ADVANCED BILL OF MATERIAL

SDS/2 v2020 introduces an all new Advanced Bill of Material (ABM). The new ABM feature gives more control over information in the ABM, what is included in the ABM, and tracking material with ABM revisions.

The new ABM report window is accessed through the *System* tab of the *Reports* area on the main menu by selecting **ABM Report**, or from the **Reports** pull-down by selecting **Advanced Bill of Materials** in either **Modeling** or **Drawing Editor**.

In this window, you will setup your *ABM Qualifiers*, generate a *New* ABM report, *Update ABM*, *Review/Modify ABM*, *Print ABM Report*, *Print Material Change Notice*, *View ABM Criteria*, and export an *ABM KISS Export*.

ABM QUALIFIERS

ABM qualifiers are the items used to determine what is a candidate in the model that can be included in the ABM reports by default. These qualifiers set an ABM check box on the material in the model, as they are added, to make sure that it is a candidate when generating or updating ABMs. Think of these qualifiers as your

Figure 1: ABM Report Window

most common cases, or the most common materials you want to show up in your candidate list. You can then override these settings by editing the material in the model and turning on/off the include in ABM check box for any material that fall outside of the most common cases but are still needed in your AB. We will run through an example like this at the end of the How/2 document.
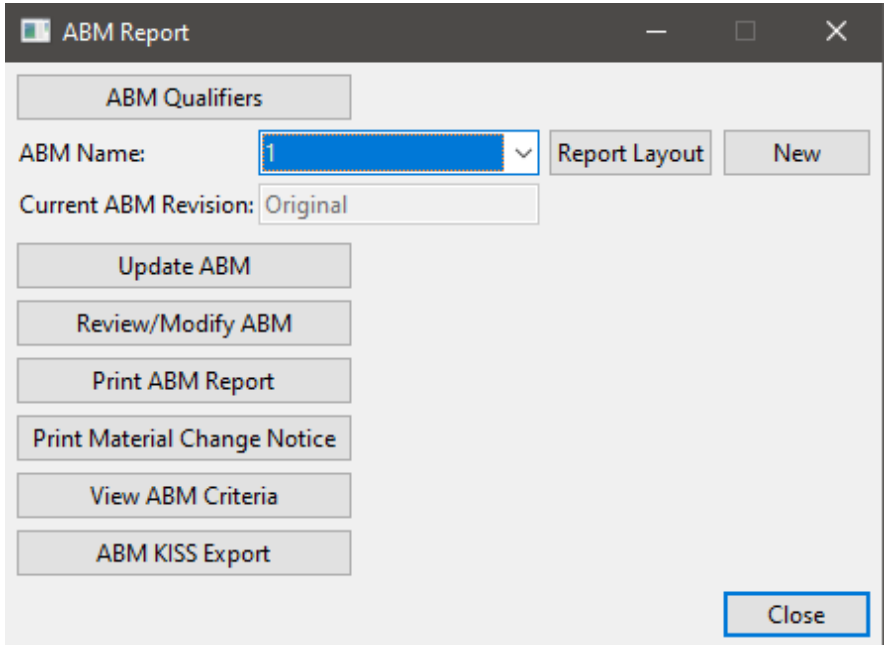
THIS IS THE MOST IMPORTANT STEP IN THE NEW ABM REPORT. YOU NEED TO SETUP WHAT ARE THE MOST COMMON CASES WHERE YOU WANT THE MATERIAL TO BE A CANDIDATE IN YOUR ABM REPORT. YOU SHOULD HAVE THIS SETUP AT THE BEGINNING OF THE JOB BEFORE MODELING BEGINS ON THE PROJECT. CHANGING THE QUALIFIERS IN THE MIDDLE OF YOUR JOB DOES NOT UPDATE MATERIAL ALREADY EXISTING IN THE PROJECT.
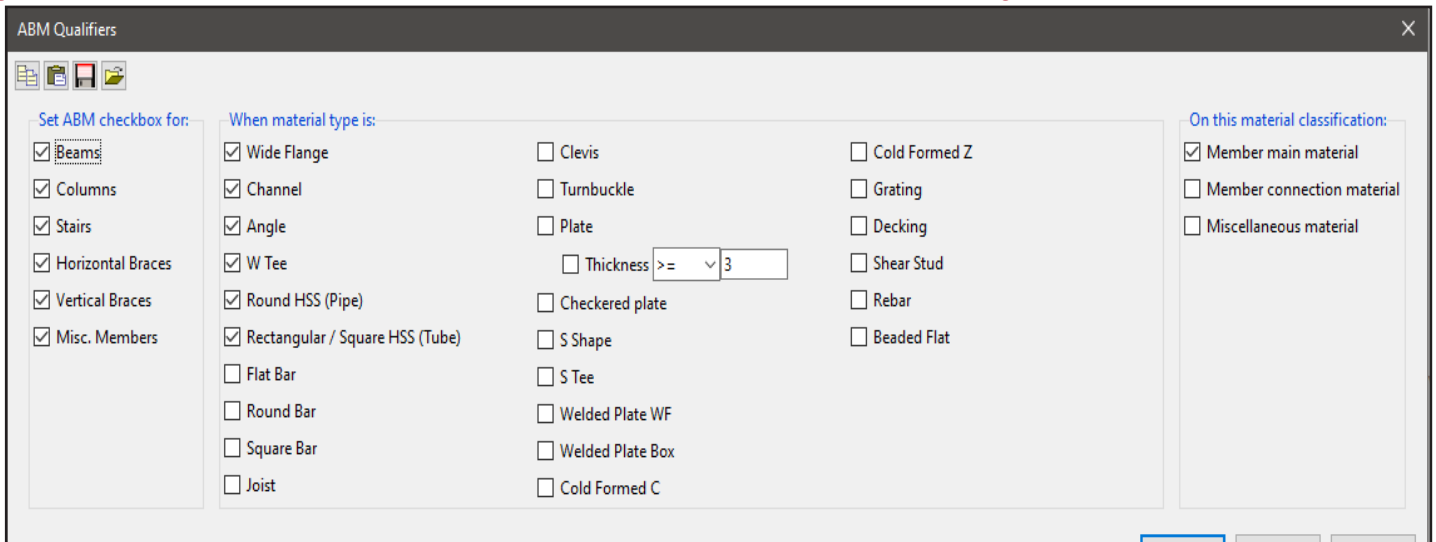

Figure 2: ABM Qualifiers

Figure 3: ABM Check Box in Member and Material Edit Windows

INCLUDE IN ABM REPORT

On top of the ABM qualifiers, which set the ABM check boxes to checked in the Member or Material Edit window, you also have the ability to check on or uncheck this option for specific materials in your model. For main material, you can access this in the Member Edit window or the Material Edit window. For material that is not main material, you can turn off or on that material's ability to be listed as an ABM candidate, in the Material Edit window, as shown in Figure 3. If the material has already been included in an ABM, unchecking it here does not remove it from its ABM page and line, but it will not include that material in the quantity for that line.

When in an ABM report, it lists the name of the ABM and the ABM ID or Page / Line. With the information set to **Standard ABM,** this will display what the generated ABM length is, based on the material in the model. If you set this to **Point to Point**, it will default to the *Work point distance* field for that material. You can over-ride the length used in the ABM by unchecking the *Auto* check box and type in the length you want displayed in the ABM. The note icon to the right of the *ID:* field will allow you to add a custom note that will show up in the ABM report, when printed. If camber is added to the beam, there will automatically be a camber note added to the ABM note field for this material. The ID itself can also be changed by the user once one is generated in the *ID* field.

GENERATING A NEW ABM

In the **ABM Report** window, generate a new ABM for the job by clicking on the **New** button, as shown in Figure 1. In the **Create a New ABM File** window, fill out the name of the ABM file you want to generate and click OK. This is unchanged from previous versions. The **ABM Report Criteria** window will come up prior to generating the ABM; this is where you will setup *General Settings*, *Length Rounding*, and *Operation Additions* for the report.

GENERAL SETTINGS - ABM TRACKING

Tracking ID Method gives you two options: *Page / Line* and *System ABM ID*.
  • *Page / Line* - A simple Page/Line number associated with the materials; any material that changes will always append to the end of the ABM.
    • **Example:** ABM ID 3-12; material on Page 3, line 12 of the ABM. Any revised material that would break from this line is appended to the end of the ABM, when updated, and gets a new page and line number (15-1, for example). Line revisions, like quantity changes, will keep the same line. Running a *Print Material Change Notice* will inform you of quantity change differences between ABM revision levels.

- *System ABM ID* - Generates an ID with three levels of revision knowledge; it still references page and line information, but gives the ability to better track where any revised materials changed from the original ABM report.
    - **Example #1:** ABM ID 3.12a.0; this material was initially a material on page 3, line 12. It has been changed so that it no longer matches the material on page 3, line 12, so it was revised with 12a when the ABM was updated.
    - **Example #2:** ABM ID 1.10.1; this ID has had a quantity change since the initial ABM ID was generated in the model.

Starting page number - The starting page number for the ABM report, which correlates to the first number in both *Tracking ID Method* options.

GENERAL SETTINGS - SET ABM REPORT SECTIONS BY

This section allows you to add sorting and filtering to your ABM report. You have the ability to sort the report by *Zone*, *Sequence*, and *Member Type*. *Zone* and *Sequence* also give you the ability to limit which zones and sequences are included in the material candidates list when generating or updating the ABM report.

Figure 4: General Settings

LENGTH ROUNDING

This section allows you to define how the lengths in the ABM will be rounded (see Figure 5). You have the ability to make it apply to all member types and all material types, specific to a member or material type, or both. Adding multiple lines allows you to be specific to exactly what you want rounded and in what situations. *Round up* and *Round down* will round all lengths to the nearest increment specified which can help combine materials from a wider range of lengths to the same page and line numbers.

Selecting *Exact length* ignores the rounding field but the overrun and underrun will still apply. A 0 in the overrun or underrun will break the material to a new line any time the length of the material has changed, with regard to what is filled out, when you update the ABM.

Overrun and underrun are the allowable changes in length to a material before SDS/2 will break it apart from the existing ABM page and line, or system ABM ID it is on, when you run an ABM update. Overrun is if it gets longer; underrun is if it gets shorter.

Figure 5: Length Rounding

OPERATION ADDITIONS

This section allows you to define any length additions to a material's ABM length (see Figure 6). You can control the additions to the material length base on the member type, material type, and specific material operations on the material. *Curved/Rolled Material*, or specific end cut types of *Mill Cut End, Bevel Cut End, Square Cut end* or *Standard Cut End,* are selectable as material operations for which to add length to the materials.

The length addition options are *Add Length to* and *Round Up to Nearest*. *Add length to* will add the value to the ABM generated length; *Round Up to Nearest* will round the material's length to the next increment of the value defined.

There can be many different additions added if you only want specific types of members, materials, or material operations to have specific additions. For example, *Columns* with *Wide flange* material with *Square Cut End Add Length of 1* inch.

Figure 6: Operation Additions

Once these are setup for the ABM, click the **Create ABM** button at the bottom right of the window to open the Populate ABM window. This will allow you to pick which material is included in the ABM from your list of material candidates.

MATERIAL CANDIDATES

Once you select the **Create** button on the *ABM Report Criteria window*, you will see the *Populate ABM* window. This window will list all material candidates that have the ABM check box checked on in their Material Edit windows in the model. From here, you can select specifically the material you want to add to the current ABM being generated, or select all and include all current candidates to the ABM being generated.

You can *Select By* individual materials or by members by changing the radio button in the upper left of the window. When set to **Members,** it will select all valid candidates in the list that are on the same member number in the model. This is useful with members that have multiple main materials — like double angle braces or stairs, for instance.
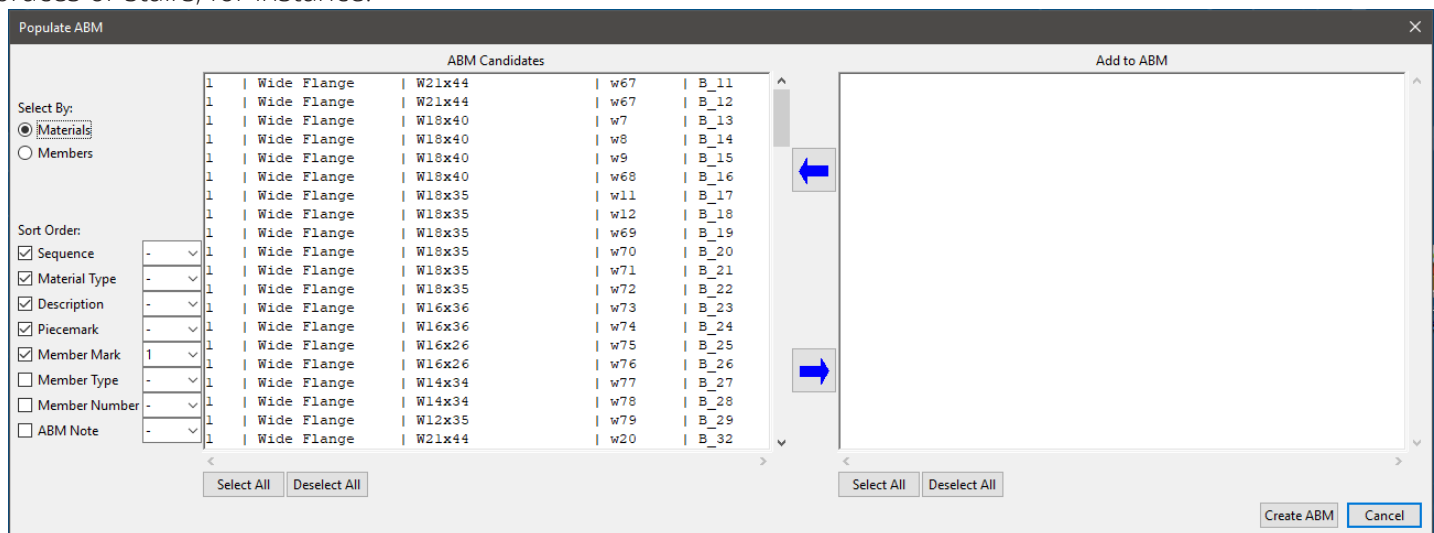

Figure 7: Populate ABM Window

There are sorting options to help sort the list of candidates to help find the materials for which you are looking. Checking on the information under *Sort Order* will add that column to the *ABM Candidates* side of the window; setting the drop-down selection to the right of the sorting information will set the priority in which that field is sorting the material. You can have multiple sorting items that will sort in the order you define.

You can go through the materials you want to add to the ABM by selecting these material in the *ABM Candidates* list and using the blue arrow pointing to the right. This moves the selected items to the *Add to ABM* side of the *Populate ABM* window. You can also use the **Select All** and **Deselect All** buttons on the *ABM Candidates* list to select all and move them to the *Add to ABM* list. Using the blue arrow pointing to the left will move any selected materials from the *Add to ABM* list back into the *ABM Candidates* list.

Any materials that are not added to your ABM will be available to add to the ABM any time it is updated.

VIEWING AND PRINTING ABM REPORTS

To view your created ABM information, select the ABM you wish to view in the *ABM Name* drop-down, in the *ABM Report* window, and select the **Review/Modify ABM** button, (see Figure 1). This opens an *ABM Edit* window (see Figure 8). You can review and manually edit some of the information in the ABM report; ABM ID, Length, and ABM note are all things that can be modified here. Modifying the *ABM ID* will update the information for the materials in the model as well. Export this information to an Excel file by selecting the **Export xlsx File** button and providing a file name and location in which to save the file.

The layout for the printed report will be based on the **Report Layout** that can be selected on the main *ABM Report* window. The layout works similar to your BOM layout, where you define the *Order* from left to right, where 1 is the first column at the left of the report (see Figure 9). Any item added in the *ABM Report Layout* will also be shown in the *Review/Modify ABM* window. You also have the option in the *ABM Report Layout* to *Show ABM entries with a 0 quantity*. This will exclude any lines in the printed ABM that have been updated to zero quantity since it was first generated.

To print your ABM, select the ABM you want, on the main ABM Report window, then click the **Print ABM Report** button. You will select which revision of the currently selected ABM to print. This will output to the default SDS/2 output viewer to be able to print through your Windows print window. You can also **Export .xlsx File** from this window as well, same as you can from the *Modify/Review ABM* window.

UPDATING ABMS

When revisions or new material are added to your model and you need to update your ABM information, select the ABM you wish to update from the *ABM Name* drop-down and click **Update ABM**.

The *Populate ABM* window will be displayed allowing you to add any new materials to the ABM. If no new materials need to be added, click the **Update ABM** button in the lower right of the *Populate ABM* window; otherwise, move any new items from the left *ABM Cadidate* list to the right *Add to ABM* list, then click **Update ABM**.

Figure 8 : Export xlsx File

Figure 9: ABM Report Layout And Example Report Output

Figure 10: Print ABM report

Figure 11: Update ABM

You will be informed of the current revision level, the date the current revision was created, and what the new revision will become. Clicking **NO** to this window will cancel the update.

COMPARING CHANGES BETWEEN ABM REVISIONS

To see the differences between revisions of the same ABM, click the **Print Material Change Notice** button on the main *ABM report* window. Select the two versions of the report you want to compare, then click **OK**.

VIEW ABM CRITERIA

View ABM Criteria will let you review the *ABM Report Criteria* that was filled out when the report was generated (see Figure 4). In this criteria, only the the *Set ABM Report Sections By* can be updated for any new additions to the ABM.

Figure 12: Print Material Change Notice

ABM KISS EXPORT

ABM KISS Export will export the current revision of the selected *ABM name* into a KISS standard formatted .kss file. Define the KISS Folder name; it exports to your default location defined for your *User Options* under the *Output* tab. By default, this will be the output folder for your SDS2_2020 directory. The KISS file will only contain the material in the ABM report and will have the material information from the ABM, like the rounded ABM lengths. You can now set the KISS export type to ABM in your KISS setup from the *MRP Interface* area of the main menu, and include any ABM notes with the export.

ABM EVENT LOGGING

The new ABM also has event logging; this can be turned on in your **Event Logging** options in **Job or Fabricator Options**. The *Material* logging options now have a checkbox for ABM; this will log whenever a material is assigned an ABM Page/Line, or System ID, and what that ABM Information is.

This logging can be reviewed in the Material Edit window, by clicking the **General information** button, then the **Properties** button. The log can also be searched in **View Event Log** in **Utility Functions**; this lets you search the entire job for specific logging information.
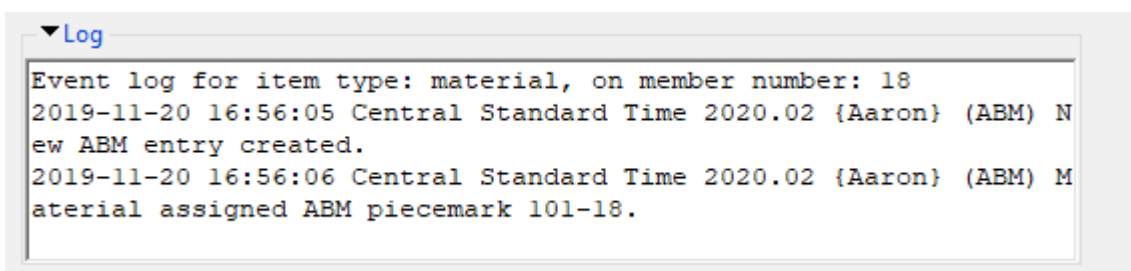

Figure 13: ABM Event Logging

EXAMPLE WORK-FLOW SCENARIO: A fabricator wants to see an initial ABM for the "jumbo" columns and any plates over 3" thick, so that they can get an early order in for these sizes.

SETUP AND APPLICATION

With my SDS/2 default *ABM Qualifiers* (see Figure 2), which are structural member types, common rolled sections for material, and only main material, I will get all of my column section sizes in the *ABM Candidates* list. What I will not get is the 3" plate; I do not have plate turned on as a material type to automatically set the ABM check box on in the model when they are added. Just checking on the plate with a thickness restriction will also not include them in the candidates list unless they are main material of their own miscellaneous members. This is because I have the material classifications set for only member main materials.
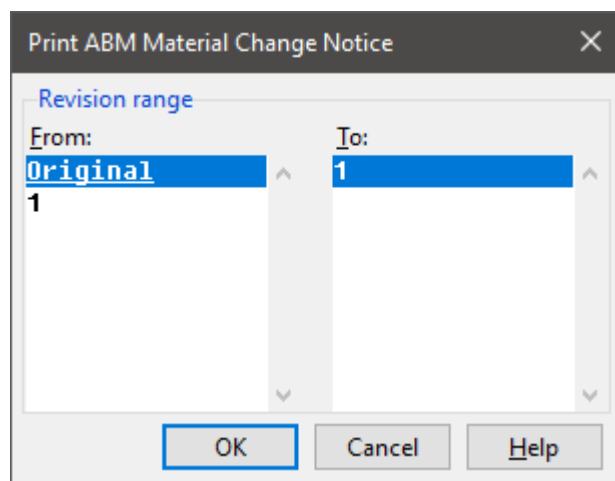
I know that in my job there will be some 3" base plates on my jumbo columns. I could get all my 3" base plates to show up in my *ABM candidates* lists by checking on the **Member connection material** classification, and checking on Plate, and setting the thickness restriction to greater than or equal to 3". With this setup, any other connection materials that fit the material types, like clip angle, or WTee seats, will also show up in the ABM Candidates list now. This isn't an issue; they can be ignored in my selections for the *Add to ABM* when I am selecting from my list of *ABM candidates*. These additional materials will have to be contended with each time I run a new ABM or update my existing ABM and might get cumbersome to deal with the extra materials in the list.

Alternatively, I can leave my *ABM Qualifiers* alone. My model is the deciding factor for what is included in my ABM candidates list. When I add my columns and base plates to the model, I can edit the base plate mate-rial in the model and check on the ABM check box for that 3" thick base plate. Using **Advanced Selection** or **Status Select** is a great way to find these special materials in the model and edit them to check on the ABM check box (see Figure 14 and 15). This meets the goal of having qualifiers be the common cases, and still get these plates, which are unique cases that I want added. Now, only these plates are added, none of the other connection materials. I can then use the *ABM Candidates* list to select just the jumbo columns and these plates to *Add to ABM*, and can easily generate the ABM that my fabricator is requiring.

Advanced Selection can be found under the **Edit** pull-down. Figure 14 shows sample code to select all plate materials that are greater than three inches. For more information and examples of code for *Advanced Selection,* click the **Help** button in the *Advanced Selection* window.

Figure 15 shows the *Status Select* window that lets you use items similar to your *Status Display* window to select items in your model, like Advanced Selection. **Status Select** can be found under the **Model** pull-down.
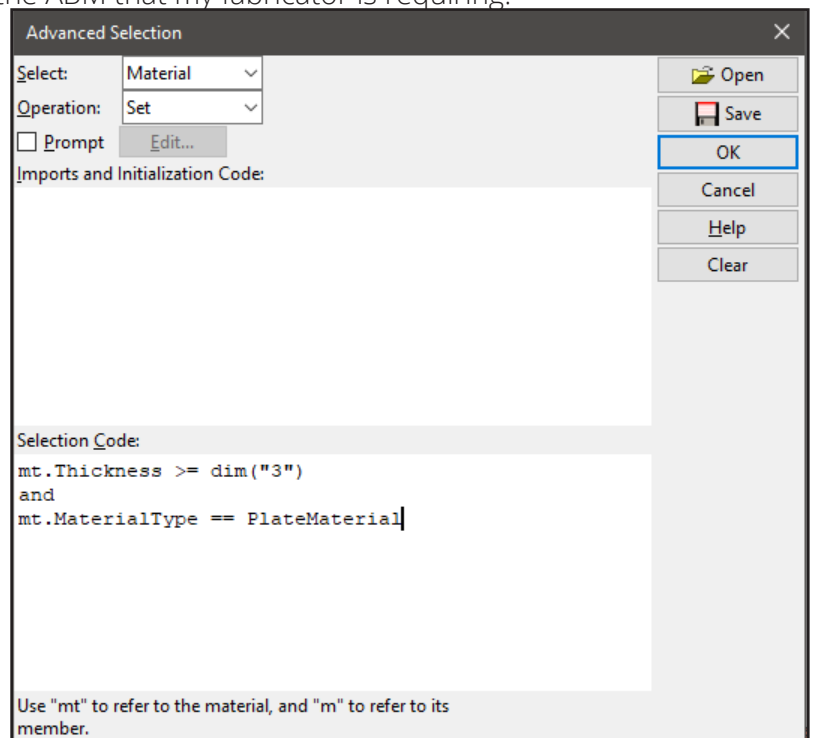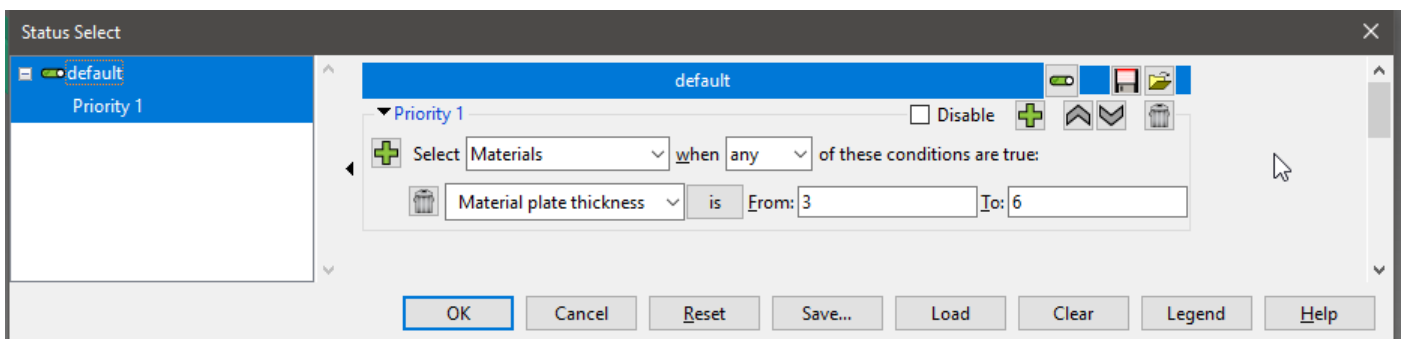

Figure 14 : Advanced selection to Select 3" Plate

Figure 15 : Status Select for Plate Thickness