BEC Automation Tool

User Guide Document

BEC - Solid Edge Customization Project

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Revision: 0

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Scope

- The purpose of the document is to provide information on the functionalities of each automation tool to provide a better understanding of the Purpose, function & user interface.

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Installation

- ➔ Every user who intended to use this tool, needs to install the BEC Automation Tool.exe file on their local drive.
- ➔ Next, User needs to assign appropriate file locations from the configuration tab in the tool and save it.
- ➔ User need to add BEC BOM Template file from SE options.
- ➔ Now User can start using this tool, following the further guideline in this document.
- ➔ Some tool functions produce log files that contain errors or warnings. Each log and user can refer to this file in the setup folder under the ''Logs''
- ➔ Users can refer to this log to find a part number that is creating an error and can take necessary action.

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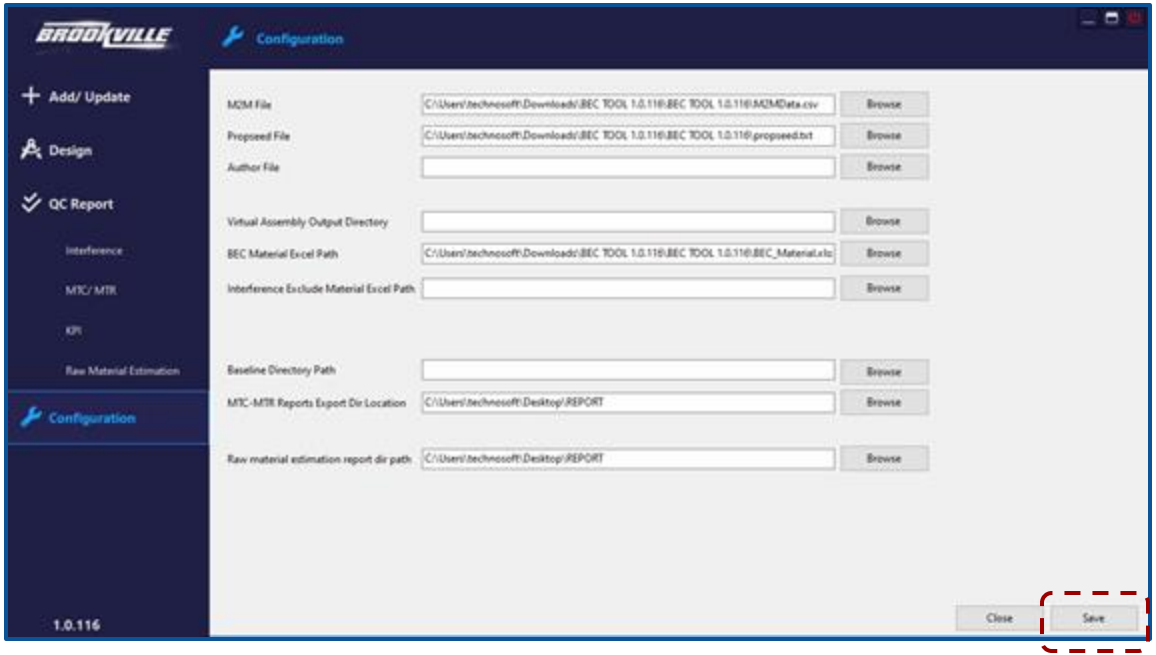
File Location

1. **User can specify the default locations of input and output files on the Configuration tab.**

1. **Clicking the Save button will update the latest assigned data in the tool.**



File Location

- ➔ Refer to the below table to understand the input database which is referred by each tool to get desired outputs
- ➔ User/Admin can only update or add the values if required.
- ➔ Any changes in database template and alignments may cause failure in processing

Tool	BEC Material Data	M2M Sheet	Bend Table	Part Template	Prop Seed	BOM Template	Hedge Excel	Exclude Material Excel	MTC/MTR Report
Virtual Structure							☑		
New Part Creation	☑		☑	☑					
Part File Validation	☑		☑						
Assembly File Validation	☑		☑						
Interference Report								☑	
KPI Report									☑
MTC MTR Tool		☑			☑	☑			
Raw Material Estimation						☑			

Assembly Structure

Purpose: To automate the creation of a top-level assembly structure (900 Level) based on BEC hedge/excel data.

Functions:

- ➔ The tool fetches assembly titles & numbers from hedge excel
- ➔ Generate blank assembly structure in solid edge as per hedge excel input
- ➔ User can add reference assembly under each assembly if needed.

Constraint:

- ➔ Any changes in the Hedge documents template can cause possible failure in the tool.
- ➔ The reference model can be placed at 900 and 800 levels only.
- ➔ To get a reference model at a further level- use copy and transfer tool followed by the occurrence property tool.

Assembly Structure

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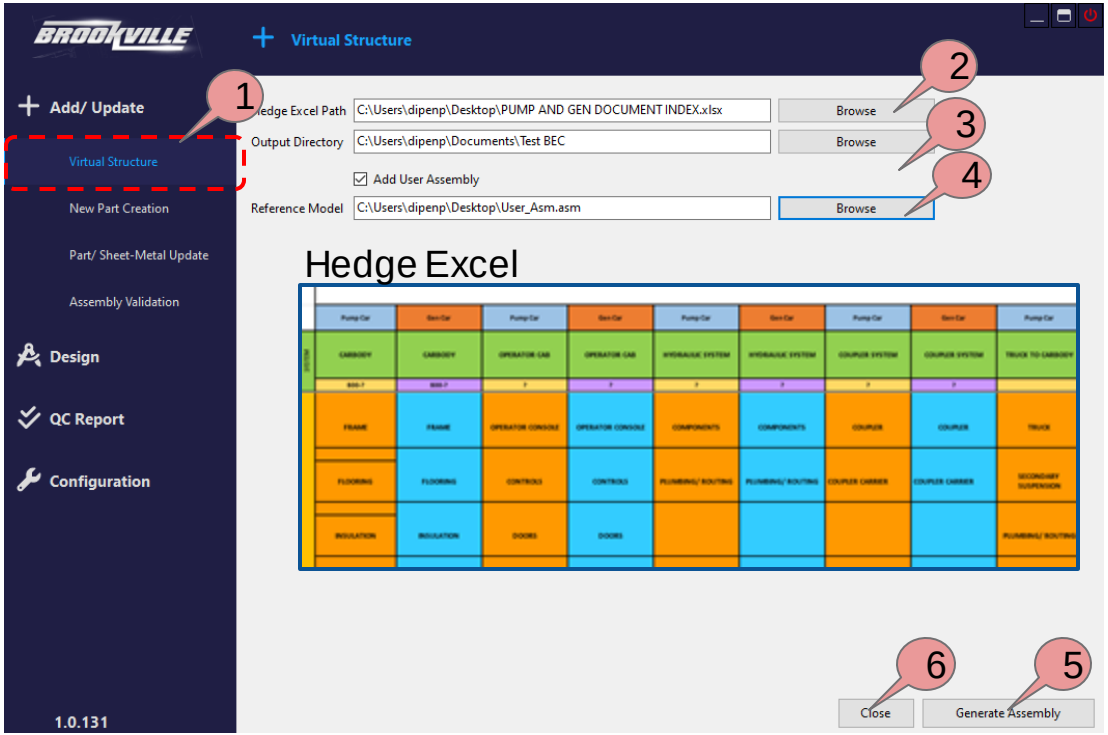
User Interface Guide:

1. Open the Automation tool and then the Virtual Structure tool by clicking on it
2. Click "Browse" on the hedge excel path and select the input hedge excel file for a structure.
3. Click "Browse" on the directory and select the output folder for assembly.
4. If the user wants to add a reference model then click "Browse" to add the reference model.
5. After assigning all paths, click on generate assembly button to start the process. Once the process is completed output assembly file is available in the output folder.
6. Close the tool to use other tools if needed



New Part Creation

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Purpose : To generate new Profile/structure and sheet metal file as per BEC standard

Functions:

- ➔ This tool create the sheetmetal and structure part file based on BEC standards
- ➔ Users can select the category and file properties from dropdown menu and it will apply to the newly created part
- ➔ The tool will also link the gage table in newly created sheet metal parts through this tool.

Constraint:

- ➔ Any changes in BEC Material Data excel can cause possible failure in the tool.

New Part Creation

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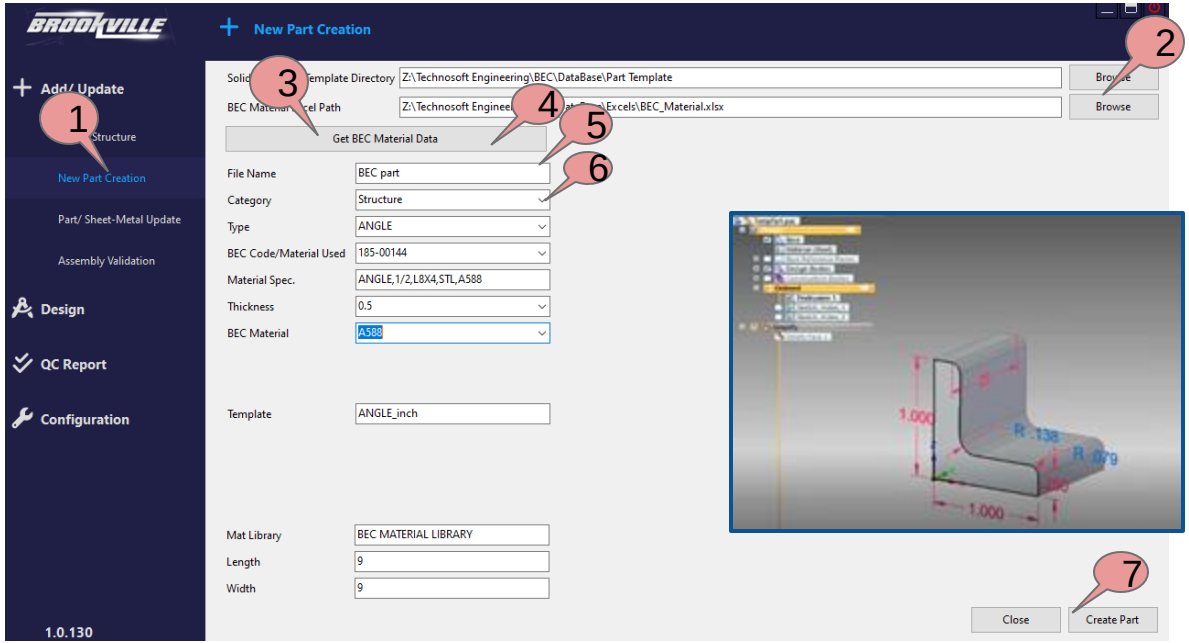
User Interface Guide:

1. Open the Automation tool and new part creation by clicking on it.
2. Assign Template and BEC material data excel path, skip this step if already assigned.
3. Click get BEC material data to fetch data from BEC material excel.
4. Assign desired file name to file
5. Select a category from the dropdown
6. Select the type and material from a dropdown
7. Click on create part to generate a new file with assigned properties
8. Close the tool to use other tools if needed



Part File Validation

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Purpose : To validate and update part and sheetmetal file properties

Functions:

- ➔ The tool will detect active .par or .psm files automatically.
- ➔ The tool will fetch properties from the open part and display them under current part details.
- ➔ The tool will highlight mismatch properties with respect to standard BEC Material Data excel.
- ➔ Users can select new properties and apply them to active parts or sheet metal files.

Constraint:

- ➔ The tool will work on one part at a time.
- ➔ The tool will only work on .psm and .part files.

Part File Validation

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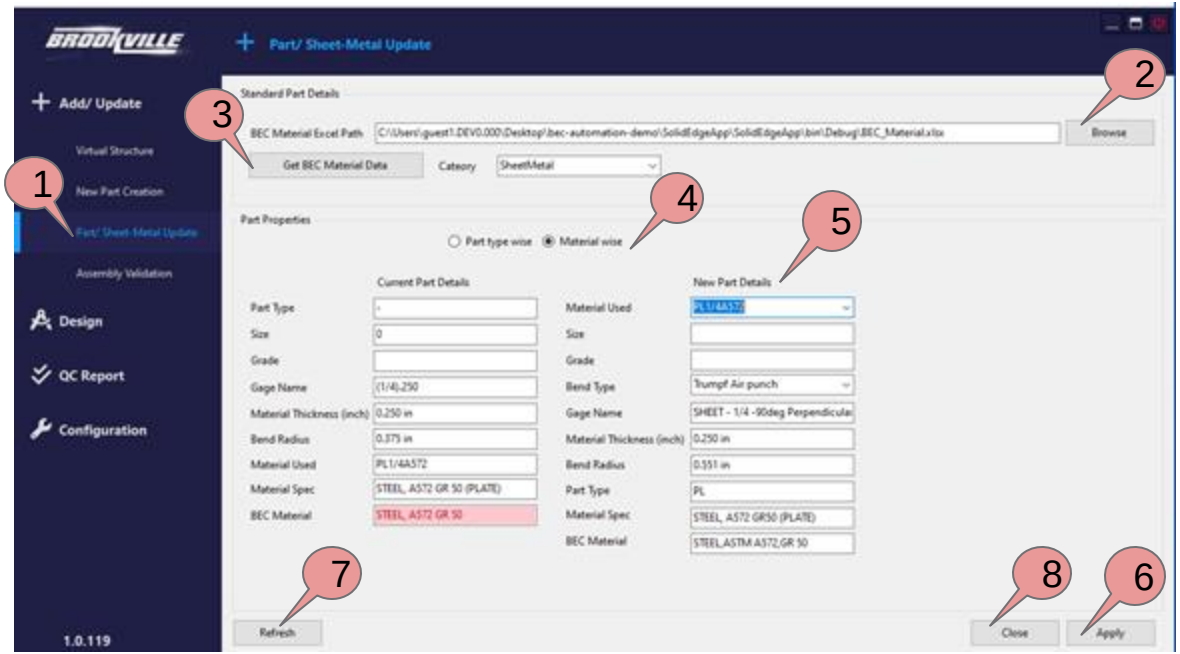
User Interface Guide:

1. Open the desired part in Solid Edge and Activate the tool by clicking on it.
2. Assign BEC Material excel path to fetch standard data, skip this step if already assigned.
3. Click get BEC material data to fetch data from BEC material excel.
4. Users can filter new part detail by Material wise or by part type wise.
5. If the tool highlights any mismatch in current part details, the user can assign correct information under new part details Click
6. Apply button to assign new properties to part.
7. Click the refresh button to reset the tool.
8. Close the tool to use other tools if needed



Assembly Validation

Purpose : To validate and update multiple parts from assembly

Functions:

- ➔ The tool will detect active .asm file automatically.
- ➔ The tool will fetch top level part details.
- ➔ The tool will fetch standard data from BEC Material Data excel and display under new part details
- ➔ The tool will highlight mismatch properties with respect to standard BEC Material Data excel.
- ➔ Users can select new properties and apply them to active part or sheet metal files.

Constraint:

- ➔ The tool will work only with assembly files.
- ➔ The tool will read only top level parts.

Assembly Validation

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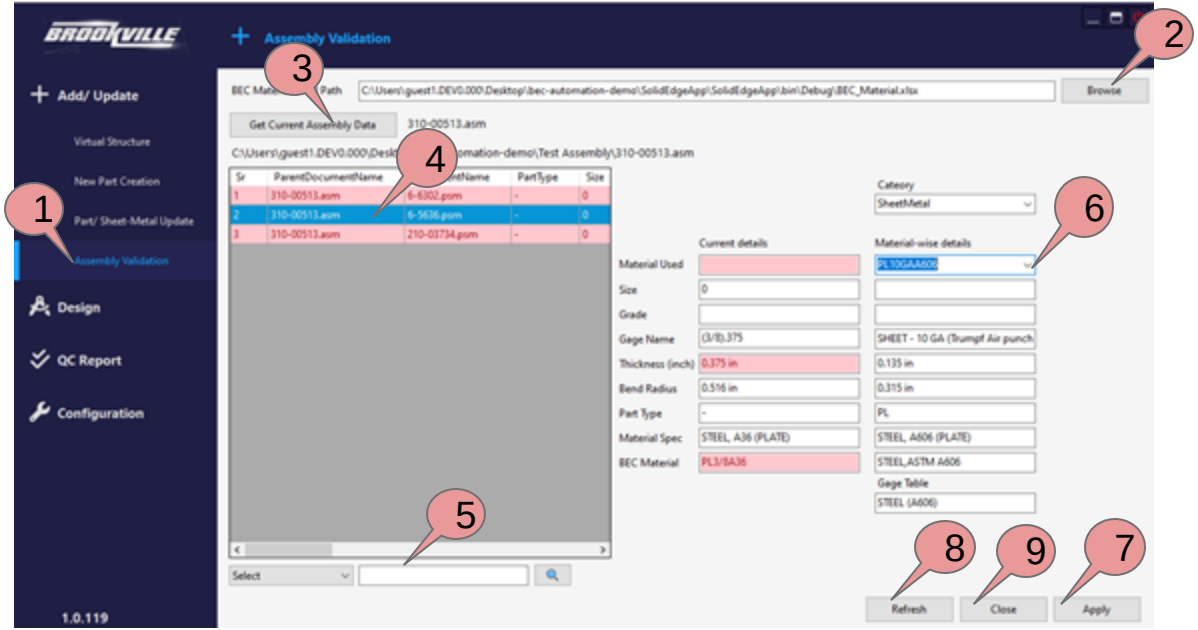
User Interface Guide:

1. Open the desired assembly in Solid Edge and Activate the tool by clicking on it.
2. Assign BEC Material excel path to fetch standard data
3. Click Get BEC Material Data to read BEC Material Data and fetch assembly parts
4. Click on part to get current properties under current details
5. Users can search part properties using the search menu.
6. Select material from the dropdown to assign new material user can also assign a gage table from the dropdown for sheet metal
7. Click Apply button to assign new properties to part
8. Click the refresh button to reset the tool.
9. Close the tool to use other tools if needed



Copy and Transfer

Purpose : To conveniently transfer the desired part to another level of assembly without loosing the original position of part

Functions:

- Tool helps user copy multiple parts in the same location.
- Tool helps user transfer multiple parts to another assembly.

Copy and Transfer

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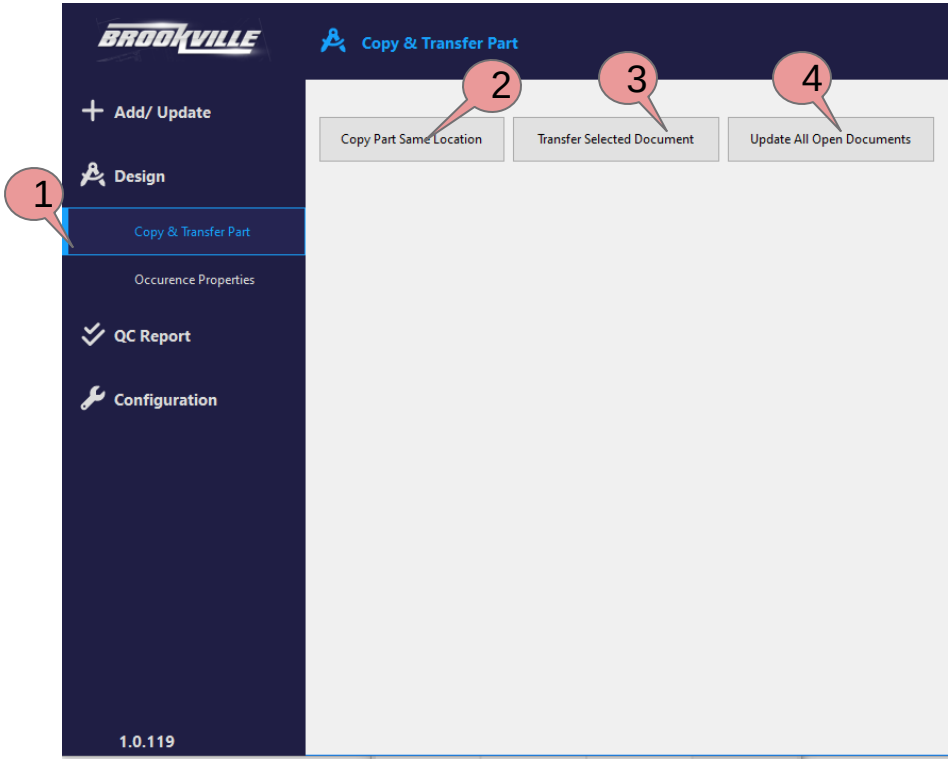
User Interface Guide:

1. Open the desired assembly in Solid Edge and Activate the tool by clicking on it.
2. Select part or parts in the assembly tree and press Copy Part Same Location. Parts will copy on the same location.
3. Select a part in the assembly tree and press Transfer Selected Document. The solid edge transfer menu will open and select desired destination assembly from the menu.
4. Click on Update All Open Documents if changes don't reflect in assembly.



Occurrence Properties

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Purpose : To conveniently assign occurrence property for reference model in assembly

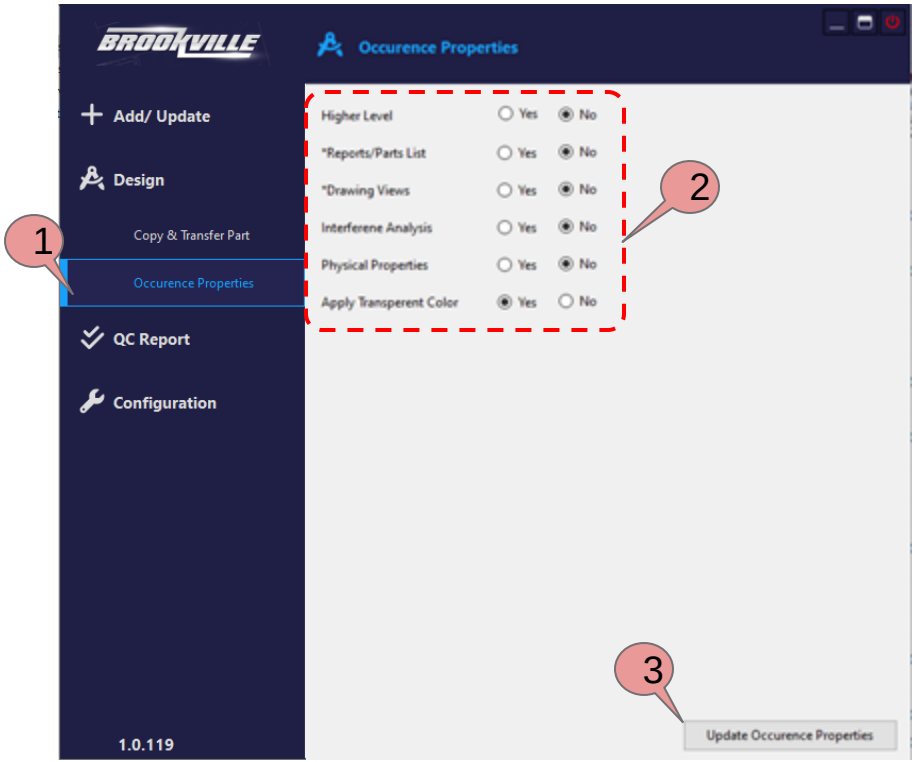
Functions:

- Tool helps users to assign preset occurrence properties for reference models in assembly.
- Preset occurrence property options can be changed as per need.

Occurrence Properties

User Interface Guide:

1. **Open the desired assembly in Solid Edge and Activate the tool by clicking on it.**
2. **Check desired preset setting and change it if required.**
3. **Clicking ''Update Occurrence Property'' will apply property on the selected part.**



Interference Report

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Purpose : To check interference at the top level and child level by excluding specific materials and generate interference reports

Functions:

- ➔ The tool will exclude selected material from the interference report
- ➔ Users can check child interferences
- ➔ Users can check top-level interferences
- ➔ The tool will generate an interference report.

Constraint:

- ➔ The tool will only work on assembly files

Interference Report

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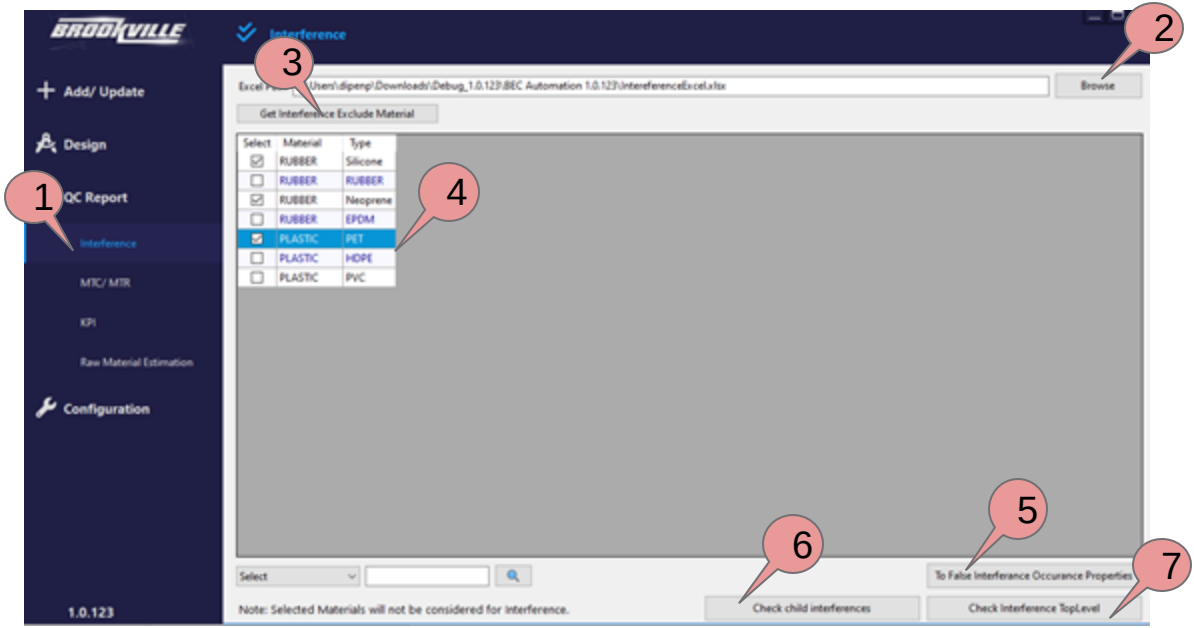
User Interface Guide:

1. Open the desired assembly in Solid Edge and Activate the tool by clicking on it.
2. Assign interference excel to exclude material for interference.
3. Click on get interference excludes material to fetch material from excel.
4. Select material from the list to exclude from the interference report. Users can also search or filter material from the bottom search menu.
5. Click on To false interference occurrence properties to exclude selected material.
6. Click on Check child interference to check child interference and generate a report.
7. Click on Check interference TopLevel to check child interference and generate a report.
8. The Report will be stored in the assembly location



KPI Report

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Purpose : Create merged datasheets for KPI dashboard to visualize and analyze the key performance of designers review and to know how their designers are performing against specific BEC standards

Functions:

- ➔ Once the user assigns the desired MTC MTR report path, The tool process all the reports of the different projects and merged them into the KPI excel data sheet in .csv format
- ➔ Power Bi dashboard is already linked with the datasheets.
- ➔ On refreshing the power BI dashboard will sync all the recent reports on the dashboard

Constraint:

- ➔ Any manual changes in the report may cause an error in the dashboard or data may not visualize properly.

KPI Report

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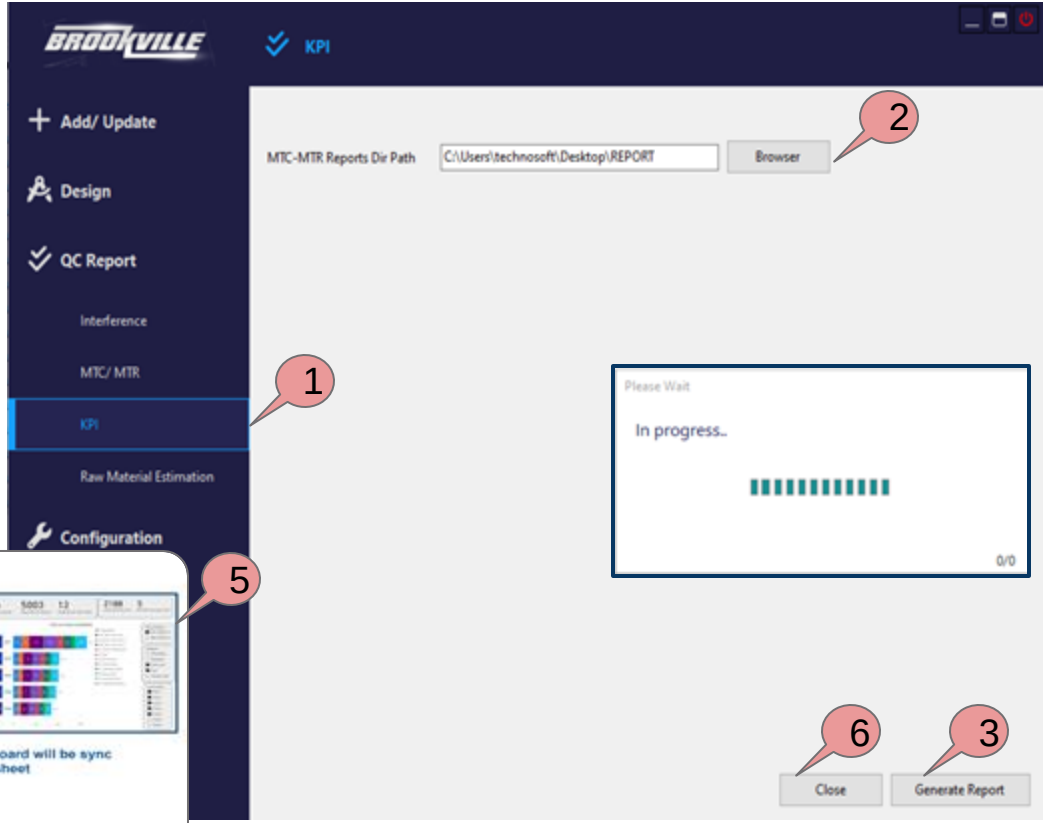
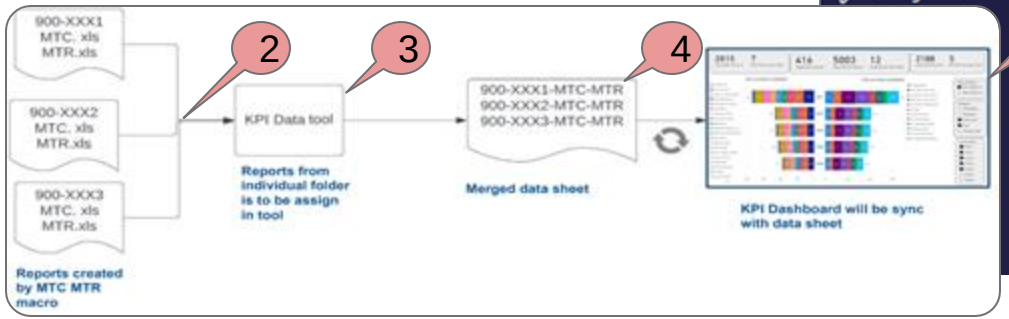
User Interface Guide:

1. Open the Automation tool and Activate the KPI tool by clicking on it.
2. Assign the path of the MTC MTR report
3. Clicking ‘’Generate Report’’ will initiate the process.
4. Once the process is completed it will create a KPI_Report.csv file on the assigned destination
5. Replacing the old file and refreshing the power BI data will update the Dashboard
6. Close the tool to use other tools if needed





Automated check and Review Tool

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Purpose : To Automate the check and review (MTC & MTR) process to reduce ECO & Re-work.

Functions:

- ➔ The tool fetches assembly metadata temporary BoM in a draft file and compares those values with BEC NPM standards & M2M Data.
- ➔ Further It validates values with appropriate remarks against MTC & MTR checkpoints.
- ➔ It also sorts out reports according to part category (Assembly, Sheet metal, Part, Baseline, Electrical)
- ➔ Tool also highlights the baseline model having a different path than the defined.
- ➔ And creates two individual reports for BEC and DGS.
- ➔ Tool creates an additional report which is used for the Routing sequence tool (RST).

Constraint:

- ➔ Tool runs only on assembly model.
- ➔ Only Desired assembly needs to open in solid edge, no other model should be open while using this tool.
- ➔ Wrong modeling practice may cause errors in the tool.
- ➔ This tool can detect and highlight most of the modeling errors that cause the crashing of this tool. Such part numbers would be highlighted in the reports
- ➔ If the tool crashes, the user can refer log file to identify the problematic part and repair it.

Automated check and Review Tool

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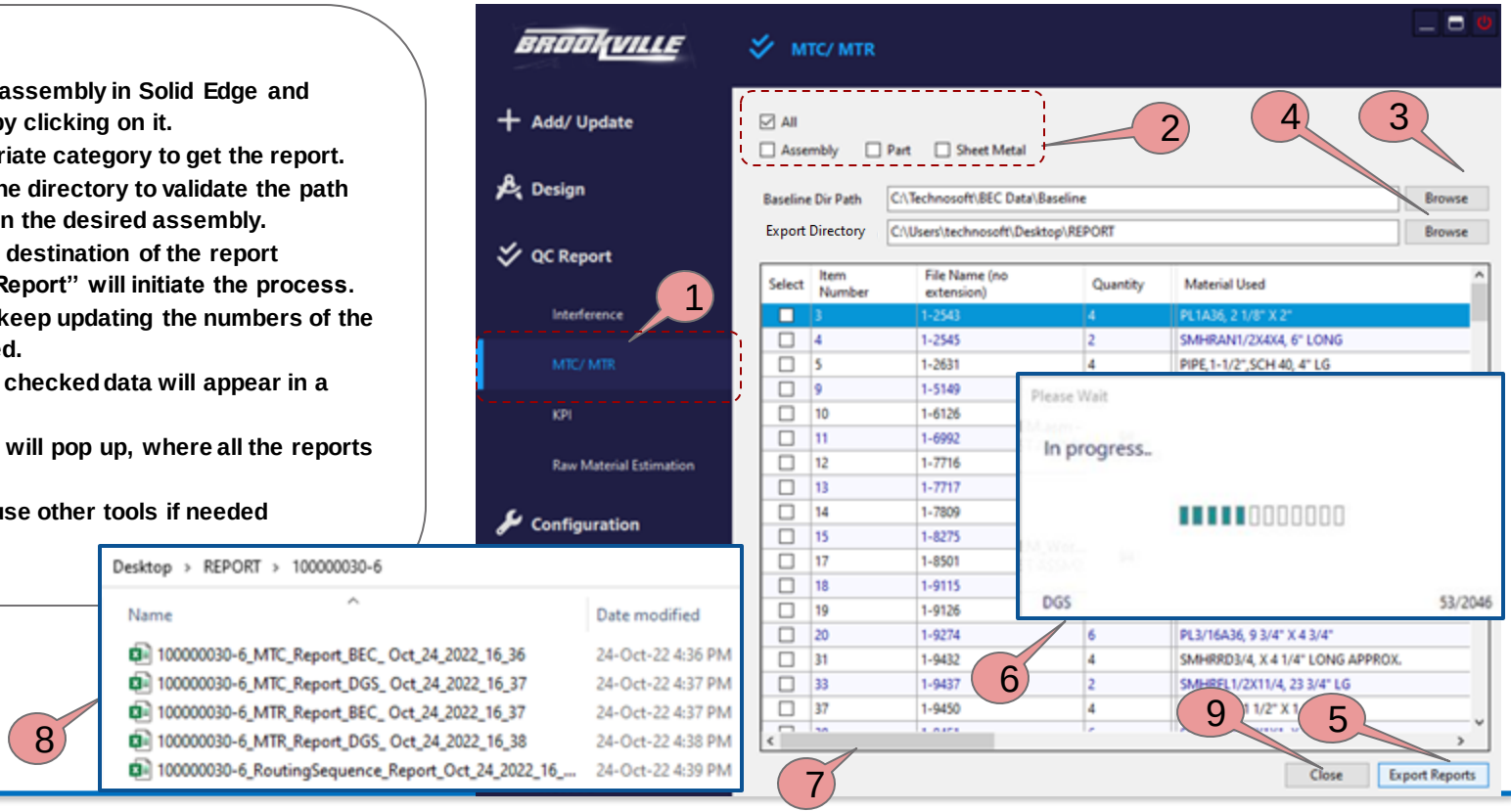
User Interface Guide:

1. Open the desired assembly in Solid Edge and Activate the tool by clicking on it.
2. Select the appropriate category to get the report.
3. Assign the baseline directory to validate the path of baseline parts in the desired assembly.
4. Assign the output destination of the report
5. Clicking ‘’Export Report’’ will initiate the process.
6. Progress bar will keep updating the numbers of the part being checked.
7. Once all parts are checked data will appear in a grid
8. Destination folder will pop up, where all the reports can be seen.
9. Close the tool to use other tools if needed



Raw Material Estimation

Purpose : To generate detailed raw material estimations report of assembly.

Functions:

- ➔ The tool combines metadata in a temporary BOM and generates detailed raw material estimation reports based on it.
- ➔ The report shows the total order area and length of a similar BEC number.
- ➔ It organizes the report based on categories such as plate, profile, and hardware.

Constraint:

- ➔ Tool is unable to detect the sizes if the part is modeled with the wrong practice
- ➔ In that case User may need to manually update the values in the final report.
- ➔ Tool is unable to calculate size if properties are empty or misspelled.

Raw Material Estimation

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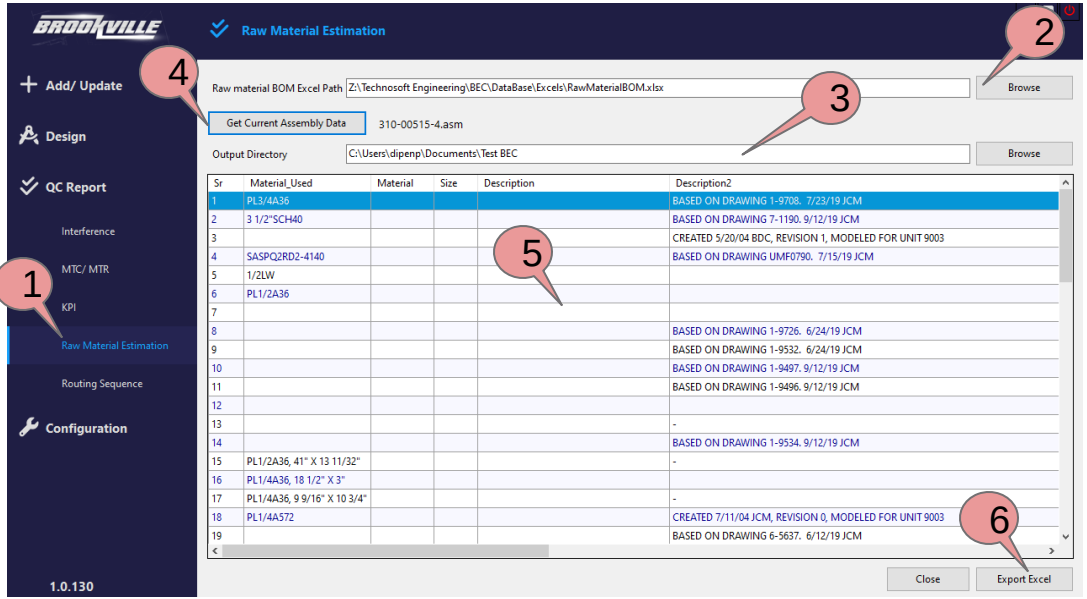
User Interface Guide:

1. Open the desired assembly in Solid Edge and Activate the tool by clicking on it.
2. Assign Raw material BOM Excel data path
3. Assign the output destination of the report
4. Clicking ‘’Get Current Assembly Data’’ will initiate the process.
5. Once the process is completed it will show the report in the grid
6. Clicking ‘’Export Excel’’ will generate the report on the assigned destination.
7. Output report folder will automatically open in windows explorer.



Routing Sequence Tool

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Purpose : To generate sequence report and calculate pro time and arrange WC process codes.

Functions:

- ➔ The tool will fetch part numbers and WC process codes from input report.
- ➔ The tool will arrange WC process code in sequence and display in grid.
- ➔ User can add and update processes using tool.
- ➔ The tool has pro time calculator which helps user to add pro time manually.
- ➔ User can improvise process code logic in input excel to get desire results in tool.
- ➔ User can modify existing properties values from tool.
- ➔ User can approve and generate sequence report category wise.

Constraint:

- ➔ Tool is unable to calculate pro time or process if properties are empty in input report.
- ➔ At present tool is process WC based on basic logics which is added in "*Routing_Sequence_Report*". User can modify or add logics in excel template.

Routing Sequence Tool

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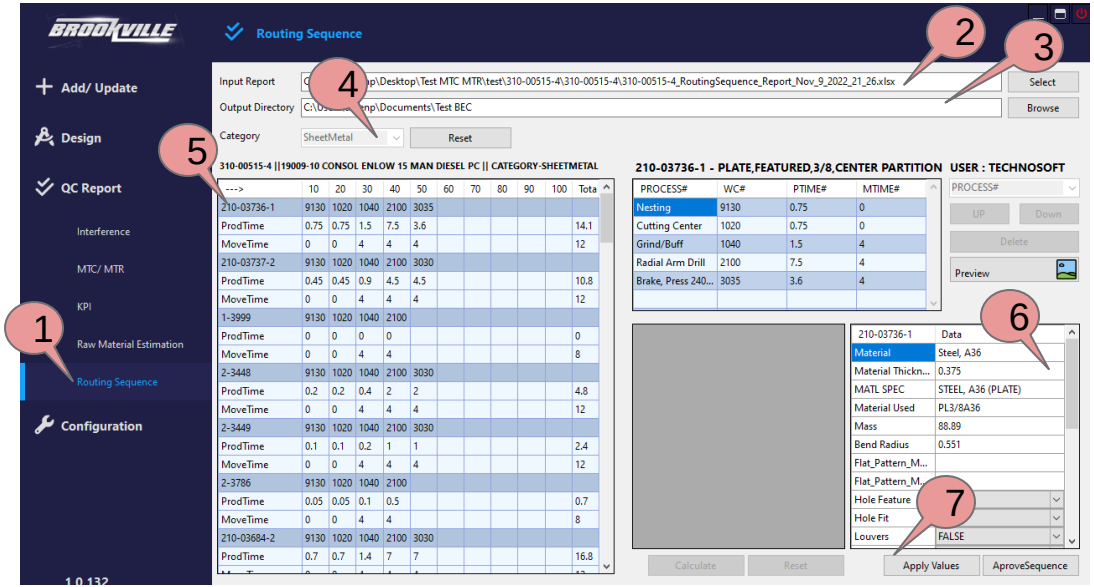
User Interface Guide:

1. Activate the tool by clicking on routing sequence under qc report tab .
2. Select input routing sequence report created by review and check tool
3. Assign the output destination of the report
4. Select category from dropdown and click get data button
5. Once the process is completed it will show the report in the grid then click on part number to get part properties.
6. Review properties grid in right bottom panel and update it if needed
7. Clicking "Appy Values" will update values and user will get updated sequence.



Routing Sequence Tool

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User Interface Guide:

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