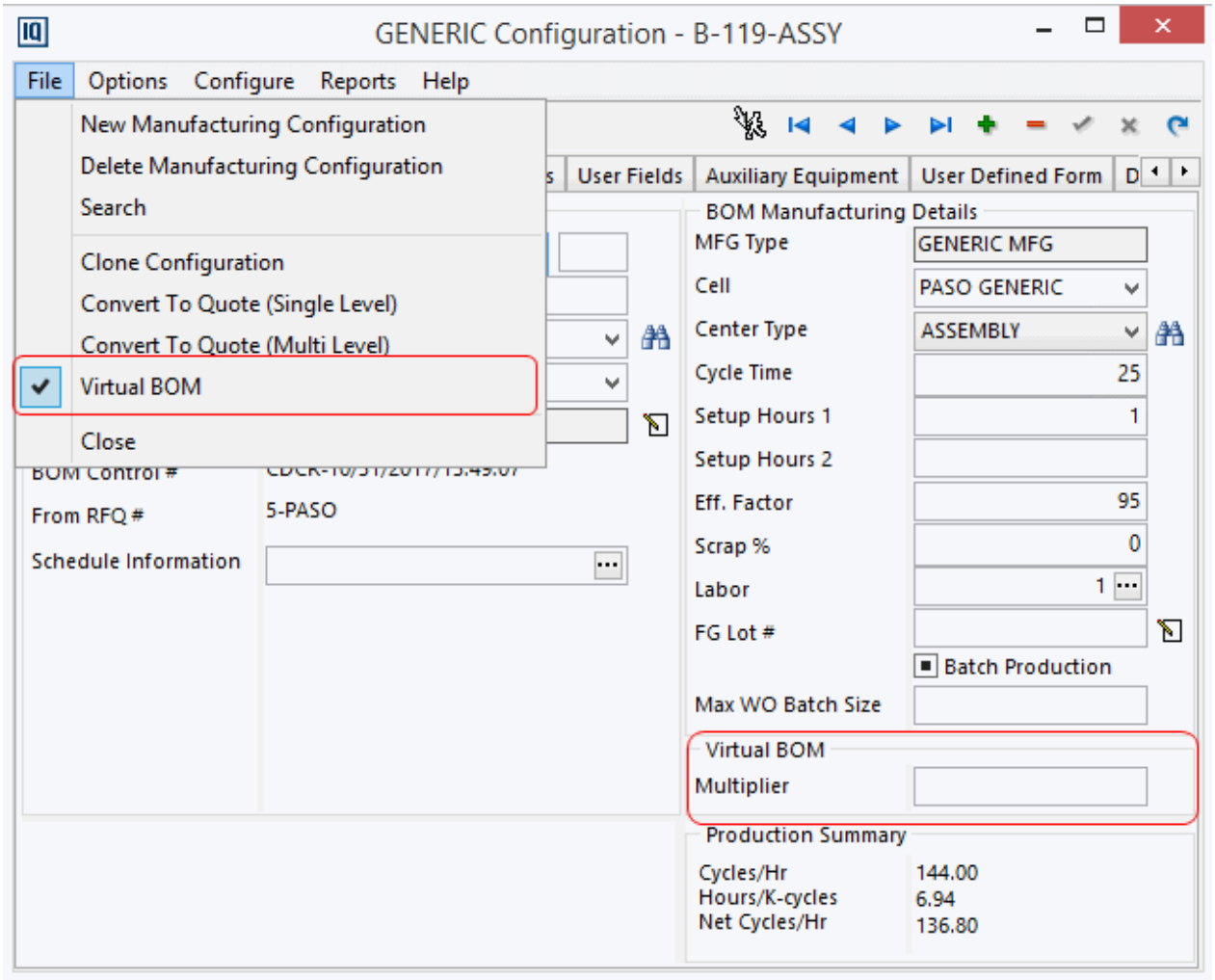
---

The virtual machine does not need a RealTime™ address but it must have the 'Connected to RT Server' option selected in the RealTime™ Information section on the General tab in the Work Center module. The center RealTime™ Address will automatically populate with the first associated work center's RealTime™ address with a "_VIR_ " during job setup and not when the associated work centers are created.

**Disassociate from Virtual Work Center** - A child work center can be disassociated from the virtual work center by selecting the (-) button in the associated work centers section of the form. Select the disassociate option to remove the work center from the virtual machine. To delete the work center completely select the 'Delete Associated Work Center'.

### Bill of Manufacture

BOM's that will be run on virtual work centers should be marked as a Virtual BOM. Once a BOM is marked virtual an additional field will be visible to enter the number of work centers that will be running this configuration at the same time. This option is only available for Injection or Generic BOM's.


GENERIC Configuration - B-119-ASSY
File
Options
Configure
Reports
Help
New Manufacturing Configuration
Delete Manufacturing Configuration
Search
Clone Configuration
Convert To Quote (Single Level)
Convert To Quote (Multi Level)
Virtual BOM
Close
User Fields
Auxiliary Equipment
User Defined Form
BOM Manufacturing Details
MFG Type
GENERIC MFG
Cell
PASO GENERIC
Center Type
ASSEMBLY
Cycle Time
25
Setup Hours 1
1
Setup Hours 2
Eff. Factor
95
Scrap %
0
Labor
1
FG Lot #
Batch Production
Max WO Batch Size
Virtual BOM
Multiplier
From RFQ #
5-PASO
Schedule Information
Production Summary
Cycles/Hr
144.00
Hours/K-cycles
6.94
Net Cycles/Hr
136.80

To mark the configuration as a Virtual BOM, select '**Virtual BOM**' from the File menu on the bill of manufacture. Once this option is selected the **Virtual BOM Multiplier** field will become visible. Enter the number of work centers that will run this configuration at the same time. This field will affect the Cycles/Hr, Hours/K Cycles and Net Cycles/Hr. This production summary information is used by the system to determine the production hours required for a work order, which in turn affects the must start date. This information is not used in scheduling; if the BOM's Virtual BOM Multiplier is set to 10, but the work order is scheduled on a work center with 3 virtual work centers, the system will divide the work order by 3 instead of 10. For more information please see Virtual BOM.

# Using Virtual Work Centers

### Scheduling

Once the setup is complete the user can begin to use the virtual work center functionality. When demand is present for items that will be run on virtual work centers, work orders are created in the same manner as other demand. As mentioned earlier the production hours are calculated based on the Cycles/Hr which is affected by the Virtual BOM Multiplier value in the configuration.

The work order is scheduled to the virtual work center, not the associated work centers. (Only the virtual work centers are visible in the work center picklist in the schedule). The job is scheduled in the typical manner. When the work order is in any position other than the first position the Hours To Go will be calculated as: ((net cycle time * cycles required) / Virtual BOM Multiplier).

If the job is in the first position the hours to go is calculated: (standard cycle time * cycles required) / actual number of work centers associated to virtual machine.

### RealTime™

Once the work order is scheduled it can be viewed from RealTime™. The virtual or associated (child) work centers will not be visible upon first opening the RealTime™ screen. To view the virtual machines select the button  '**Show only virtual work centers**'. The screen will change to display only virtual work centers in the top section and the associated work centers in the bottom section. The information displayed for the virtual machines in the top section will be based on the selected view (Part Numbers, Quality Control, etc.). Changing the view on the parent does not affect the view for the associated work centers. The information displayed for the children is always the Part Number view.

The virtual machine is the sum of all the child machines. It accumulates all of the cycles made on all the children and shows the 'parts-to-go' for the entire run. The virtual machine will be the deciding factor as to whether the 'run' is done. The running child machines will run into the negative to compensate for a machine being down.

### RealTime™ Production Data Entry

All production data entry, such as rejects and downtime, is entered on the virtual machine. There are no right-click options on the associated work centers. The procedure for entering the production data is identical to that for non virtual work centers. Please refer to the RealTime™ help files for more information.

### Production Reporting

In the production report, users will see the parent virtual work center but not the associated child work centers. However, all of the child work centers will have data in the DAYPROD table, and information for them may be viewed by right-clicking the parent and choosing the option View Associated Workcenters. For the parent work center, the system combines the total cycles, total good parts and production hours from all of the child work centers to arrive at the parent virtual work center's totals.

Upon production report disposition, the system will update the Total Units in Maintenance, Repair and Overhaul (MRO) for the child work centers only, the parent virtual work center will be ignored since there is no PMEQMT row associated to it.

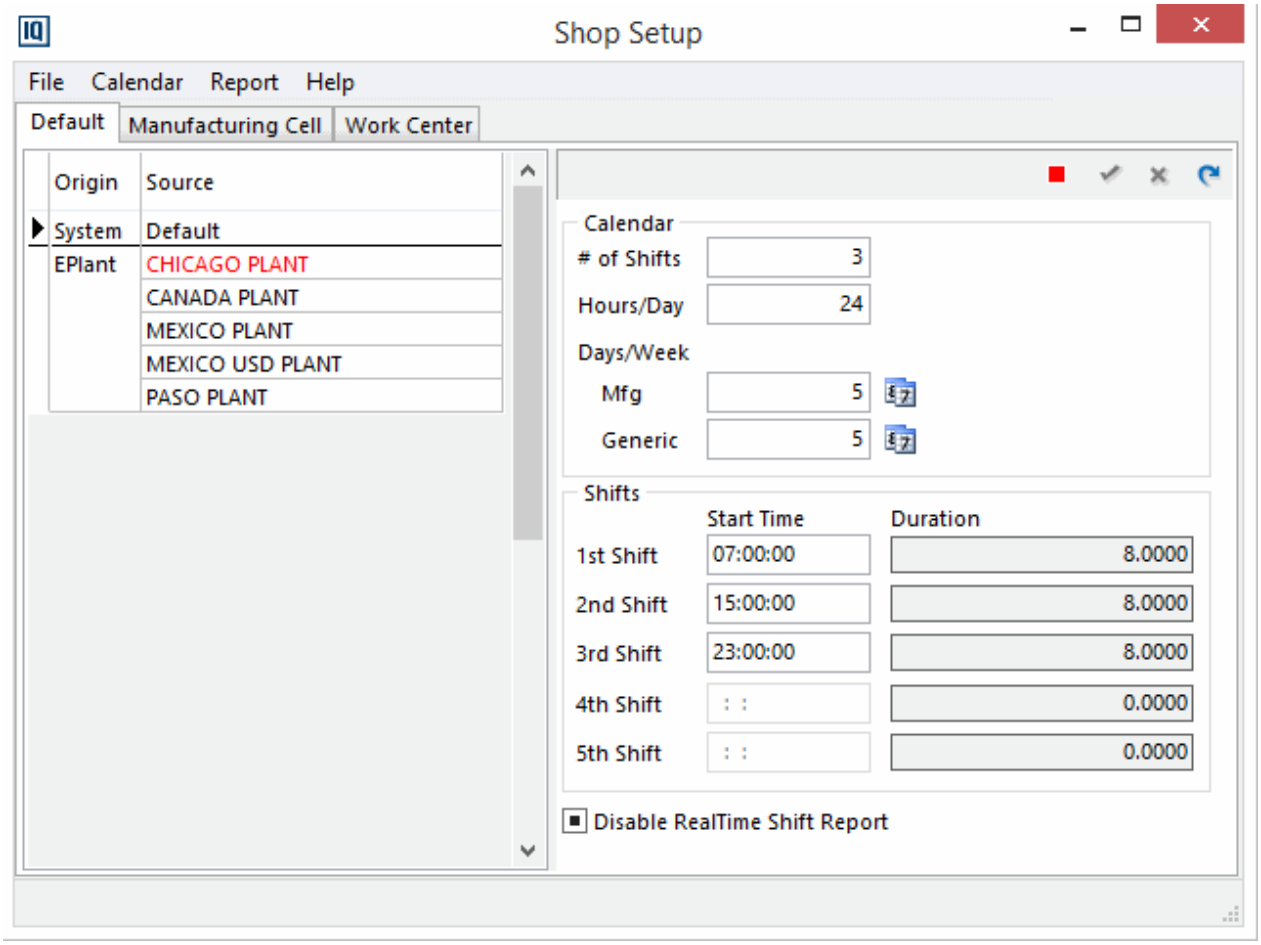
# Shop Setup

The Shop Calendar is where the number of shifts and their times are set. This information assists in determining work center capacity, scheduling, material planning, production shift reports, etc. In addition, the values entered here are used to tell RealTime™ when to stop counting production against one shift and begin counting against the next and auto-generate a production shift report. The Shop Calendar uses values stored in this section to create a default calendar. The default schedule is the most generic schedule that your shop may have. For example, your plant may generally run 24 hours per day, three shifts, five days per week. However, several machines may actually run over weekends or through holidays. Using the Shop Calendar, these exceptions can be created and maintained. For EPlant users, a default shop calendar can be set up per EPlant. Specific shop calendars can also be set up for Manufacturing Cells. When determining the current shift, the system first looks to the Manufacturing Cell. If no custom calendar exists for the cell, it then looks to the EPlant. If there is not a default set up for the EPlant it uses the System Default calendar.

Shop Calendar can be accessed from one of the following two ways:

- From the **EIQ Launcher Bar**, click on **Shop Set Calendar** icon  , or
- From within the **Scheduling** screen, click on **Options|Shop Setup**.

Shop Setup must be completed prior to scheduling any work orders. This section is used to define the following: how many shifts per day are being run, shift start times, and the number of days per week that the work center(s) (manufacturing or generic) will be in operation. Enter the number of days per week and which shifts are working for Manufacturing and Generic work centers. The shifts are then assigned to valid work centers.




The values entered here are used to tell RealTime™ when to stop counting production against one shift and begin counting against the next. At the end of each shift, a production report is created, which maintains a summary of production history for the prior shift.

To ENTER information into these sections, complete the following steps:

Select the **Source** to create the calendar for (System Default, or a specific EPlant).

- Enter in the **number of shifts** that will run in a 24 hour period, the **time** each shift starts, and the **Manufacturing** and **Generic center** information. Make sure that all of this information has been entered before setting up the calendar. Below is a field listing describing each field in detail.

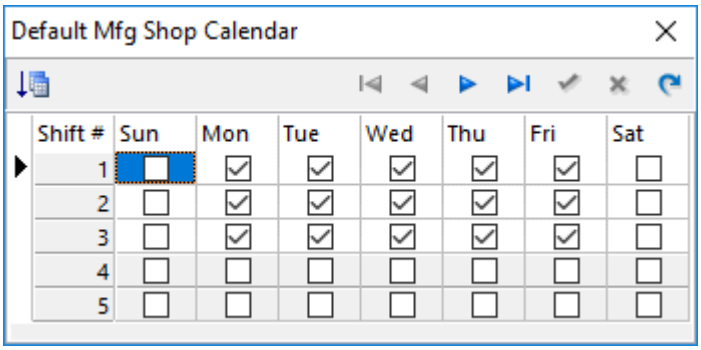
---

**NOTE**: RealTime™ assumes a standard 24 hour production day with regular shift changes. If your shop uses a unique shift schedule, try to set up this information with this in mind, but that which comes closest to matching your schedule.

---

**Default Shop Setup Field Listing**:

| | |
|---|---|
| **# of Shifts** | The number of shifts that will run in a 24 hour period. |

| | |
|---|---|
| **Hours Per Day** | The number of hours per day the plant is running. |
| **MFG Days/Week** | Enter the number of days per week that the Manufacturing centers will be operating.<br><br>Select the Define Working Shifts speed button  to designate specific days per week working.<br><br>  <br>For a five day week the form will default to Monday through Friday. Users can check or un-check the boxes to fit their default working days. |
| **Generic Days/Week** | Enter the number of days per week that these centers will be operating. |
| **First Shift**<br>**Second Shift**<br>**Third Shift**<br>**Fourth Shift**<br>**Fifth Shift** | Enter the time that each one of these shifts start. The time entry must be based off the 24 hour clock.<br>12 AM = 00:00:00, 1 PM = 13:00:00, 8 PM = 20:00:00. |
| **Working** | Select the number of shifts worked per day for Mfg and Generic work centers. |
| **Disable RealTime Shift Report** | Checking this box will prevent the system from writing to the xdayprod table such as during shift change, removing job, change of lot etc. The rest will continue functioning exactly as before. With this checked users should create one shift 24 hrs long to prevent the production reports from being created. This option can be set up for a specific MFG Cell. |

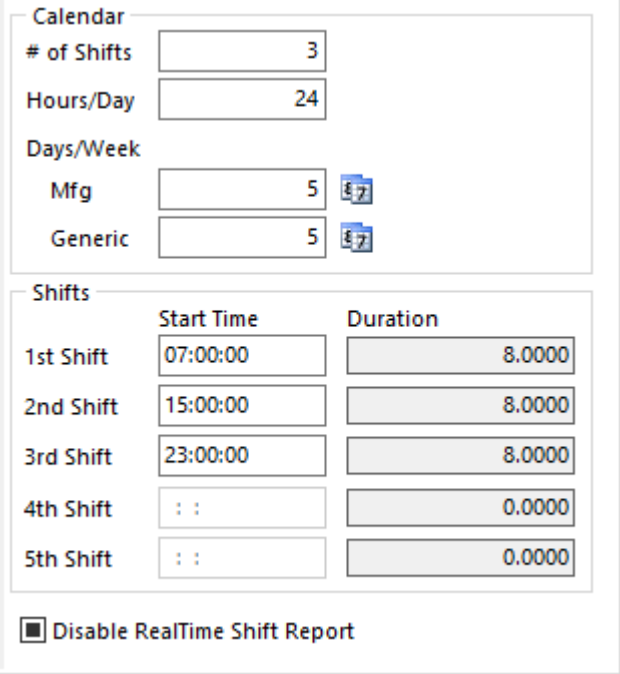
# Shift Examples

When creating a shift calendar keep in mind that the production date is set for all three shifts when the first shift starts. The production date remains unchanged until the next first shift.

The following examples demonstrate how the production date will be affected depending on the first shift's start time.

**Example One:**

First shift starts at 7:00 a.m. each shift works five days per week.



Based on the shop calendar example above the production shift reports will be created by RealTime™ as follows:

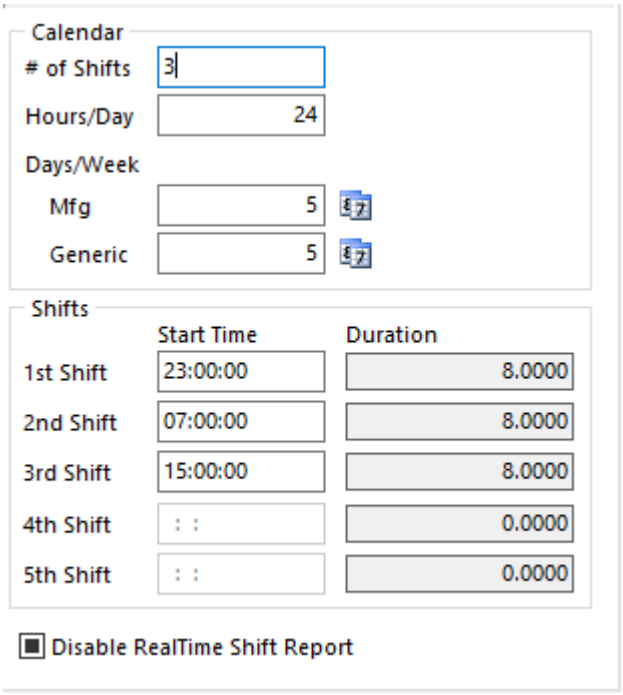
Sunday, Shift 3 (dated Sunday's date)

Monday - Thursday, Shift 1,2, and 3 (All three shifts will be dated the date for 1st shift).

Friday, Shift 1,2, no shift 3 (assuming shift 3 does not work on Friday's. Both shifts will have Friday's date).

**Example Two:**

First shift starts at 11:00 p.m. and all shifts work five days per week.



Based on this shop calendar the production shift reports will be created by RealTime™ as follows:

Sunday, Shift 1, 2, and 3 (all will have a production date for Sunday but shift 2 and 3 are actually working on Monday).

This will be the same for the rest of the week which can be very confusing. If Shop Calendar is set up like the second example, with the first shift starting at 23:00 then shift 2 and 3 will always have "yesterday's" date.

---

**NOTE**: The production date (PDATE) is set for all three shifts when the first shift starts. The PDATE remains unchanged until the next first shift.

---

### Two Shift example

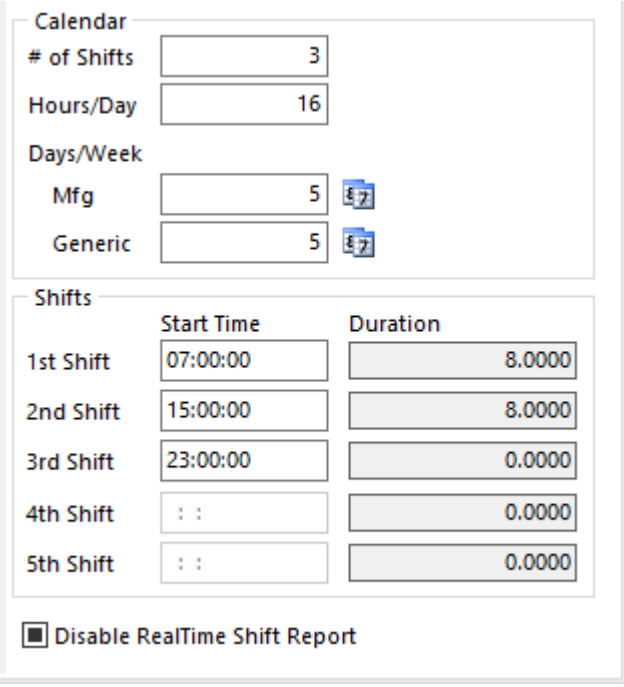
If your shop is only running two, three, or four shifts that do not add up to 24 hours and you are using RealTime™ be sure to enter a third shift for zero hours if there are only two actual shifts, or a fourth shift for zero hours if there are only three actual shifts, or a fifth shift for zero hours if there are only four actual shifts, . This is necessary to let RealTime™ know when the second shift ends.

- To do this set the # of Shifts to 3, 4, or 5 (one more than actual) and the Hours/Day to 16. In the example:

Shift 1 starts at 7:00 for 8 hrs

Shift 2 starts at 15:00 for 8 hrs a day

Shift 3 starts at 23:00 for 0 hrs a Day.

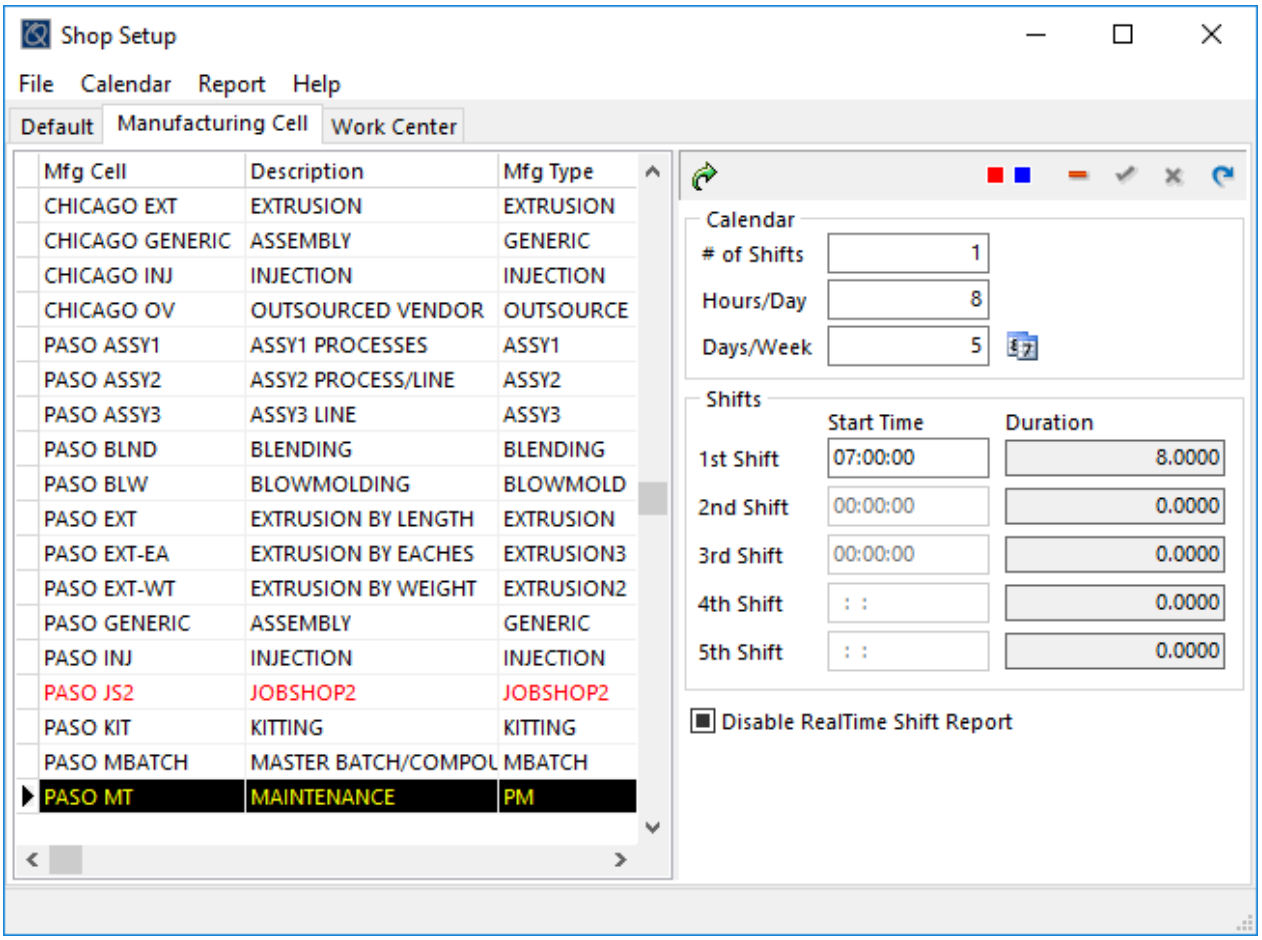


# Manufacturing Cell and Work Center Setup

## Manufacturing Cell Setup

If you are using separate cells, you can setup individual shift information for each cell. Enter the number of shifts, hours per day that each cell works, and the number of days per week. Then enter the actual start times of each shift. The Default days/week value has to be greater to or equal to the days/week for the cells. If your default calendar is working five days per week then all of the cells have to be set at the default or if they have unique shifts they must all be working five days or less per week.

The green arrow button will bring over the default information you set on the default tab if the information for the cell is the same as the default.



**Disable RealTime Shift Report** - Checking this box will prevent the system from writing to the xdayprod table such as during shift change, removing job, change of lot etc. The rest will continue functioning exactly as before. With this checked users should create one shift 24 hrs long to prevent the production reports from being created. This option can be set up on the default calendar.

---

**Note:** for RealTime™ users: If a cell requires a dedicated shift change it will run in a separate database session. To support a separate database session per shift, change the BDE Shared Memory Size to 8192 or higher. Failure to do so will result in insufficient memory errors.

---

**Clearing Individual Shift Information** - To remove the specific shift information and return to the defaults, select the minus button. A confirmation message will appear, 'Are you sure you wish to revert to Default Schedule?', select Yes to clear out the settings or No to keep them. If a user attempts to clear out the information manually by backspacing over the data in the fields, when attempting to post the change a warning will appear stating, 'Field '# of Shifts' must have a value.'

## Work Center Setup

The number of shifts, hours per day, and days per week can be setup at the Work Center level. The # Shifts and Hours/Day cannot exceed the default # Shifts and Hours/Day. The default is determined based on the hierarchy:

- If the work center belongs to a manufacturing cell with a specific setup then this setup becomes the default.
- Otherwise the system will use default setup from the Default tab.

---

**Note**: This change will only affect Rough Cut Capacity -> Work Center Type -> Hours Available. It will not affect the schedule.

**Note**: This information will not be used to calculate Work Order Must Start Date as it is not known which work center will be used to run the work order or process.

**Note**: When Down Time is added to a work center that has it's own Shop Calendar set up, the Down Time will use the work center's Shop Calendar available hours to determine the End Time.

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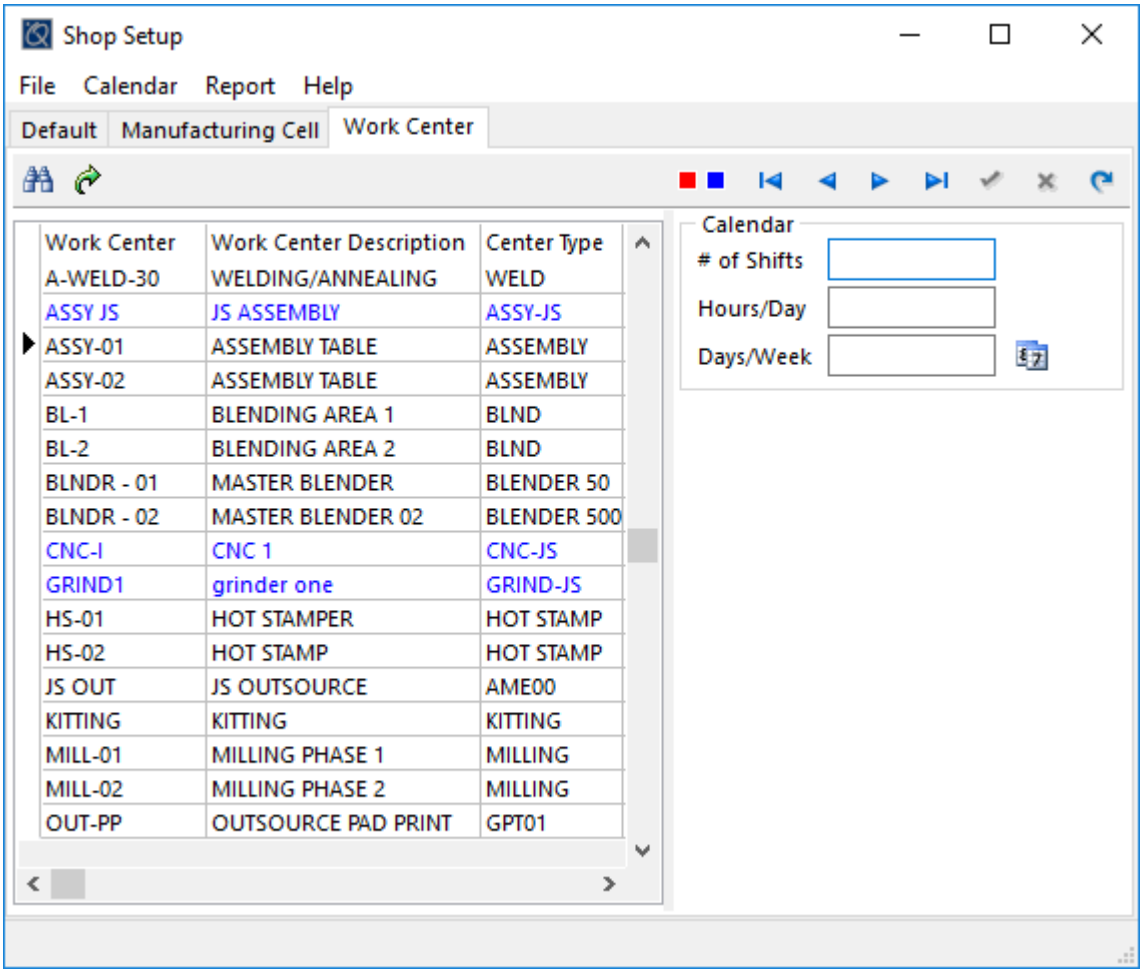
Enter the number of shifts, hours per day that each work center works, and the number of days per week. Note: By design the shift setup does not include start/end times for the shifts.




To generate the calendar for just one work center, assign # Shifts, Hours/Day, Days/Week, then right click and select 'Set calendar for selected work center'. The work center specific calendar is also generated during the 'Set Default Calendar' processing.

To delete a calendar setup assigned to a work center clear out # Shifts, Hours/Day, Days/Week.

# Set Calendar

This option recreates and stores weekends/off shift information according to the parameters setup under Shop Setup. If the user exits without updating the calendar a warning will display to remind them.

To setup the Shop Calendar:

- From within the Shop Setup screen, click on **Calendar/Set Default Calendar**.
- Enter the **year** in which the weekends/off shift information will be created for.
- Click on [**OK**] to continue. The system will go through and setup the default shift information based on what was entered under Shop Setup. Upon completion, the user will be notified that the transaction was completed successfully.
- Click on [**OK**]. The user will be returned to the Shop Setup screen.

If the user has only changed the information for a specific cell the Set Default Calendar function can be done for just that cell instead of the entire shop calendar. To perform the update for a specific cell highlight the cell then right click and select **Set Calendar for Selected Mfg Cell**.

---

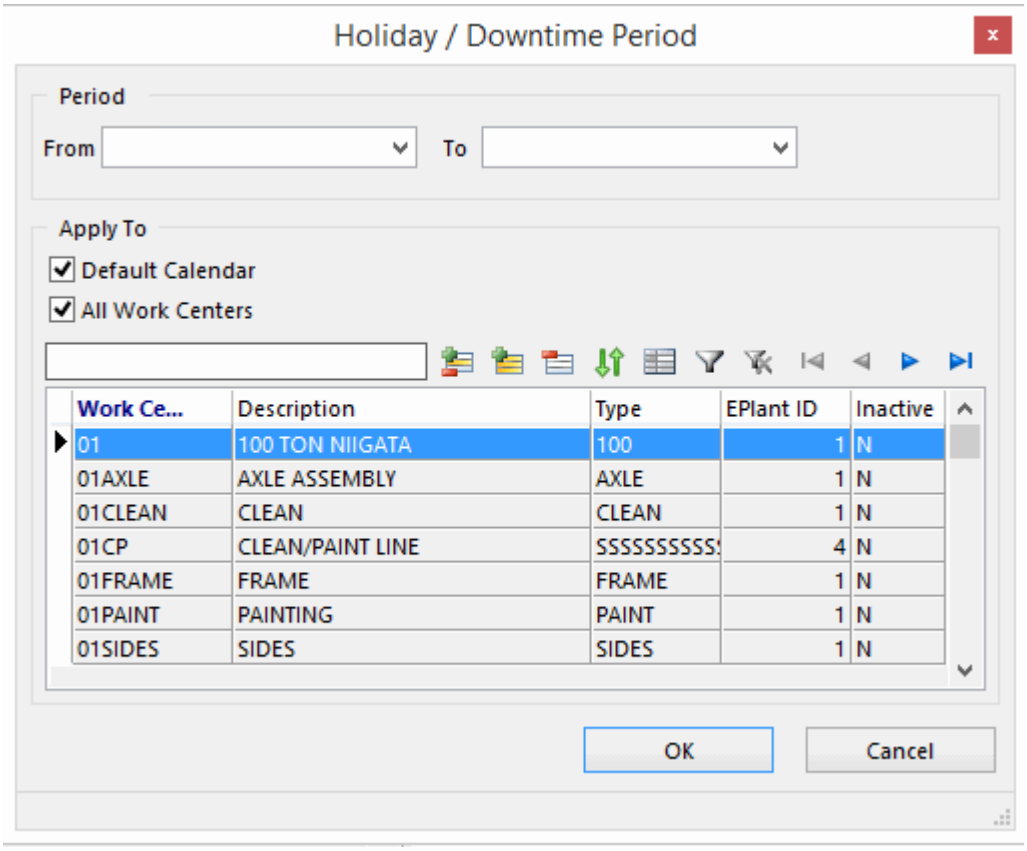
**NOTE**: In addition to updating the calendar after changes have been made, RealTime™ users will also have to restart the RT Server to recognize the changes. Restart RT Server after the Set default Calendar has been run.

---

# Creating Holiday Periods

**EnterpriseIQ** must know when the entire facility or individual work centers will not be operating. The Holidays option supports the setting of these parameters.

- From within the **Shop Setup** screen, click on **Calendar/Add Holidays** and the following screen will appear:



The system works by exclusion - entering a date or date range in the **Period** section will exclude those dates from production consideration. The user can use this tool to exclude as many time frames as necessary. If the Holiday is just one day be sure to include a time as well. To enter a time arrow over to the right of the date field in the From and To fields.

---

**Note**: Assigning time off in Holidays and applying it to the default calendar will adjust the must start dates on work orders so that they are not starting on a regularly scheduled holidays. If a user just edits the shop calendar by adding or deleting time or using the 'Schedule Days Off' option, the must start date could calculate to start on an off day.

---

The **Apply To** section is used to specify the work centers to be affected. If the 'All Work Centers' box is checked, all work centers at the facility will be affected by the holiday time. If this box is not checked, then the user can select which work centers to apply the holiday to by highlighting them in the list using the toggle buttons or the Shift and Ctrl buttons on the keyboard. This table can be sorted by any column to help locate the specific records to be included. For example, if the holiday is for a specific EPlant select the EPlant ID column to sort the list based on EPlant and then select the work centers associated to just the plant where the holiday should be applied.

The Start and End rows in Schedule Days Off will show in green.

---

**Note**: If a holiday is added incorrectly, the user can select the Default Calendar option to revert the calendar back to the default. This process will remove them from the MFG Cell tab and the Work Centers tab.

**Note**: On the day that daylight savings time begins there will be no 2AM hour. To prevent errors the system will automatically skip over the time change and will not allow jobs to be scheduled during that hour.

---

# Schedule Days Off

You can further adjust the shop calendar by going to Schedule Days Off under **Calendar/Schedule Days Off**. Note again that the Schedule Days Off option will not effect the Must Start dates, only holidays assigned to the default calendar will. When the system is calculating the must start date, it does not know which work center it will run on, so therefore could not use specific work center off days. The Start and End times in the schedule will be adjusted by the Scheduled Days off. This screen shows all of the days off that have been scheduled to each work center through the previous set up. The Start and End rows in Schedule Days Off will show in green for holidays. You can go into this screen and delete days off already assigned or add other days off to each work center or based on a manufacturing type or cell by using the navigator bar **+/-** buttons.

---

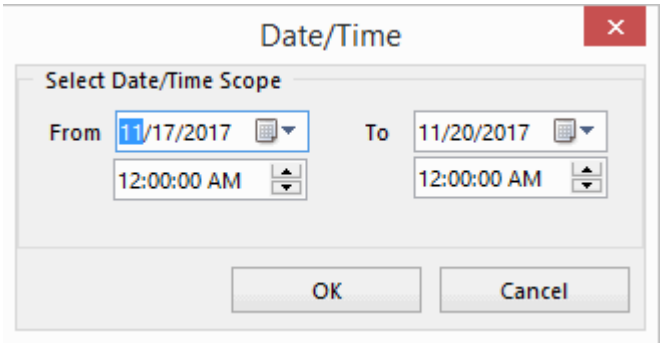
Note: When adding time off on the MFG Cell / MFG Type tab the 'Propagate to work centers' option must be checked before adding the time block in order to have the time off propagate to the associated work centers. If this option is checked and time off is removed it will also delete the days off for each work center in the cell.

Note: If a time off period is edited by increasing the date range and the change is posted it will propagate to the work center(s) if the box is checked. However, if the range is then shortened again the work center will still show the longer date range. This is due to the system merging the off periods for the work center calendar to avoid duplicates. When a user shortens a down period the system sees it as a duplicate that is covered by a longer interval and ignores it.

---

 To delete multiple days off from the list associated with work centers click on the Multi-Select button. With multi-select on the user can select multiple records then click on the Delete (-) button to remove the days off for the highlighted work center.

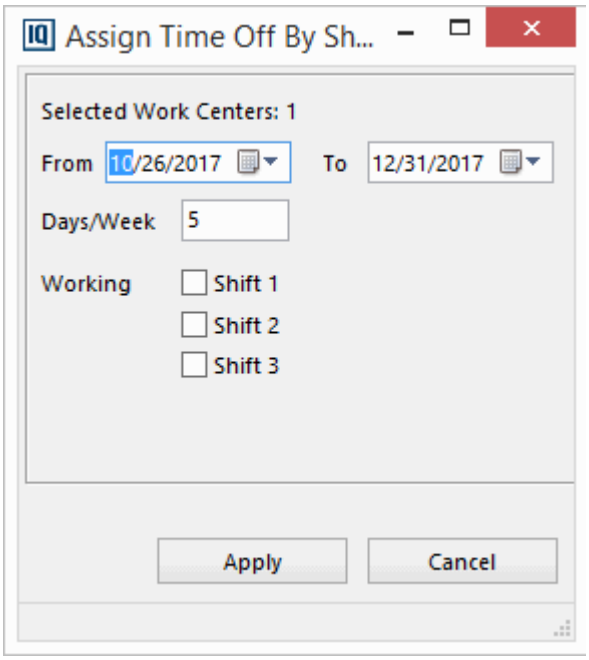
To add days off the user can click on the ADD (+) button then type in the day and time in the start and end fields or use the **Edit Start/End time** button  to enter the date and times on the form:



### Time Off by Shift

Use this feature to define the “working shifts” on selected work centers. This will over-ride “working shift” settings found on the Default Calendar.

Select the work centers the time off is to be set for on the Schedule Days Off form. To multi-select work centers hold down the SHFT or CTRL key. Then click on the Shift Time Off speed button  or go to **Calendar/Assign Time Off by Shift**.




Select the date range for the time off and check the shifts that will be working if any. If the Working shifts check boxes are blank, the system will add time off for all shifts for all the work centers previously selected, for the date range.

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