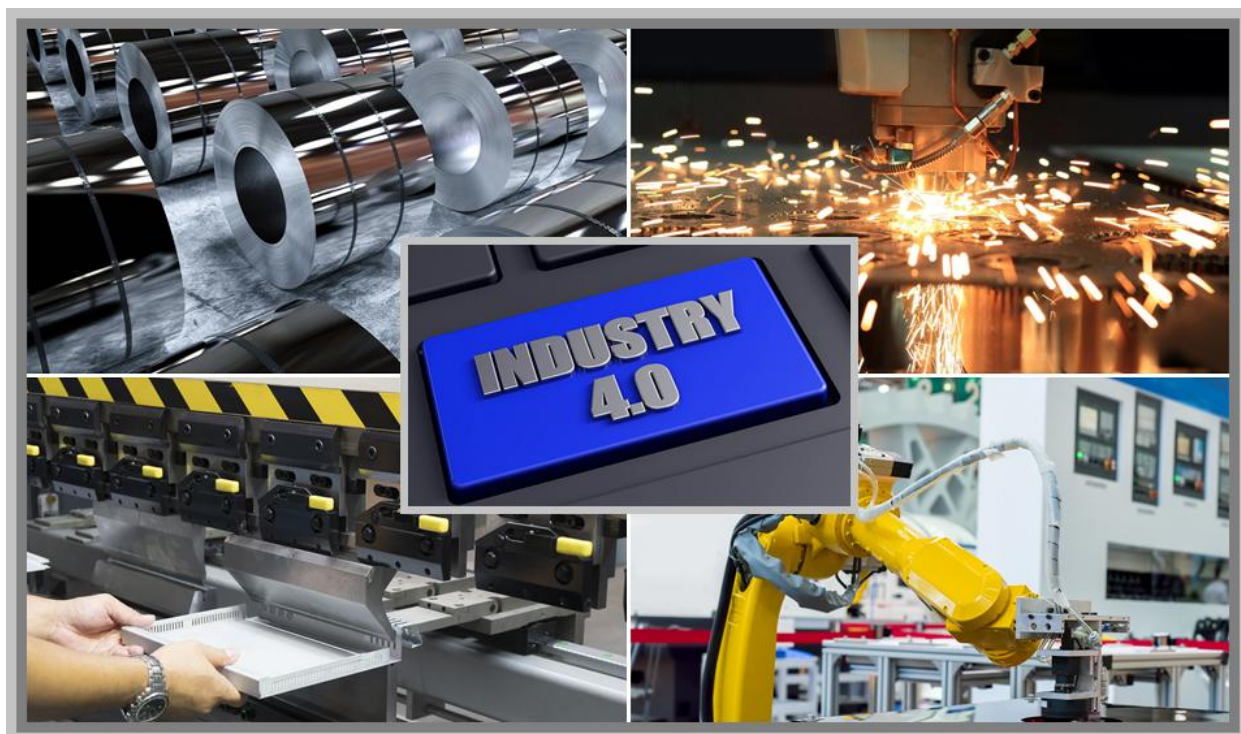




Global Edge® Engineering Assistant



Workflow #: 5 – Production **(Process Assembly & Create Job)**

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Demo Section 5: Production Workflow

Global Edge Engineering Assistant provides Production Workflow capabilities that includes **"Process Assembly and Create Job"** to illustrate the processing of a CAD model assembly to create a complete manufacturing bill of materials and production job.

- **5.1 – Automated Production Work Queue**
- **5.2 – Automated CAD Part Analysis**
- **5.3 – Automated Routing Generation**
- **5.4 – Automated Manufacturability Testing**
- **5.5 – Automated Bend Program Generation**
- **5.6 – Automated Production Job Build**

Production Workflow illustrates **"Automated Shop Floor Data Preparation"** capabilities that start with a daily download of orders from ERP to the preparation and testing of order components including the generation of a complete production job to feed your scheduling / MES software.

Step 5.1: Starts with an **"Automated Production Work Queue"** that processes orders downloaded from ERP and automates labor-intensive tasks associated with the engineering workflow process.

Step 5.2: Includes **"Automated CAD Part Analysis"** of complete sheet metal part parameters to serve as a foundation for Manufacturability Testing, Automated Routing, Bend Program and Sales Quote Generation.

Step 5.3: Includes **"Automated Routing Generation"** that compares CAD part parameters with a matching bend process to identify any potential fabrication errors that may occur before leaving engineering.

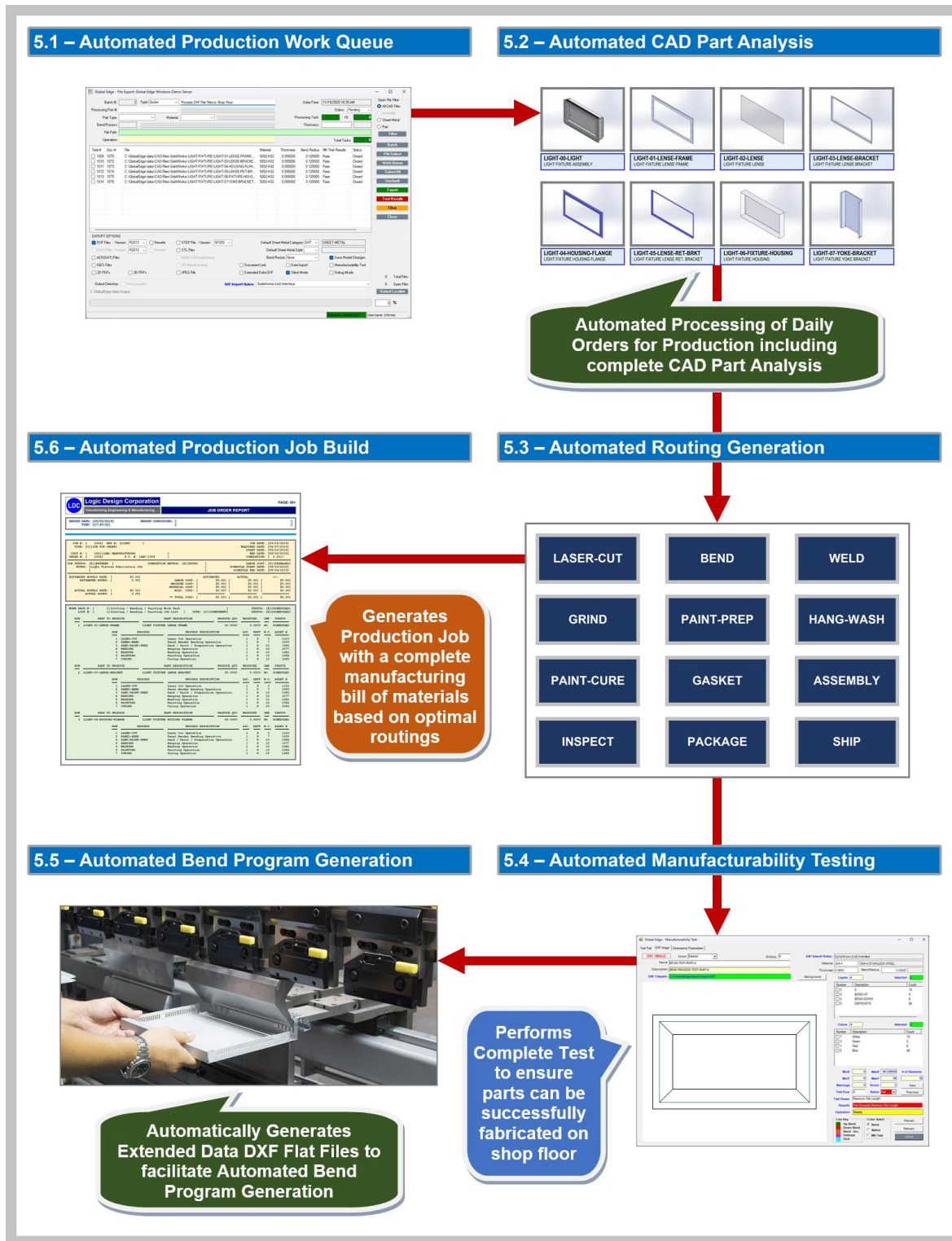
Step 5.4: Performs **"Automated Manufacturability Testing"** that compares CAD part parameters with a matching bend process to identify any potential fabrication errors that may occur before leaving engineering.

Step 5.5: Includes **"Automated Bend Program Generation"** that compares CAD part parameters with a matching bend process and machine tool parameters to generate Extended Data DXF Flat files with the necessary information to facilitate Automated Bend Program Generation.

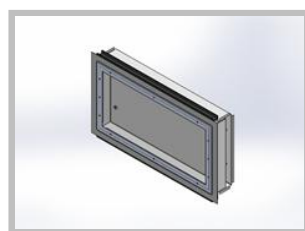
Step 5.6: Includes **"Automated Production Job Build"** capabilities ...

Workflow #: 5 - Process Assembly & Create Job (Production Workflow Diagram)

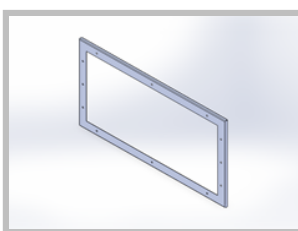
This workflow scenario illustrates processing of a CAD model assembly to create a complete manufacturing bill of materials and production job.



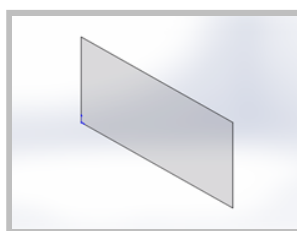
Work Queue Batch #: ?? (GlobalEdgeCAD_SLD)



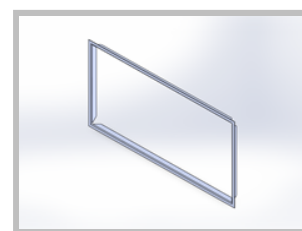
LIGHT-00-LIGHT
LIGHT FIXTURE ASSEMBLY



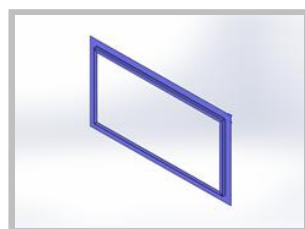
LIGHT-01-LENSE-FRAME
LIGHT FIXTURE LENSE FRAME



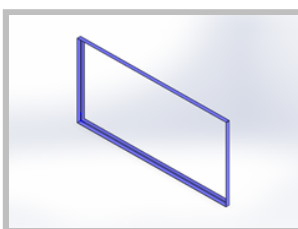
LIGHT-02-LENSE
LIGHT FIXTURE LENSE



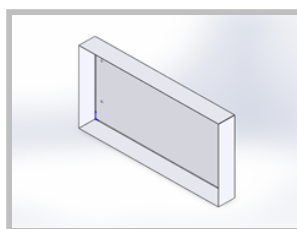
LIGHT-03-LENSE-BRACKET
LIGHT FIXTURE LENSE BRACKET



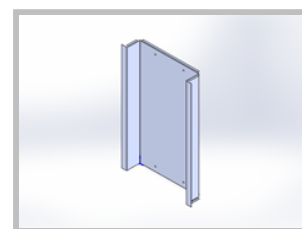
LIGHT-04-HOUSING-FLANGE
LIGHT FIXTURE HOUSING FLANGE



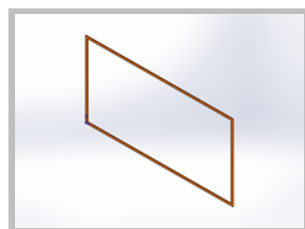
LIGHT-05-LENSE-RET-BRKT
LIGHT FIXTURE LENSE RET. BRACKET



LIGHT-06-FIXTURE-HOUSING
LIGHT FIXTURE HOUSING



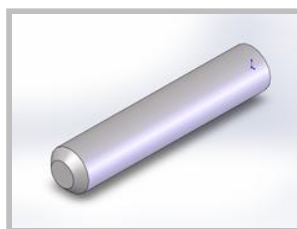
LIGHT-07-YOKE-BRACKET
LIGHT FIXTURE YOKE BRACKET



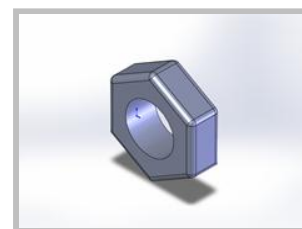
LIGHT-08-DOOR-GASKET
LIGHT FIXTURE DOOR GASKET



LIGHT-09-FRAME-CHANNEL
LIGHT-09-FRAME-CHANNEL



LIGHT-10-BOLT
LIGHT FIXTURE BOLT



LIGHT-11-NUT
LIGHT FIXTURE NUT

Part Numbers Associated with Processing of Light Fixture Assembly (Work Queue Batch #: #)

PART #	DESCRIPTION	TYPE	CAT	MTL.	UOM
LIGHT-00-LIGHT	LIGHT FIXTURE ASSEMBLY	PRD	LFX		EA
LIGHT-01-LENSE-FRAME	LIGHT FIXTURE LENSE FRAME	CMP	SHT	5052-H32	EA
LIGHT-02-LENSE	LIGHT FIXTURE LENSE	CMP	SHT		EA
LIGHT-03-LENSE-BRACKET	LIGHT FIXTURE LENSE BRACKET	CMP	SHT	5052-H32	EA
LIGHT-04-HOUSING-FLANGE	LIGHT FIXTURE HOUSING FLANGE	CMP	SHT	5052-H32	EA
LIGHT-05-LENSE-RET-BRKT	LIGHT FIXTURE LENSE RET. BRACKET	CMP	SHT	5052-H32	EA
LIGHT-06-FIXTURE-HOUSING	LIGHT FIXTURE HOUSING	CMP	SHT	5052-H32	EA
LIGHT-07-YOKE-BRACKET	LIGHT FIXTURE YOKE BRACKET	CMP	SHT	5052-H32	EA
LIGHT-08-DOOR-GASKET	LIGHT FIXTURE DOOR GASKET	CMP	SHT		EA
LIGHT-09-FRAME-CHANNEL	LIGHT FIXTURE FRAME CHANNEL	CMP	SHT	G60	EA
LIGHT-10-BOLT	LIGHT FIXTURE BOLT	CMP	SHT	304-4	EA
LIGHT-11-NUT	LIGHT FIXTURE NUT	CMP	SHT	304-4	EA

Sample Light Fixture Routings

LIGHT-00-LIGHT-FIXTURE			LIGHT FIXTURE ASSEMBLY					
Seq. #	Process	Description	WC #	Asset #	UOM	Setup Time	Load Time	Process Time
1	ASSEMBLY	Assembly Operation	11	1094	hours	0.150000	0.000000	0.100000
2	PACKAGING	Packaging Operation	14	1102	hours	0.000000	0.000000	0.100000

LIGHT-01-LENSE-FRAME			LIGHT FIXTURE LENSE FRAME					
Seq. #	Process	Description	WC #	Asset #	UOM	Setup Time	Load Time	Process Time
1	LASER-CUT	Laser Cut Operation	3	1123	hours	0.100000	0.010000	0.014345
2	PANELBEND	Panel Bender Bending Operation	7	1009	hours	0.100000	0.000000	0.004000
3	SAND-PAINT-PREP	Sand / Paint / Preparation Operation	10	1086	hours	0.000000	0.000000	0.020977
4	HANGING	Hanging Operation	10	1077	hours	0.000000	0.000000	0.020000
5	WASHING	Washing Operation	10	1082	hours	0.000000	0.000000	0.010000
6	PAINTING	Painting Operation	10	1084	hours	0.000000	0.000000	0.041954
7	CURING	Curing Operation	10	1089	hours	0.000000	0.000000	0.100000

LIGHT-03-LENSE-BRACKET			LIGHT FIXTURE LENSE					
Seq. #	Process	Description	WC #	Asset #	UOM	Setup Time	Load Time	Process Time
1	LASER-CUT	Laser Cut Operation	3	1123	hours	0.100000	0.010000	0.013842
2	PANELBEND	Panel Bender Bending Operation	7	1009	hours	0.100000	0.000000	0.004000
3	SAND-PAINT-PREP	Sand / Paint / Preparation Operation	10	1086	hours	0.000000	0.000000	0.017826
4	HANGING	Hanging Operation	10	1077	hours	0.000000	0.000000	0.020000
5	WASHING	Washing Operation	10	1082	hours	0.000000	0.000000	0.010000
6	PAINTING	Painting Operation	10	1084	hours	0.000000	0.000000	0.035651
7	CURING	Curing Operation	10	1089	hours	0.000000	0.000000	0.100000

Work Queue Batch #2 (Batch to Process Light Fixture Assembly):

TASK #	BATCH #	JOB #	ROW #	TASK DATE	TYPE	TASK NOTE	FROM	PROG.	SRC.
1009	2		1	TODAY	C	Create DXF Files for PART #: LIGHT-01-LENSE-FRAME	ERP	SLD	
1010	2		1	TODAY	C	Create DXF Files for PART #: LIGHT-03-LENSE-BRACKET	ERP	SLD	
1011	2		1	TODAY	C	Create DXF Files for PART #: LIGHT-04-HOUSING-FLANGE	ERP	SLD	
1012	2		1	TODAY	C	Create DXF Files for PART #: LIGHT-05-LENSE-RET-BRKT	ERP	SLD	
1013	2		1	TODAY	C	Create DXF Files for PART #: LIGHT-06-FIXTURE-HOUSING	ERP	SLD	
1014	2		1	TODAY	C	Create DXF Files for PART #: LIGHT-07-YOKE-BRACKET	ERP	SLD	
1015	2	1005	1	TODAY	C	Build Job for PART #: LIGHT-00-LIGHT	ERP	MRP	1003

Sales Order Table (O-312)

The **“Orders”** table includes the following Sales Order Headers that have been added for demonstration purposes as downloaded by the **Global Edge ERP Interface** including a direct link to specific Job Orders:

CUST #	ORDER #	JOB #	ORDER DATE	REQ. SHIP DATE	TOTAL	ORDER DESCRIPTION
1001	1001	1004	TODAY	TODAY + 14	\$0.00	Sales Order for Cabinet Body (ERP Download)
1001	1002	1005	TODAY	TODAY + 14	\$0.00	Sales Order for Light Fixture (ERP Download)
1001	1003	1006	TODAY	TODAY + 14	\$0.00	Sales Order for Demonstration Parts (ERP Download)

Sales Orders Item Table (O-302)

The **“Order Items”** table is comprised of the Sales Order Items for the above sales orders added for demonstration purposes as downloaded by the **Global Edge ERP Interface**:

Sales Order Items (Sales Order #: 1001)

ORDER #	LINE ITEM	PART #	DESCRIPTION	REQ. SHIP DATE	QTY	UOM
1001	1	SLD-001-BODY-325616-0001	CABINET BODY	TODAY + 14	5.0000	EA

Sales Order Items (Sales Order #: 1002)

ORDER #	LINE ITEM	PART #	DESCRIPTION	REQ. SHIP DATE	QTY	UOM
1002	1	LIGHT-00-LIGHT	LIGHT FIXTURE ASSEMBLY	TODAY + 14	10.0000	EA

Sales Order Items (Sales Order #: 1003)

ORDER #	LINE ITEM	PART #	DESCRIPTION	REQ. SHIP DATE	QTY	UOM
1003	1	DEM-01-APRON	APRON	TODAY + 14	15.0000	EA
1003	2	DEM-02-LOAD-CTR-BOX	LOAD CENTER BOX	TODAY + 14	20.0000	EA
1003	3	DEM-03-BOTTOM-DLH	BOTTOM DISPLAY LIGHT HOUSING	TODAY + 14	25.0000	EA
1003	4	DEM-04-HOUSING	SHEET METAL HOUSING	TODAY + 14	30.0000	EA
1003	5	DEM-05-PANEL	SHEET METAL PANEL	TODAY + 14	35.0000	EA

Job Order Table (J-361)

The **“Job”** table is comprised of the Job Order Headers added for demonstration purposes as downloaded by the **Global Edge ERP Interface**:

JOB #	TYPE	JOB DATE	REQ. DATE	SCH. START	DESCRIPTION
1001	TEMPLATE				SHEET METAL PART FABRICATION
1002	TEMPLATE				SHEET METAL PARTS & ASSEMBLIES
1003	TEMPLATE				CUSTOM JOB TEMPLATE
1004	ORDER	TODAY	TODAY + 14	TODAY + 2	FABRICATE UTILITY CABINET
1005	ORDER	TODAY	TODAY + 14	TODAY + 2	FABRICATE LIGHT FIXTURE
1006	ORDER	TODAY	TODAY + 14	TODAY + 2	DEMO SHEET METAL PARTS

Work Pack Table (J-424)

The “**Work Pack**” table is designed to divide Job Orders into specific work packs such as a work pack for fabrication and the assembly of components. The following are the Work Packs that have been define for the three Template Jobs defined above and are downloaded by the **Global Edge ERP Interface**:

JOB #	W.P. #	SCH. START	SCH. END	START DATE	END DATE	% OF JOB	% COMPLETE	JOB DESCRIPTION
1001	1					100	0	Sheet Metal Components
1002	1					70	0	Sheet Metal Components
1002	2					30	0	Assembly Work Pack
1003	1					100	0	Template Work Pack

S-263-Inventory Bin Table: INVB (“inventory_bin”)

TRANS #	LOC #	DEPT	WC	ASSET #	BIN #	DESCRIPTION	aisle	BIN
3	1	8	3	1207	SMSB-01	SHEET METAL STORAGE BIN 01		1
4	1	8	3	1207	SMSB-02	SHEET METAL STORAGE BIN 02		2
5	1	8	3	1207	SMSB-03	SHEET METAL STORAGE BIN 03		3
6	1	8	3	1207	SMSB-04	SHEET METAL STORAGE BIN 04		4
7	1	8	3	1207	SMSB-05	SHEET METAL STORAGE BIN 05		5
8	1	8	3	1207	SMSB-06	SHEET METAL STORAGE BIN 06		6
9	1	8	3	1207	SMSB-07	SHEET METAL STORAGE BIN 07		7
10	1	8	3	1207	SMSB-08	SHEET METAL STORAGE BIN 08		8
11	1	8	3	1207	SMSB-09	SHEET METAL STORAGE BIN 09		9
12	1	8	3	1207	SMSB-10	SHEET METAL STORAGE BIN 10		10
13	1	8	3	1207	SMSB-11	SHEET METAL STORAGE BIN 11		11
14	1	8	3	1207	SMSB-12	SHEET METAL STORAGE BIN 12		12
15	1	8	3	1207	SMSB-13	SHEET METAL STORAGE BIN 13		13
16	1	8	3	1207	SMSB-14	SHEET METAL STORAGE BIN 14		14

TRANS #	CAPACITY	CAP UOM	MAX. WT.	WT. UOM	LOAD X	LOAD Y	LOAD Z	UOM
3	100.0000	each	4000.0000	lbs	120.0000	60.0000	4.0000	inches
4	100.0000	each	4000.0000	lbs	120.0000	60.0000	4.0000	inches
5	100.0000	each	4000.0000	lbs	120.0000	60.0000	4.0000	inches
6	100.0000	each	4000.0000	lbs	120.0000	60.0000	4.0000	inches
7	100.0000	each	4000.0000	lbs	120.0000	60.0000	4.0000	inches
8	100.0000	each	4000.0000	lbs	120.0000	60.0000	4.0000	inches
9	100.0000	each	4000.0000	lbs	120.0000	60.0000	4.0000	inches
10	100.0000	each	4000.0000	lbs	120.0000	60.0000	4.0000	inches
11	100.0000	each	4000.0000	lbs	120.0000	60.0000	4.0000	inches
12	100.0000	each	4000.0000	lbs	120.0000	60.0000	4.0000	inches
13	100.0000	each	4000.0000	lbs	120.0000	60.0000	4.0000	inches
14	100.0000	each	4000.0000	lbs	120.0000	60.0000	4.0000	inches
15	100.0000	each	4000.0000	lbs	120.0000	60.0000	4.0000	inches
16	100.0000	each	4000.0000	lbs	120.0000	60.0000	4.0000	inches

Work Queue Batch #: 14 (GlobalEdgeCAD_SLD)

Workflow #: 5	LIGHT-00-LIGHT		LIGHT-00-LIGHT.sldasm	P	
Workflow #: 5	LIGHT-01-LENSE-FRAME	Thickness: 0.05500 - Bend Radius: 0.125	LIGHT-01-LENSE-FRAME.sldprt	C	5052-H32
Workflow #: 5	LIGHT-02-LENSE		LIGHT-02-LENSE.sldprt	C	
Workflow #: 5	LIGHT-03-LENSE-BRACKET	Thickness: 0.05500 - Bend Radius: 0.125	LIGHT-03-LENSE-BRACKET.sldprt	C	5052-H32
Workflow #: 5	LIGHT-04-HOUSING-FLANGE	Thickness: 0.05500 - Bend Radius: 0.125	LIGHT-04-HOUSING-FLANGE.sldprt	C	5052-H32
Workflow #: 5	LIGHT-05-LENSE-RET-BRKT	Thickness: 0.05500 - Bend Radius: 0.125	LIGHT-05-LENSE-RET-BRKT.sldprt	C	5052-H32
Workflow #: 5	LIGHT-06-FIXTURE-HOUSING	Thickness: 0.05500 - Bend Radius: 0.125	LIGHT-06-FIXTURE-HOUSING.sldprt	C	5052-H32
Workflow #: 5	LIGHT-07-YOKE-BRACKET	Thickness: 0.05500 - Bend Radius: 0.125	LIGHT-07-YOKE-BRACKET.sldprt	C	5052-H32
Workflow #: 5	LIGHT-08-DOOR-GASKET		LIGHT-08-DOOR-GASKET.sldprt	C	
Workflow #: 5	LIGHT-09-FRAME-CHANNEL		LIGHT-09-FRAME-CHANNEL.sldprt	C	G60
Workflow #: 5	LIGHT-10-BOLT		LIGHT-10-BOLT.sldprt	C	304-4
Workflow #: 5	LIGHT-11-NUT		LIGHT-11-NUT.sldprt	C	304-4

5.1 – Automated Production Work Queue

GE-05.1-Avatar-A.mp4

Global Edge Engineering Assistant includes an optional ERP / M E S dynamic two-way interface that integrates ERP with Engineering, Manufacturing, and the shop floor. The first step is to launch the Global Edge ERP / M E S Interface by clicking on the following icon.

GE-05.1-Avatar-B.mp4

The Global Edge ERP / M E S Interface provides a flexible method to map information between CAD, M E S and ERP which include part, bill of materials and routing information. It also includes Sales Quotes, Sales Orders, Production Orders and scheduling information. This also includes integration with customer website portals to provide accurate, real-time information throughout the manufacturing enterprise. The Global Edge ERP / M E S Interface can run in the background at designated time intervals or in real-time.

GE-05.1-Avatar-C.mp4

In our illustration, we'll manually download daily order information from ERP to the Global Edge database. We'll start by highlighting the ERP download data map to initiate and complete this download of daily information which will automatically populate the various work queues available throughout the Global Edge system.

GE-05.1-Avatar-D.mp4

The next step is to launch SolidWorks followed by selecting the Tools, Global Edge, Export Files option which will display the following File Export screen and menu options.

GE-05.1-Avatar-E.mp4

Select the "Batch" option and highlight batch number five, follow by okay, which will display the File Export screen listing the files that are included in the work queue batch.

5.2 – Automated CAD Part Analysis

GE-05.2-Avatar-A.mp4

As the sheet metal is processed with Automated CAD Part Analysis functionality, the part is fully analyzed, and complete CAD part parameters are inserted into the Global Edge database. The software then utilizes these CAD part parameters to perform a Manufacturability Test which compares these parameters with matching shop floor machine tools. This process provides Design For Manufacturing functionality that identifies potential fabrication errors at the design stage to help ensure sheet metal parts can be successfully fabricated before reaching the shop floor.

5.3 – Automated Routing Generation

GE-05.3-Avatar-A.mp4

The Automated CAD Part Analysis process culminates with the Automated Generation of optimal routing steps based on the CAD part parameters and matching machine tool capabilities. This includes the generation of DXF flat files that incorporate the necessary extended data to facilitate CAM bend program generation.

GE-05.3-Avatar-B.mp4

Select the “Routing” button to display the routing steps that were generated during the processing of the sheet metal part.

GE-05.3-Avatar-C.mp4

Select the “Close” button to return to the Import screen and select the “Test Results” button to access the results of the Manufacturability Test that was performed during the processing of the sheet metal part.

5.4 – Automated Manufacturability Testing

GE-05.4-Avatar-A.mp4

The “Test Part” tab displays the individual tests that were performed on the selected sheet metal part. The “CAD Value” column displays each of the CAD Part Parameters that are contained in the sheet metal CAD model. The “Test Limit” column displays the test limit values that are defined in the matching bend process. The “Status” column displays whether the CAD Part Parameter value falls within the bend process limit by indicating either “Pass”, “Fail”, or “Warning” which indicates it could be a potential issue.

GE-05.4-Avatar-B.mp4

The “DXF Image” tab displays an image of the DXF flat file. This screen provides the ability to scroll “Next” and “Previous” through each of the CAD part test parameters and the test results.

GE-05.4-Avatar-C.mp4

When selecting the “Manufacturability Test” option in the lower right-hand corner of the screen, the DXF flat file image will highlight an error in red. In our example, the following PEM holes appear in red because they were identified as being too close to a bend line.

GE-05.4-Avatar-D.mp4

The “Dimensions / Parameters” tab provides a complete listing of each of the imported CAD part parameters. These CAD part parameters provide the foundation throughout the Global Edge system for Automated CAM Bend Program Generation, Automated Routing Generation, Automated Production Job Generation, and Automated Sales Quote Generation.

5.5 – Automated Bend Program Generation

GE-05.5-Avatar-A.mp4

During the processing of sheet metal parts, and if the selection was made to produce Extended Data DXF Flat Files, the Global Edge software will embed the necessary Extended Data into each DXF File to facilitate Automated Bend Program Generation. The Global Edge software provides the capability to define Bend Processes that match the capabilities of your available bending machines and specific tooling. This also includes the capability to match each specific sheet metal part with proper machine tool as determined through the Automated Routing Generation process.

GE-05.5-Avatar-B.mp4

Displayed is the Global Edge Engineering Setup screen that provides the capability to define Extended Data in accordance with specific CAM bending software. In our illustration we have defined a sample Extended Data record. Select the “Update” option and highlight “Bend Program Extended Data” and click ok. This will display the following screen form and menu options.

GE-05.5-Avatar-C.mp4

Global Edge provides the capability to define extended data for DXF files that are generated with Autodesk Inventor, SolidWorks, Solid Edge, Windchill, and Catia. This process incorporates DXF File Header Options that include material, thickness, upper and lower tooling. The next set of parameters include formats for perimeter, cutouts, holes, bends and embossments. Other format definitions for Stud, Location and Other hole formats.

5.6 – Automated Production Job Build

GE-05.6-Avatar-A.mp4

The ...

GE-05.6-Avatar-B.mp4

The ...

GE-05.6-Avatar-C.mp4

The ...

5.1 – Automated Production Work Queue

Batch #: 15 (14) – Work Queue Batch to Process Light Fixture CAD Model Parts & Produce Job

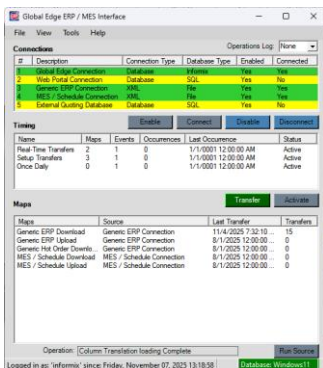
1. XXXX

Launch Global Edge Engineering Assistant



Access Global Edge ERP Interface

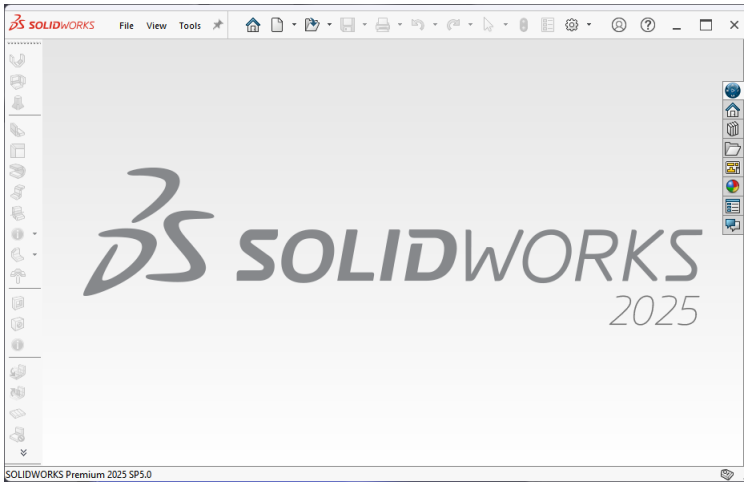
Select “Administration > ERP Interface” to display the following:



Highlight “Generic ERP Download” followed by “Transfer” option
Leave ERP Interface and return to Global Edge Main Menu

Access SolidWorks CAD Interface

Select “CAD > SolidWorks” to display SolidWorks:



Tools > Global Edge > Export Files

Global Edge – File Export Screen Displayed

Select “Batch” to Display Global Edge – Work Queue Batch Screen

Highlight Following Batch:

Batch #: 2 – Batch to Process Light Fixture Assembly

Select “Ok” Option

Global Edge – File Export Screen Displayed

Select “Select All” Option to Select the Following Files:

Task #: 1009 – Create DXF File for PART #: LIGHT-01-LENSE-FRAME

Task #: 1010 – Create DXF File for PART #: LIGHT-03-LENSE-BRACKET

Task #: 1011 – Create DXF File for PART #: LIGHT-04-HOUSING-FLANGE

Task #: 1012 – Create DXF File for PART #: LIGHT-05-LENSE-RET-BRKT

Task #: 1013 – Create DXF File for PART #: LIGHT-06-FIXTURE-HOUSING

Task #: 1014 – Create DXF File for PART #: LIGHT-07-YOKE-BRACKET

Select Following Check Boxes:

Data Import

Silent Mode

Save Model Changes

Manufacturability Test

DXF File Export

Select “Export” Option

Software Performs Following Tasks:

Flat Pattern DXF File Generated

DXF Analysis Performed

Material / Thickness / Bend Radius

Blank / Flat (Length & Width)

Cutouts / Holes (Count & Size)

Minimum / Maximum Bend Length

Minimum / Maximum Bend Angle

Minimum / Maximum Flange Width

Minimum Pem Hole to Bend Line Gap

Minimum Embossment to Bend Line Gap

Minimum Louver to Bend Line Gap

Maximum Up / Maximum Down Bend

Fold / Hem / Extrude Counts

Minimum Taper / Die Cut to Bend Line Gap

Manufacturability Test Performed

Compares DXF Analysis with Matching Bend Process

Test Results Stored in Database (manufacture_test, mfr_test_det) Tables

Message “Conversion Complete!” Displayed

Test Results

Select Part on Screen Array Followed by “Test Results” Option

Global Edge – Manufacturability Test Screen Displayed

“Test Part” Tab Displayed

Test Results Displayed

Select “DXF Image” Tab to Display DXF Flat File

Highlight Task / Part Number and Select “Print” Option to Generate “CAD Part Parameter Report”

Generate Job Order

XXXXXXXX

XXXXXXXX

XXXXXXXX

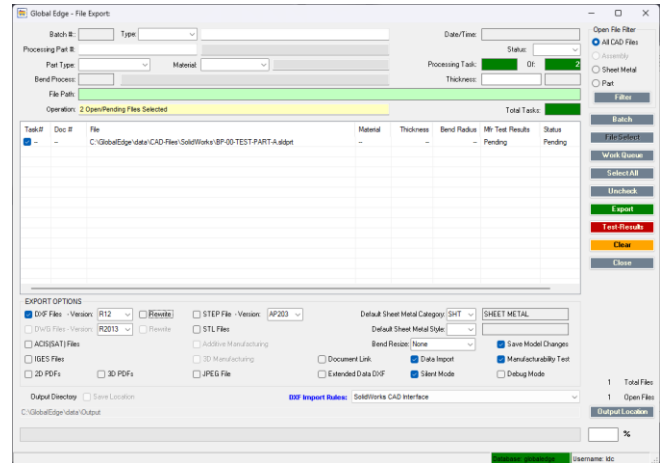
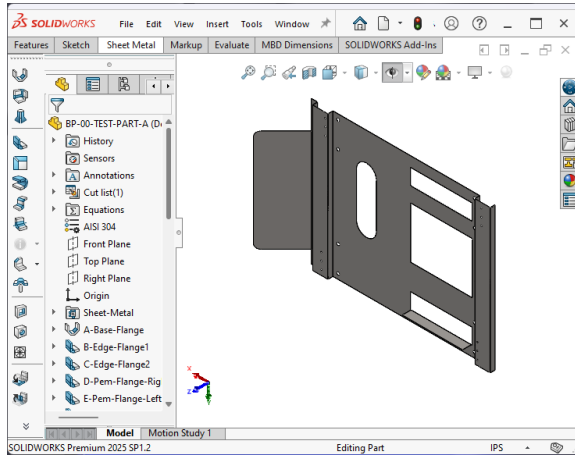
XXXXXXXX

XXXXXXXX

XXXXXXXX

5.2 – Automated CAD Part Analysis

Launch SolidWorks and retrieve sheet metal part(s) followed by select **“Tools > Global Edge > Export Files”**:



Select **“Export”** option to execute the importation of select CAD file(s):

Part Number	Description	UOM	Type	Cat.	Style	Mtl.
BP-06-SS-304-4-075-125	BEND PROCESS TEST PART 06	EA	C	SHT	-	304-4
Setup Cost: 104.2500		Material: 304-4-STAINLESS STEEL				
Process Cost: 18.7399		Ship Weight: 110.97				
Component Cost: 525.1589		Ship Weight UOM: lbs				
Rollup Cost: 648.1488		Standard Cost: 648.1488				

CAD Part Parameters							
Par. #	Parameter Name	Value	UOM	Par. #	Parameter Name	Value	UOM
1	Sheet Length:	0.000000	inches	25	Minimum Pem Gap:	1.200000	inches
2	Sheet Width:	0.000000	inches	26	Minimum Down Pem Gap:	1.800000	inches
3	Blank Length:	0.000000	inches	27	Minimum Emboss Gap:	3.000000	inches
4	Blank Width:	0.000000	inches	28	Minimum Down Emboss Gap:	1.200000	inches
5	Material thickness:	0.078120	inches	29	Minimum Louver Gap:	2.000000	inches
6	Perimeter:	312.338773	inches	30	Minimum Down Louver Gap:	0.000000	inches
7	Flat Length:	98.000000	inches	31	Min. Taper Bend Line Gap:	0.000000	inches
8	Flat Width:	58.169387	inches	32	Minimum Die Cutout:	0.000000	inches
9	Round Hole Count:	20.000000	-	33	Up Bend Count:	6.000000	-
10	Round Sizes Count:	2.000000	-	34	Internal Up Bends Count:	0.000000	-
11	Obround Hole Count:	0.000000	-	35	Maximum Up Bend:	0.000000	inches
12	Obround Sizes Count:	0.000000	-	36	Down Bend Count:	5.000000	-
13	Rectangular Hole Count:	1.000000	-	37	Internal Down Bends Count:	0.000000	-
14	Rectangular Sizes Count:	1.000000	-	38	Maximum Down Bend:	0.000000	inches
15	Other Hole Count:	0.000000	-	39	Fold Count:	11.000000	-
16	Other Sizes Count:	0.000000	-	40	Hem Count:	1.000000	-
17	Number of Cutouts:	21.000000	-	41	Extrude Count:	0.000000	-
18	Cutout Perimeter:	262.558000	inches	42	Bend Radius:	0.125000	inches
19	Minimum Bend Length:	35.000000	inches	43	Cutting Method:	Open	-
20	Maximum Bend Length:	80.000000	inches	44	Cutter Ref. Number:	-	-
21	Minimum Bend Angle:	45.000000	degrees	45	Certified Material:	No	-
22	Maximum Bend Angle:	90.000000	degrees	46	Material:	304-4	-
23	Minimum Flange Width:	4.000000	inches	47	Cutout Distance:	382.601221	inches
24	Maximum Flange Width:	12.000000	inches	48	Part Distance:	78.084693	inches

5.3 – Automated Routing Generation

After performing the CAD Part Importation in the previous step, select **“Tools > Global Edge > Model Explorer”** to view routings generated for the selected part:

Global Edge - Model Explorer

Model: SLD-001-BODY-325616-0001
SLD-017-SPINE-CT-32-0001
SLD-021-VERT-DIV-TOP-16-0001
SLD-020-VERT-DIV-BOT-15-0001
SLD-016-HORIZ-DIV-55-0001
SLD-018-SPINE-LT-32-0001
SLD-019-SPINE-RT-32-0001
SLD-015-FILL-PNL-1627-0001
SLD-002-WRAP-325616-0001
SLD-004-CAB-TOP-5616-0001
SLD-003-CAB-BOT-5616-0001
Documents
Dimensions

Status Key
Not In Database
Awaiting Rebuild
Rebuild
Documents
Dimensions

Drill Levels: 1 Refresh

Database:
SLD-001-BODY-325616-0001
SLD-002-WRAP-325616-0001
SLD-003-CAB-BOT-5616-0001
SLD-004-CAB-TOP-5616-0001
SLD-015-FILL-PNL-1627-0001
SLD-016-HORIZ-DIV-55-0001
SLD-017-SPINE-CT-32-0001
SLD-018-SPINE-LT-32-0001
SLD-019-SPINE-RT-32-0001
SLD-020-VERT-DIV-BOT-15-0001

Part: SLD-017-SPINE-CT-32-0001 CABINET SPINE - CENTER

Route #: 0 OF: Description: STANDARD PART R Optimization: Uptance
Type: Standard Route Source: Setup Cost:
Location Level: W/Q Rebuild: Proc Cost:
Location #: Dept #: Comp. Cost:
W/C #: Total Cost:
Asset #: Roll-Up Date:

SEQ #	Sequence	Description	Type	Setup C...	Proc Cost	MACH #	Mfr Test
1	LASER-CUT	Laser Cut Operation	Process	14.00	140.0000	1003	Undefined
2	BEND	Press Brake Bending Op...	Process	37.50	75.0000	1007	Undefined

Sequence Count: 2

Active Document: SLD-017-SPINE-CT-32-0001.sldprt
Document Type: PART In Database: Yes Debug

Database: globaledge Username: ldc

LASER-CUT BEND WELD GRIND

PAINT-PREP HANG-WASH PAINT-CURE GASKET

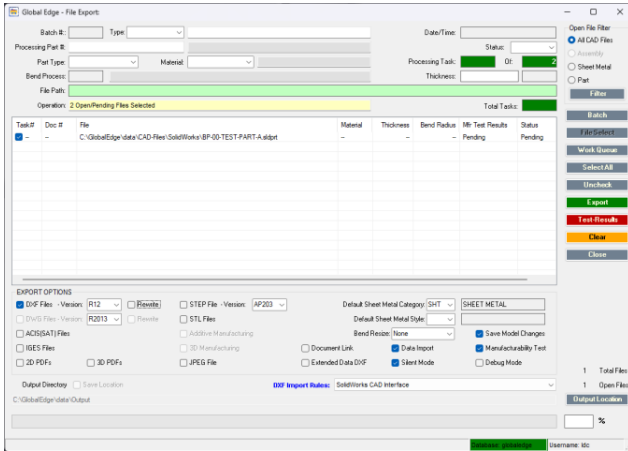
ASSEMBLY INSPECT PACKAGE SHIP

Part Routing								
Trans #	Seq. #	Process	Description	UOM	Setup Time	Setup Cost	Process Time	Std. Proc. Cost
986	1	LASER-CUT	Laser Cut Operation	hours	0.010000	1.50	0.100000	15.0000
987	2	BEND	Press Brake Bending Operation	hours	0.500000	37.50	0.010000	0.7500
988	3	TIG-WELD	TIG Weld	hours	0.500000	22.50	0.150000	6.7500
989	4	DEBURR	Deburring Operation	hours	0.200000	9.00	0.068824	3.0971
990	5	SAND-PAINT-PREP	Sand / Paint / Preparation Operation	hours	0.150000	6.00	0.016035	0.6414
991	6	HANGING	Hanging Operation	hours	0.150000	3.75	0.020000	0.5000
992	7	WASHING	Washing Operation	hours	0.150000	3.75	0.010000	0.2500
993	8	PAINTING	Painting Operation	hours	0.150000	6.00	0.032069	1.2828
994	9	CURING	Curing Operation	hours	0.250000	6.25	0.050000	1.2500
995	10	ASSEMBLY	Assembly Operation	hours	0.250000	12.50	0.050000	2.5000
996	11	GENERAL-LABOR	General Labor Operation	hours	0.250000	12.50	0.050000	2.5000
997	12	FINAL-INSPECT	Final Inspection Operation	hours	0.250000	8.75	0.050000	1.7500
998	13	PACKAGE	Package Operation	hours	0.250000	8.75	0.050000	1.7500
999	14	SHIPPING	Shipping Operation	hours	0.150000	5.25	0.050000	1.7500
					3.210000	\$144.00	0.706928	\$39.7713

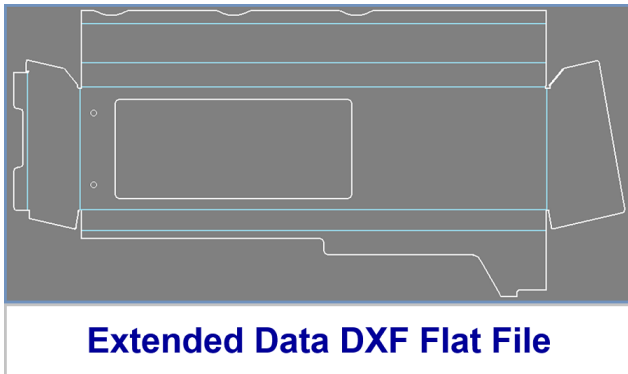
5.4 – Automated Manufacturability Testing

5.5 – Automated Bend Program Generation

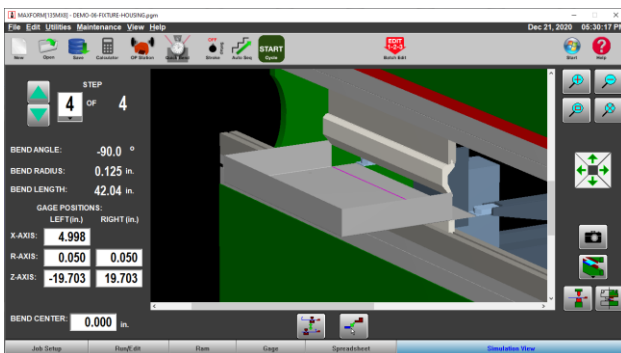
After performing the CAD Part Importation in the previous step, select **“Tools > Global Edge > Model Explorer”** to view routings generated for the selected part:



During the CAD Part Importation process, if the check box **“Extended Data DXF”** was checked, Extended Data will be automatically added to the DXF flat file to facilitate Automated Bend Program Generation:



The **“Extended Data DXF Flat File”** will be placed in the proper Directory / Folder to be imported by the Cincinnati Bend Simulation software:



5.6 – Automated Production Job Build

These steps illustrate the automated job build and scheduling capabilities of orders that were downloaded from ERP.

Workflow Steps

Select the **“Manufacturing > Job Order Maintenance”** option on the **Global Edge** main menu:



The **“Job Maintenance”** screen is displayed:

Job-Maintenance

JOB #: START END

JOB TEMPLATE #: SCHEDULE DATE:

JOB DATE: ACTUAL JOB DATE:

JOB TYPE: JOB REQUIRED DATE:

JOB PRIORITY: JOB COMPLETION: %

COMPLETION METHOD: STATUS:

JOB COST TYPE: WIP METHOD:

WORK PACK COUNT: OUTSIDE SERVICE COST:

CUSTOMER #:

PURC. ORDER #:

NOTES:

ESTIMATED		ESTIMATED		ACTUAL	+/-
RATE:		LABOR:			
HOURS:		MACHINE:			
		OVERHEAD:			
		MATERIAL:			
		O.S./MISC:			
ACTUAL					
RATE:		TOTAL:			
HOURS:					

JOB 1

Add New Job

JOB

Add

Copy

Find

Next

Previous

Goto

Update

Work-Pack

X-Part

Transactions

Jobs

Options

Reports

Delete

Work Queue

QUIT

Select the **“Jobs”** option to display the **“Job Build”** screen:

JOB IMPORT BUILD: Global Edge Demo Server

Job-Build

INCL	JOB #	PRIORITY	DESCRIPTION	CUST #	COMPANY NAME	JOB DATE	REQUIRED DATE	STATUS	TEMPLATE JOB
☐	1009	3	Cabinet Body (ERP Download)	1001	ABC MANUFACTURING	08/03/2021	08/17/2021	Build	
☐	1010	3	Light Fixture (ERP Download)	1001	ABC MANUFACTURING	08/04/2021	08/18/2021	Build	
☐	1011	3	CI - Apron (ERP Download)	1001	ABC MANUFACTURING	08/05/2021	08/19/2021	Build	
☐	1012	3	CI - Load Center Box (ERP Dow...	1001	ABC MANUFACTURING	08/06/2021	08/20/2021	Build	
☐	1013	3	CI - Bottom Display Light Housin...	1001	ABC MANUFACTURING	08/07/2021	08/21/2021	Build	
☐	1014	3	CI - Sheet Metal Housing (ERP ...	1001	ABC MANUFACTURING	08/08/2021	08/22/2021	Build	
☐	1015	3	CI - Sheet Metal Panel (ERP Do...	1001	ABC MANUFACTURING	08/09/2021	08/23/2021	Build	
☐	1016	3	Transformer (ERP Download)	1003	XYZ INCORPORATED	08/10/2021	08/24/2021	Build	
☐	1017	3	Transformer (ERP Download)	1003	XYZ INCORPORATED	08/11/2021	08/25/2021	Build	
☐	1018	3	Transformer (ERP Download)	1003	XYZ INCORPORATED	08/12/2021	08/26/2021	Build	

BUILD JOBS: PENDING JOBS: ISSUED JOBS: TOTAL JOBS: BUILT JOBS:
 BUILD SELECTED: PENDING SELECTED: ISSUED SELECTED: SELECTED JOBS: ISSUED JOBS:
 SCHEDULED JOBS:
 ON HOLD JOBS:

MRP_

Select Jobs

JOB BUILD: Global Edge Demo Server

JOBS

Select

All

Clear

Templates

Requery

Build

Issue

gchedule

QUIT

OVR

Global Edge provides the ability to automatically build jobs that have been downloaded from ERP that are structured and scheduled based on rules from template jobs that can be customized for specific product lines. During this process, **Global Edge** automatically matches each of the job orders with the appropriate user defined template jobs and then builds the job organizing and scheduling operations into optimized work packs that make efficient use of machine tools and people.

Select the **“Templates”** option to assign the appropriate TEMPLATE JOB to the downloaded jobs followed by the **“All”** option which will display the following:

JOB IMPORT BUILD: Global Edge Demo Server

Job-Build

INCL	JOB #	PRIORITY	DESCRIPTION	CUST #	COMPANY NAME	JOB DATE	REQUIRED DATE	STATUS	TEMPLATE JOB
☒	1009	3	Cabinet Body (ERP Download)	1001	ABC MANUFACTURING	08/03/2021	08/17/2021	Build	1005
☒	1010	3	Light Fixture (ERP Download)	1001	ABC MANUFACTURING	08/04/2021	08/18/2021	Build	1006
☒	1011	3	CI - Apron (ERP Download)	1001	ABC MANUFACTURING	08/05/2021	08/19/2021	Build	1007
☒	1012	3	CI - Load Center Box (ERP Dow...	1001	ABC MANUFACTURING	08/06/2021	08/20/2021	Build	1007
☒	1013	3	CI - Bottom Display Light Housin...	1001	ABC MANUFACTURING	08/07/2021	08/21/2021	Build	1007
☒	1014	3	CI - Sheet Metal Housing (ERP ...	1001	ABC MANUFACTURING	08/08/2021	08/22/2021	Build	1007
☒	1015	3	CI - Sheet Metal Panel (ERP Do...	1001	ABC MANUFACTURING	08/09/2021	08/23/2021	Build	1007
☒	1016	3	Transformer (ERP Download)	1003	XYZ INCORPORATED	08/10/2021	08/24/2021	Build	1008
☒	1017	3	Transformer (ERP Download)	1003	XYZ INCORPORATED	08/11/2021	08/25/2021	Build	1008
☒	1018	3	Transformer (ERP Download)	1003	XYZ INCORPORATED	08/12/2021	08/26/2021	Build	1008

BUILT JOBS: 10

BUILD SELECTED: 10

PENDING JOBS: 0

PENDING SELECTED: 0

ISSUED JOBS: 0

ISSUED SELECTED: 0

TOTAL JOBS: 10

SELECTED JOBS: 10

BUILT JOBS: 0

SCHEDULED JOBS: 0

ON HOLD JOBS: 0

MRP_

Select All Jobs

Select the **“Build”** option to execute the automated build of the selected jobs. When the job build is complete, the following is displayed:

JOB IMPORT BUILD: Global Edge Demo Server

Job-Build

INCL	JOB #	PRIORITY	DESCRIPTION	CUST #	COMPANY NAME	JOB DATE	REQUIRED DATE	STATUS	TEMPLATE JOB :
☒	1009	3	Cabinet Body (ERP Download)	1001	ABC MANUFACTURING	08/03/2021	08/17/2021	Pending	1005
☒	1010	3	Light Fixture (ERP Download)	1001	ABC MANUFACTURING	08/04/2021	08/18/2021	Pending	1006
☒	1011	3	CI - Apron (ERP Download)	1001	ABC MANUFACTURING	08/05/2021	08/19/2021	Pending	1007
☒	1012	3	CI - Load Center Box (ERP Dow...	1001	ABC MANUFACTURING	08/06/2021	08/20/2021	Pending	1007
☒	1013	3	CI - Bottom Display Light Housin...	1001	ABC MANUFACTURING	08/07/2021	08/21/2021	Pending	1007
☒	1014	3	CI - Sheet Metal Housing (ERP ...	1001	ABC MANUFACTURING	08/08/2021	08/22/2021	Pending	1007
☒	1015	3	CI - Sheet Metal Panel (ERP Do...	1001	ABC MANUFACTURING	08/09/2021	08/23/2021	Pending	1007
☒	1016	3	Transformer (ERP Download)	1003	XYZ INCORPORATED	08/10/2021	08/24/2021	Pending	1008
☒	1017	3	Transformer (ERP Download)	1003	XYZ INCORPORATED	08/11/2021	08/25/2021	Pending	1008
☒	1018	3	Transformer (ERP Download)	1003	XYZ INCORPORATED	08/12/2021	08/26/2021	Pending	1008

BUILD JOBS: 0 PENDING JOBS: 10 ISSUED JOBS: 0 TOTAL JOBS: 10

BUILD SELECTED: 0 PENDING SELECTED: 10 ISSUED SELECTED: 0 SELECTED JOBS: 10

BUILT JOBS:

SCHEDULED JOBS: 0

ON HOLD JOBS: 0

MRP_

Select the **“Issue”** option to issue the Pending jobs that are selected by the check boxes. When the job issue is complete, the following is displayed:

JOB IMPORT BUILD: Global Edge Demo Server

Job-Build

INCL	JOB #	PRIORITY	DESCRIPTION	CUST #	COMPANY NAME	JOB DATE	REQUIRED DATE	STATUS	TEMPLATE JOB
☒	1009	3	Cabinet Body (ERP Download)	1001	ABC MANUFACTURING	08/03/2021	08/17/2021	Issued	1005
☒	1010	3	Light Fixture (ERP Download)	1001	ABC MANUFACTURING	08/04/2021	08/18/2021	Issued	1006
☒	1011	3	CI - Apron (ERP Download)	1001	ABC MANUFACTURING	08/05/2021	08/19/2021	Issued	1007
☒	1012	3	CI - Load Center Box (ERP Dow...	1001	ABC MANUFACTURING	08/06/2021	08/20/2021	Issued	1007
☒	1013	3	CI - Bottom Display Light Housin...	1001	ABC MANUFACTURING	08/07/2021	08/21/2021	Issued	1007
☒	1014	3	CI - Sheet Metal Housing (ERP ...	1001	ABC MANUFACTURING	08/08/2021	08/22/2021	Issued	1007
☒	1015	3	CI - Sheet Metal Panel (ERP Do...	1001	ABC MANUFACTURING	08/09/2021	08/23/2021	Issued	1007
☒	1016	3	Transformer (ERP Download)	1003	XYZ INCORPORATED	08/10/2021	08/24/2021	Issued	1008
☒	1017	3	Transformer (ERP Download)	1003	XYZ INCORPORATED	08/11/2021	08/25/2021	Issued	1008
☒	1018	3	Transformer (ERP Download)	1003	XYZ INCORPORATED	08/12/2021	08/26/2021	Issued	1008

BUILD JOBS: 0 PENDING JOBS: 0 ISSUED JOBS: 10 TOTAL JOBS: 10 BUILT JOBS: 10
 BUILD SELECTED: 0 PENDING SELECTED: 0 ISSUED SELECTED: 10 SELECTED JOBS: 10 ISSUED JOBS: 10
 SCHEDULED JOBS: 0
 ON HOLD JOBS: 0

MRP_

Issue Selected Jobs

JOB IMPORT BUILD: Global Edge Demo Server

Job-Build

JOB STATUS: Select, All, Clear, Templates, Requery, Build, Issue, gSchedule, QUIT

Select the **“Schedule”** option to schedule the Issued jobs that are selected by the check boxes. When the job schedule generation is complete, the following is displayed:

JOB IMPORT BUILD: Global Edge Demo Server

Job-Build

INCL	JOB #	PRIORITY	DESCRIPTION	CUST #	COMPANY NAME	JOB DATE	REQUIRED DATE	STATUS	TEMPLATE JOB
☒	1009	3	Cabinet Body (ERP Download)	1001	ABC MANUFACTURING	08/03/2021	08/17/2021	Scheduled	1005
☒	1010	3	Light Fixture (ERP Download)	1001	ABC MANUFACTURING	08/04/2021	08/18/2021	Scheduled	1006
☒	1011	3	CI - Apron (ERP Download)	1001	ABC MANUFACTURING	08/05/2021	08/19/2021	Scheduled	1007
☒	1012	3	CI - Load Center Box (ERP Dow...	1001	ABC MANUFACTURING	08/06/2021	08/20/2021	Scheduled	1007
☒	1013	3	CI - Bottom Display Light Housin...	1001	ABC MANUFACTURING	08/07/2021	08/21/2021	Scheduled	1007
☒	1014	3	CI - Sheet Metal Housing (ERP ...	1001	ABC MANUFACTURING	08/08/2021	08/22/2021	Scheduled	1007
☒	1015	3	CI - Sheet Metal Panel (ERP Do...	1001	ABC MANUFACTURING	08/09/2021	08/23/2021	Scheduled	1007
☒	1016	3	Transformer (ERP Download)	1003	XYZ INCORPORATED	08/10/2021	08/24/2021	Scheduled	1008
☒	1017	3	Transformer (ERP Download)	1003	XYZ INCORPORATED	08/11/2021	08/25/2021	Scheduled	1008
☒	1018	3	Transformer (ERP Download)	1003	XYZ INCORPORATED	08/12/2021	08/26/2021	Scheduled	1008

BUILD JOBS: 0 PENDING JOBS: 0 ISSUED JOBS: 0 TOTAL JOBS: 10 BUILT JOBS: 10
 BUILD SELECTED: 0 PENDING SELECTED: 0 ISSUED SELECTED: 0 SELECTED JOBS: 0 ISSUED JOBS: 10
 SCHEDULED JOBS: 10
 ON HOLD JOBS: 0

MRP_

Schedule Selected Jobs

JOB IMPORT BUILD: Global Edge Demo Server

Job-Build

JOB STATUS: Select, All, Clear, Templates, Requery, Build, Issue, gSchedule, QUIT