

# Ticket Tools: CAD Export



Annotate Embed Long

Annotate Embed Short

Control Number Populator

Ticket BOM (Duplicates Schedules)

Ticket Title Block Populator

Batch Ticket Title Block Populator

Copy Ticket Views

Find Referring Views

Ticket Populator

Batch Ticket Populator

Ticket Auto-dimension

Copy Ticket Annotation

Auto Ticket Generation

Clone Ticket

CAD Export

Link Append String

## Programmed Result of Tool:

CAD Export allows users to take their Revit model and export assemblies to a file that is formatted to be compatible with laser projection machines. The exported file contains information about the precast member, cutouts, embed placement, and more.

## Steps to Perform Tool Operation:

1. Select the CAD Export tool under the Ticket Tools dropdown.
2. If the user does not pre-select the desired assembly elements prior to clicking the CAD Export tool, the user will be required to select one or more assembly elements and click the "Finish" button that is in the Revit options bar.
3. Confirm the export folder path, file name suffix, and file formats within the displayed window.
4. Select Export.
5. Files for each assembly instance will be saved to a folder within the selected folder path named: \\*Project Number\* - \*Project Name\*
  - a. The Project Number will be pulled from the Project Number parameter in the Project Information within Revit.
  - b. The Project Name will be pulled from the Project Name parameter in the Project Information within Revit.



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## Expected Interactions:

- Different aspects of the Revit assembly will be saved to layers defined in the CAD Export Settings within the exported DWG/DXF file as follows:
  - Form
    - This will define the bottom in form outline of the precast member
  - ARCH
    - This will represent any bottom in form reveals or recesses in the precast member
  - TIF
    - This will show the top in form outline of the precast member, top in form embeds, lifters, and the bottom face of top in form corbels or ledges
    - Embeds and lifters will be represented by their bounding box or circle of radius defined in the CAD Export Settings
    - If EDGE CAD Lines are enabled in the CAD Export Settings, the tool will export model lines of a particular line style present in the family instead for embeds and lifters
    - This layer is created at an elevation equal to the thickness of the precast member
  - BIF
    - Bottom in form embeds will be represented by their bounding box or a circle of radius defined in the CAD Export Settings
    - If EDGE CAD Lines are enabled in the CAD Export Settings, the tool will export model lines of a particular line style present in the family instead
  - SIF
    - This will represent any side in form embeds and lifters
    - These will be shown as a line extending inward from the exterior edge of the precast piece. The length of the line can be defined in the CAD Export Settings
    - If EDGE CAD Lines are enabled in the CAD Export Settings, the tool will export model lines of a particular line style present in the family instead
  - Corbel
    - This shows a bounding box of the top elevation of top in form corbels or ledges
  - Strand
    - This shows a line following the center of strand pieces.
    - Split layers may be enabled in settings.
  - Rebar
    - This shows a line following the center of rebar pieces.
    - Split layers may be enabled in settings. Split layers are flattened to top and bottom in form.
  - Finishes
    - Depending on the selection in settings, this will either show a rectangle representing the outline of the finish or two horizontal lines representing the vertical extents, or top and bottom, of the finish.
    - Split layers may be enabled in settings.
- The layer names and colors will be defined and assigned to the different aspects within the CAD Export Settings tool.
- If Split Layer Checkboxes are enabled for an element, two layers will be created for the impacted elements. A layer representing elements on the top of the assembly will be exported to a top layer. A layer representing elements on the bottom of the assembly will be exported to a bottom layer.



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## Expected interactions:

- Certain aspects of the assembly can be disabled and not exported in the CAD Export Settings as well.
- The export folder path, file suffix, and file format set in the CAD Export window will auto populate with the same settings as the last successful export within that document during the current Revit session. If the user has not exported an assembly from the document in the current Revit session the default settings set in the CAD Export Settings tool will be displayed upon opening the window.
- Before running the CAD Export tool on an assembly, it is important to run either the Top as Cast Tool or Match Top as Cast Tool first because the assembly origin of the piece will drive how the information about the assembly gets exported.
- The LOCATION\_IN\_FORM parameter value assigned to embeds will dictate whether an embed is interpreted as top, bottom, or side in form in the exported file.
  - LOCATION\_IN\_FORM is assigned by the Top as Cast and Match Top as Cast Tools.
  - If the assigned value is incorrect, the user can manually update the LOCATION\_IN\_FORM value for an embed prior to running the Laser Export to ensure that the embed gets exported to the correct layer.

## EDGE CAD Lines:

- EDGE CAD Lines:
  - The user can select to export model lines of certain design styles for non-structural framing elements that would be exported as a part of the TIF, BIF, or SIF groups within the CAD Export Settings tool.
  - There are three EDGE CAD Line design styles that will be exported depending on the elements LIF parameter value:
    - “EdgeLIFCADLines” – If the element has a LIF value associated with TIF or BIF, these lines will be exported to the layer defined for TIF or BIF elements.
    - “EdgeOppLIFCADLines” – If the element has a LIF value associated with TIF or BIF, these lines will be exported as a part of the opposite layer defined for TIF or BIF elements. This means that an element with LIF of TIF the model lines within this element of this style will get exported with the BIF elements.
    - “EdgeSIFCADLines” – If the element has a LIF value associated with SIF, these lines will be exported to the layer defined for SIF elements.
  - If none of these line styles exists within the family the tool will export the element as if EDGE CAD Lines were turned off.
  - The model lines will be exported to the same location in the export as they occupy relative to the assembly in Revit model.



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## Known Limitations:

- To qualify as an “embed”, the element must conform to the following rules:
  - Belong to the Specialty Equipment or Generic Models categories
  - Have a MANUFACTURE\_COMPONENT value that contains the term EMBED
- To qualify as a “lifter”, the element must conform to the following rules:
  - Belong to the Specialty Equipment or Generic Models categories
  - Have a MANUFACTURE\_COMPONENT value that contains the term LIFTING
- To qualify as “strand”, the element must confirm to the following rules:
  - Belong to the Specialty Equipment or Generic Models categories
  - The family name must contain “strand”.
- Only corbels or ledges on the top in form face of the precast member will be exported. Other addons are not supported at this time.
- Pockets that are nested inside of other pockets/recesses will not be exported.
- If multiple recesses or reveals exist for a precast member and they intersect an opening in the piece, then the opening may be exported incorrectly or not exported at all.

