Tekla Tedds e-Learning

Tedds: Expert

Training manual

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Table of Contents

Conventions used in this guide

Typographical conventions

The following typographical conventions are used in this guide:

Header	Usage
Bold	Any text that you see in the user interface appears in **bold**. This font is used, for example, for window and dialog box titles, box and button names, and list items.
Italic bold	New terms are in ***italic bold*** when they appear in the current context for the first time.

Note boxes

The following types of note boxes are used in this guide:

A **tip** might introduce a shortcut, or suggest alternative ways of doing things.

A **note** draws attention to details that you might easily overlook. It can also point you to other information in this guide that you might find useful.

You should always read very **important notes and warnings**, like this one. They will help you avoid making serious mistakes, or wasting your time.

This symbol indicates **advanced or highly technical information** that is usually of interest only to advanced or technically-oriented reader

LESSON 1

1 Creating a User Library and Publishing Calculations
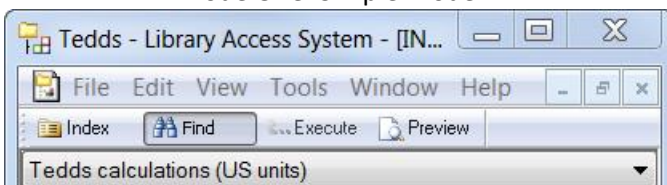
1.1 Session topics

- Introduction to libraries
  - Creating a user library
  - Saving and using items
- Publishing calculations

1.2 The User Library

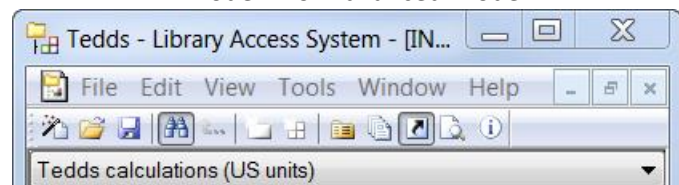### 1.2.1 Introduction to the User Library

The library Access System is a powerful and flexible utility which stores all the information needed to run a calculation.

Mode One: Simple Mode   Mode Two: Advanced Mode

- Default mode
- Only allows retrieval of items from Calc Library

- Retrieve items from the Calc Library
- Add, remove and edit items from the User Library

There are two types of Libraries:

**System**   Contain fixed information which cannot be easily changed; includes the built-in calculations that Tedds provides

User   Contain your own information and can be changed anytime; includes custom calculations that you have written. Once saved into this library the calculation can be accessed from the 'My Calculations' index and run the same way as Tedds calcs.

The Library Access System uses two components and both are required to work properly:

Calc Library (.LBR file) This is where the calculations, sketches, tables etc. are stored as *Entries*

Calc Set (.LAS file) This is an index to the Calc Library Entries, it does not store any data but is instead an organized collection of references to the library.
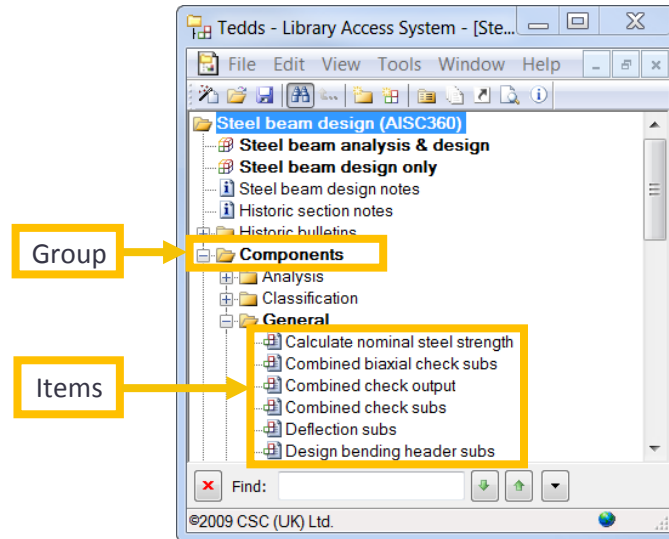
You work directly with the Set and the library is automatically saved and updated in the background. The components of a Set are organized in a folder tree system similar to Windows Explorer.

- The folders are called *Groups* and act to organize the calculations.
- The calculations are saved as *Items* inside the folders.

There are many types of items that you can work with and save. We encourage you to explore the other types on your own. The following are the most common items that you will work with.

Item Name	System Library	User Library	Description
Solution			Returns a complete calculation
Component			Returns a part of a complete calculation
Note			Returns general information about the calculation
Sketch			Returns an image in the calculation

1.3   Working with the User Library

1.3.1   Creating a Calc Set

A new **Calc Set** must be created in order to save your custom calculations.
- New sets can only be created in the **Advanced Mode** of the Library Access System.
- Use the **New Calc Set Wizard** command or go to File > New.
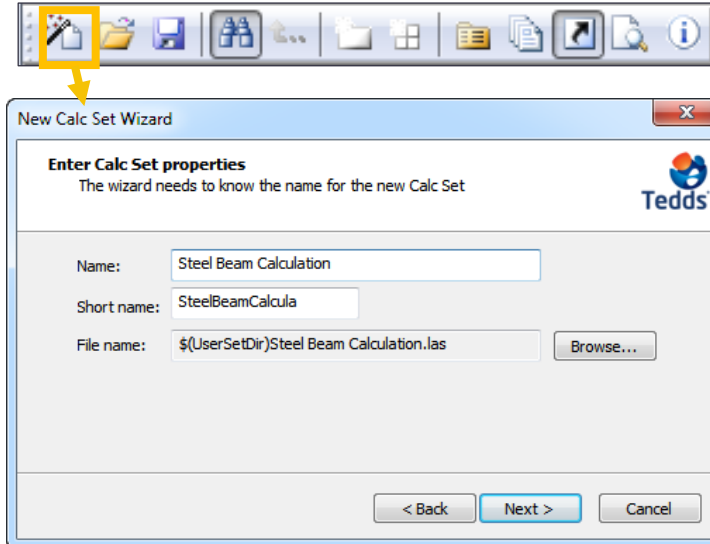
- The Wizard comprises of two dialog boxes that walk you through creating a new set.
- Define the **Name** of the Calc Set.
- Tedds automatically creates the **Short Name** and the **File Name**
- We recommend you keep the Set stored locally in
- My Documents > Tedds > Calc Sets
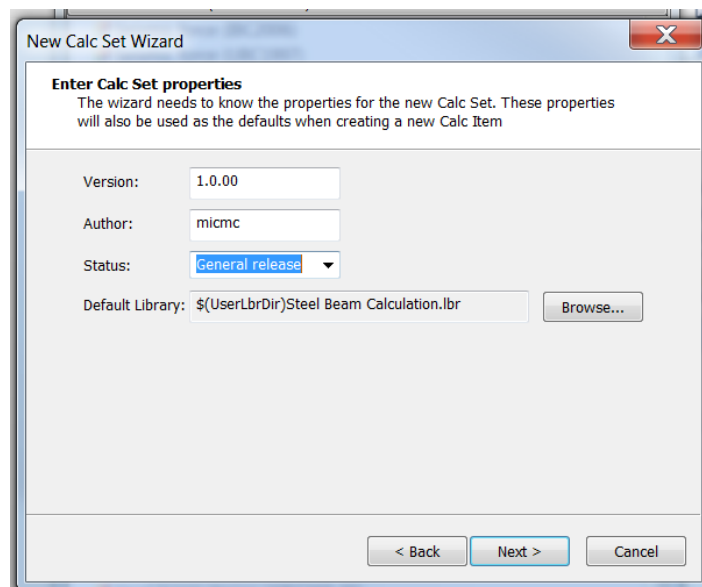
- The next screen defines the properties of the set
- Indicate a **Version** to keep track of changes
- The **Author** defines the creator of the calc
- The **Status** defines what stage the calculation is at in the calc writing process
  - Choose from predefined labels or write your own
- The library will be saved to a default location in My Documents > Tedds > Calc Libraries
  - Don't change the location or name of the library

Click **Finish** to exit the Set Wizard
- The set has been created – a root folder will exist with the same name as the set
- The white background signifies an editable mode
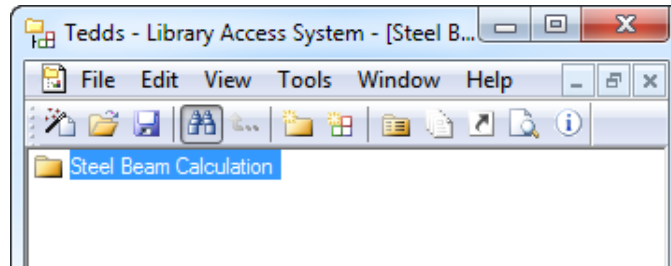
1.3.2   Creating a Group

Once the Set has been created you can organize the calculations and components in folders known as **Groups**.
- First select the **Root** folder or other group that you want the new group created in.
- Use the **New Group** command or go to Edit > New Group.
- Each group must have a unique name.
- A **Long Name** can be defined which is a descriptive title with more information on the group contents.
- Hover over the Group name to display the Long Name
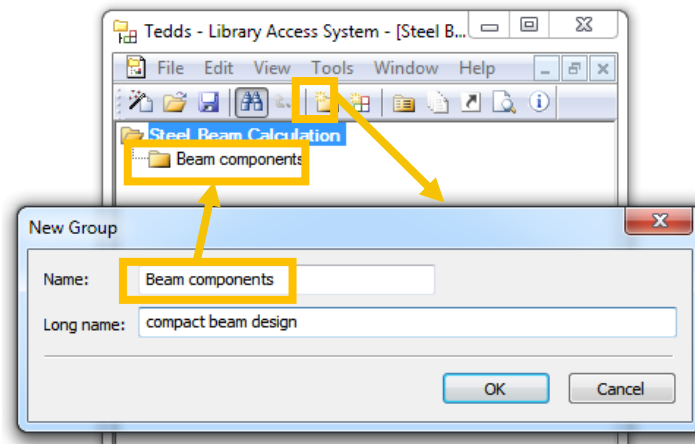
1.3.3   Creating an Item

Calculations are saved into the Library as **Items**. Items should be saved inside a Group and groups can contain multiple items.

Steps for creating an item:
- Select the location where the item will be saved in.
  - If empty, select the Group
  - If other items exist in the Group, select an existing item at the same level where the new item will be.
- Use the **New Item** command or go to Edit > New item
- A selection dialog box will be displayed
- Highlight/select the calculation you want added to this **Item**
- **Remove field results in Document before saving** – If checked this will remove all calculated results from the document
- The default type is a **Component** – in the New Items Properties enter the component name.
- If the Group location is empty – a dialog box will ask if you want the item saved in the selected Group.
- If the Group had items saved inside it – the new item would be saved at the same level as the Group.
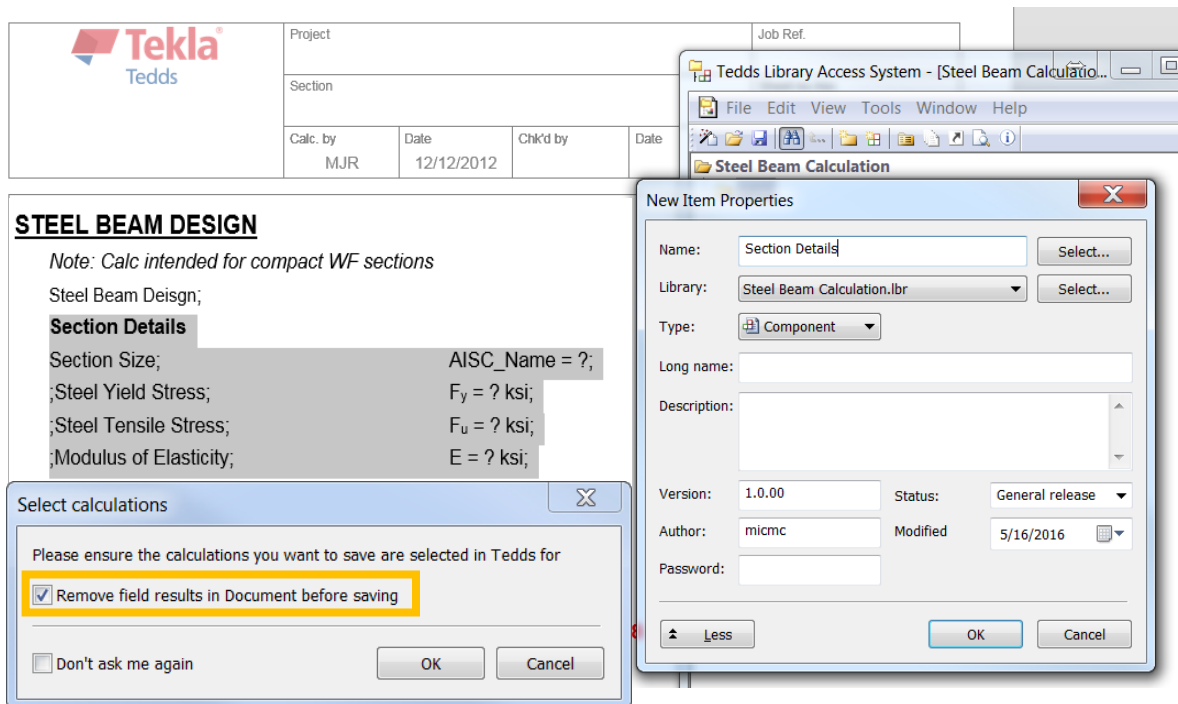
1.3.4 Saving a Calc Set

- The Items have automatically been saved into the Calc Library file.
- The Calc Set is not automatically saved.
- If you try to close the Library without having saved the Calc Set, you will be prompted to save it.
- Alternatively, you can use the **Save Calc Set** command, or got to File > Save.
- You will then be prompted to save the Calc Set in the default Tedds location.

1.3.5 Calc Item Field

The **Calc Item** Field allows you to input previously saved Calc Items into your document. You can add a conditional statement so different results will bring up different Calc Items.
- In **Tedds Field** go to the **Calc Item** tab.
- Write out a conditional statement and choose which calc items will be displayed if the condition is met or not.
- The Calc Items must be in the same Library.
- Run the calculation to display the appropriate Calc Item.
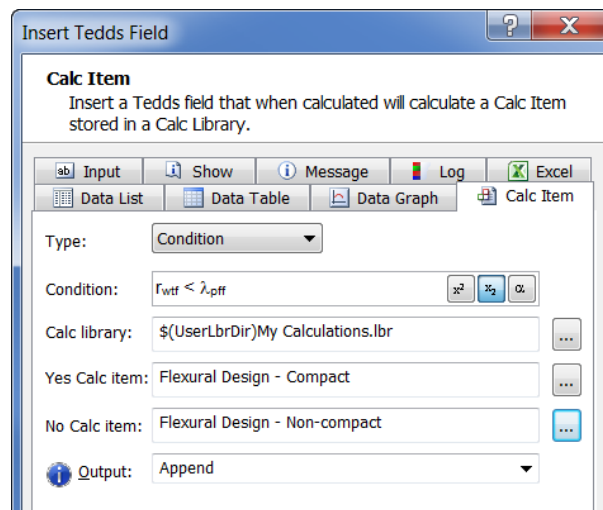
1.3.6   Using a Calc Item

Once a Calc Item has been saved it can be used in new documents. This will save you time if you have common pieces of calculations that need to be input in several different files.
*   Go to the **My calculations** library in the LAS
*   Locate the calculation the same way you do with a built-in Tedds module
*   Drag and drop the Item into the document.
*   Turn on semi-colons to drop the Items in the correct location.
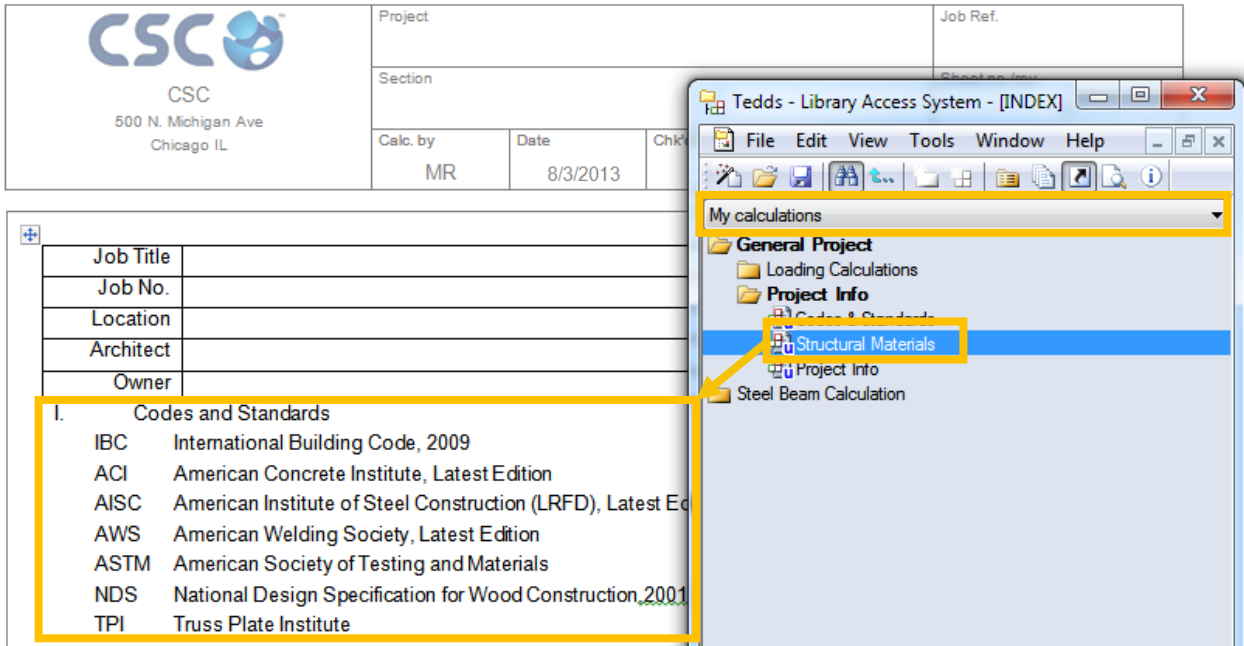
1.3.7   Opening a Calc Set

*   A previously saved Set can be opened by going to File > Open or click on the folder icon in the toolbar
*   This will open the Set in the editable mode with all the previously saved items
*   You must open the set in order to make changes, add new items or modify existing ones

1.3.8   Modifying a Calc Item

You can modify a calc item without having to recreate it. If the item is not already in the document, drag and drop it in first, then make the changes.

- Highlight the complete item, then in the Calc Set right-click on the item name and go to Edit > Item Contents

- Make sure to save the **Set** after modifying the item
- You can view the changed Set by clicking on the **Preview** command
- If the items were manually placed in a document they will not be updated automatically
  - The items are just text within the document
  - there is no link between the text and the library
- Items that were inserted into the document as a Tedds Calc Item field will be updated once the document is recalculated.

1.3.9   Creating a Solution Item

Once you've put your calculation together, either written from scratch or using pre-defined Calc Items, you can save the entire calculation as a Solution Item.

•   Follow the same procedure for creating a Component Item – highlight the entire calculation when prompted.

•   In the **New Item Properties** click on **More** to expand the options.

•   The **Type** drop-down menu allows you to choose from different Item types; this includes solution, note, sketch etc.
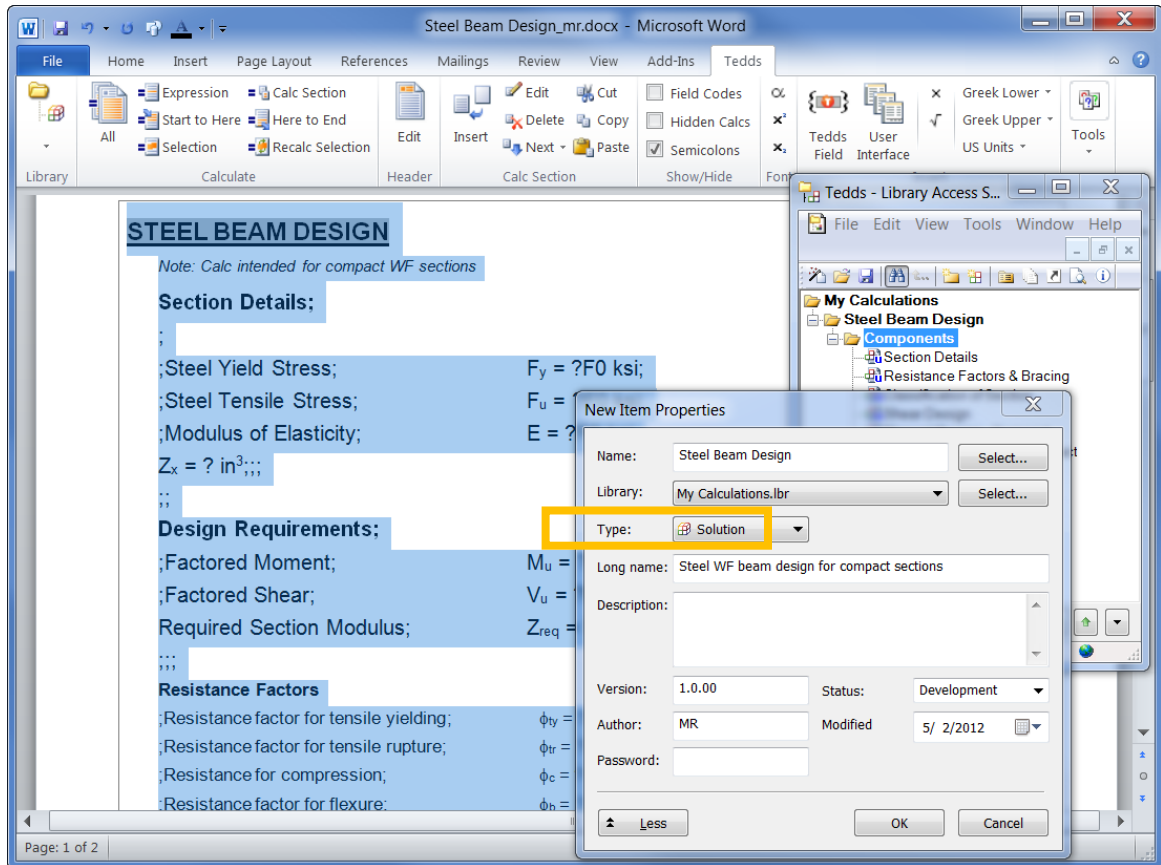
•   This solution can now be opened in Tedds Standalone.

1.4   Publishing Calculations

1.4.1   The Calc Publishing Wizard

The Calc Publishing Wizard allows you to easily distribute the calculations you write to other Tedds users.

• It creates a single Microsoft Installer file that will install, to the correct location, all the Calc Set, Calc Library, Excel spreadsheet, Data List, Data Table and Data Graph files that you have used in your calculations.

• Calculations are written and saved into the Library in exactly the same way as before.
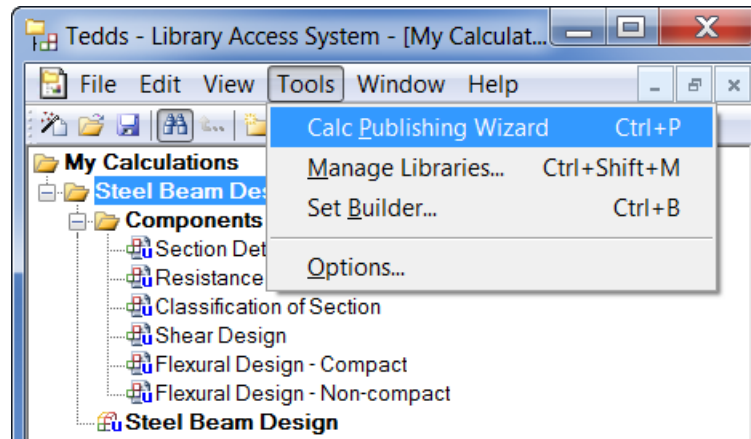
1.4.2   Creating a Tedds User Calculation Package

The *Package Type* setting controls what information will be included in the file that the Calc Publishing Wizard creates.

Tedds User Calculation

This option can be used for User Calc Library, User Calc Set and Excel files. The Microsoft Installer file that is created can be sent to other users and when installed, will copy the information to the other user's User Calc locations. The other user is then able to access, edit and delete information from these files. The calculations will be accessible under the My Tedds Calcs index in the Library.

Tedds System Calculation

Saves your calculations into the Library as System Calcs. The Microsoft Installer file can then include Data Lists, Data Tables etc that you have created and saved into your System Calc locations. They will be installed on the user's machines System Calc locations allowing for protection of files. These cannot be edited, and the calculations will appear amongst the standard Tedds calculations in the Library.

Tedds System & User Calculation

This option can be selected if you have a combination of the two options above.
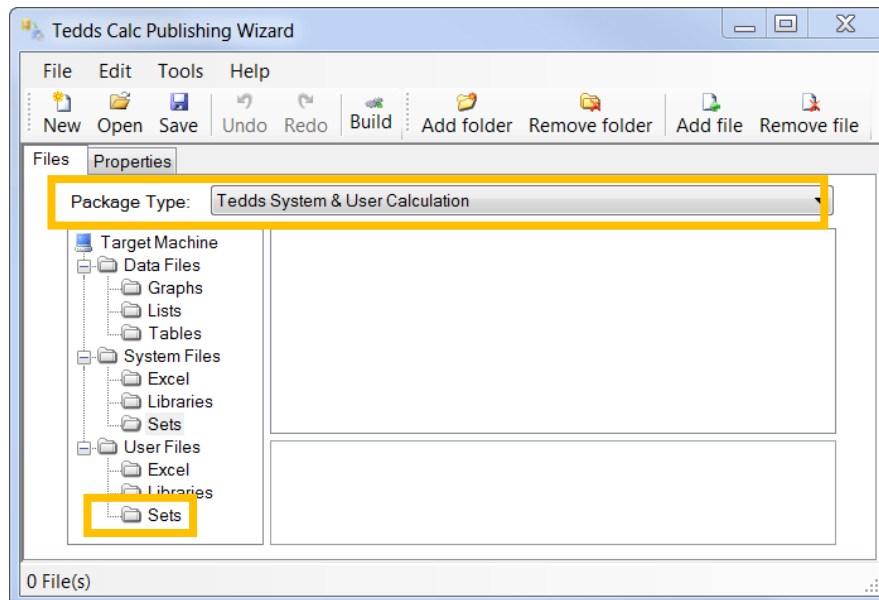
Files can be added to the project by selecting either a Calc Set or a Calc Library. The Publishing Wizard will automatically add all the other associated files.
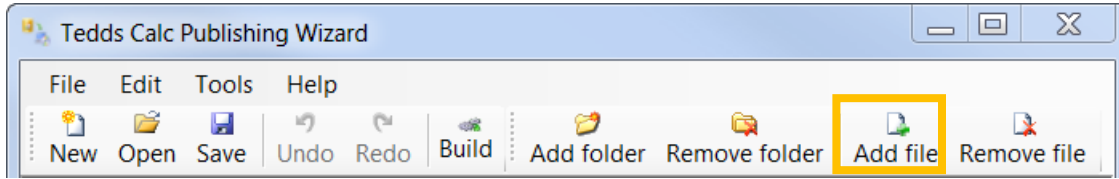
- Browse to the appropriate Calc Set or Library and click Open to add.
- Change the **Read-Only** status to **True** to prevent users from overwriting the information in the files.
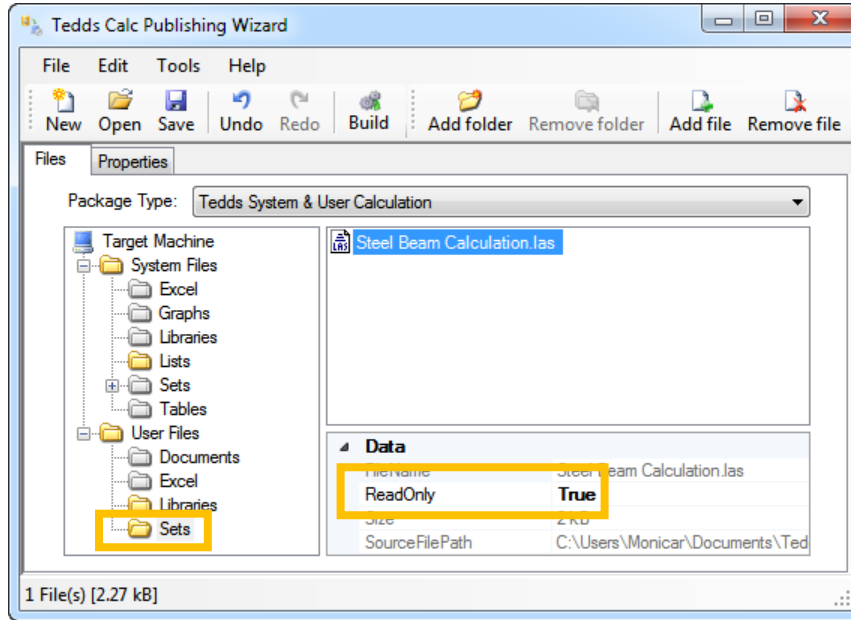
- Notice all required documents are included, in the Data Files category the appropriate Data Lists are included that were input to this document.
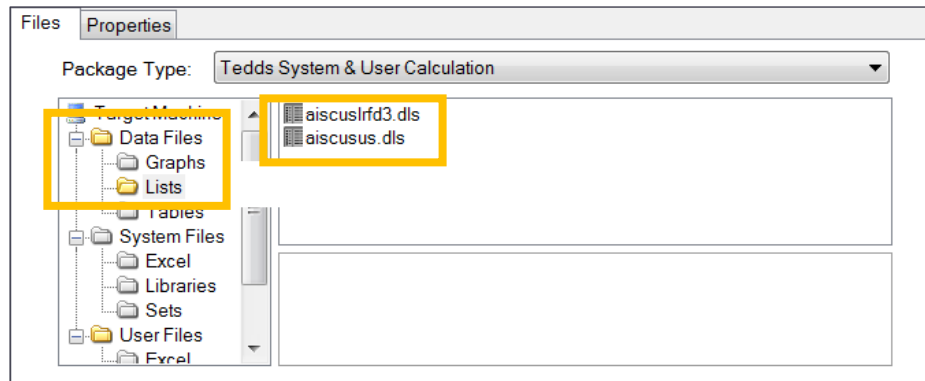
The **Properties** tab allows you to provide more information about the Microsoft Installer file that the Calc Publishing Wizard will create.

- You must provide a Title, Author and Output installation package

Title	Text that appears in the title of the installation wizard
Description	Brief description that is displayed by the installation wizard (Optional)
Author	Your initials or other identifying information
Contact web address	Your e-mail address (Optional)
Output installation package	Name and location of where the .MSI file will be created. The default location is: C:\Users\<username>\Documents\TEDDS\Publishing Projects
Notes file	Name and location of a text file in Rich Text Format (RTF) or plain text format (TXT) that is displayed by the installation wizard as notes (Optional)
License agreement	Name and location of a text file in Rich Text Format (RTF) or plain text format (TXT) that is displayed by the installation wizard as the licence agreement (Optional)
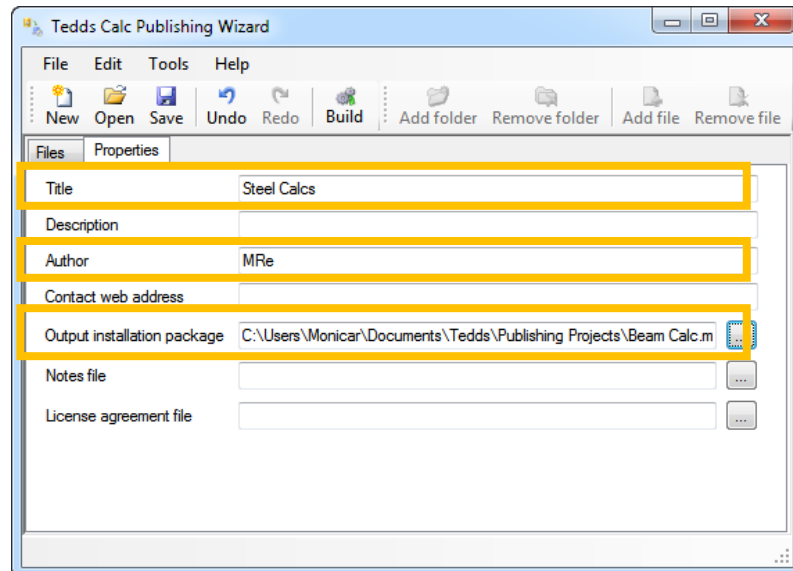
- Click **Build** to create the .MSI file, as well as any .txt or .rft files requested.
- The Files will be saved in the Output Installation Package location – share these files with your company.
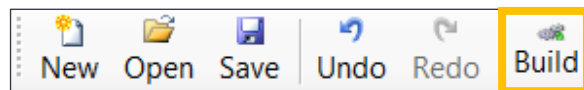
- Save the Publishing Project to re-build the package at a later date when you've made changes to the calculation.

1.4.3   Installing a Tedds User Calculation Package

- Double click on the .MSI file to install the calculation on another machine.
- The calculation will now be available in the Library Index in both Tedds and Tedds for Word.

LESSON
2

2   Creating a user interface

2.1   Session Topics

- Introduction to creating a user interface
  - Creating groups & controls
  - Inserting data tables
  - Displaying/hiding options based on conditions
  - Adding pictures

2.2   Introduction to the user interface

2.2.1   The User Interface Designer

Why create a user interface?

- When working through a calculation it may be hard to identify which variables need to be input or defined in the calculation versus the ones that are calculated automatically.
  - The interface allows you to group inputs in a logical way
- Maximum and minimum values can be applied to help make sure only valid values are defined
- Manually editing a document can lead to potential mistakes if changes are made without re-calculating the entire document to update the results.
- Individual input boxes are cumbersome, the interface will combine them into one place

2.2.2   The User Interface Designer

- The User Interface Designer is a tool within Tedds for Word for creating input interfaces.
  - The Interface designer in the Tedds ribbon is the default tool and its best used for simple interfaces, this is suitable for most applications.
  - The Interface designer pro, which is available in the Developer ribbon, is a more advanced tool for complex interfaces and is the same tool the CSC developers use to create the Tedds modules.
- This is only recommended for experienced users and is beyond the scope of this session
- It displays a template showing exactly how the interface and its components will appear when the calculation is performed.
- Multiple inputs can be entered in a single window.
- Data can be entered via multiple control types depending on the nature of the variable e.g. checkboxes or drop lists.
- The interface designer is user friendly
  - Interfaces can be easily edited
  - Buttons, for making selections from data lists, data tables, etc, can be added to the interface
  - Sketches and Notes can also be added to the interface to illustrate the calculation

2.3   Creating a user interface

2.3.1   Preparing the document

- The User Interface Designer doesn't have an option to write out a standard input line into the document.
- This means that any variables defined in the User Interface will not be automatically displayed in the document.
- Assignment statements need to be manually written into the document for every variable that needs to be displayed in the output.
- The User Interface Designer should be inserted into the document **above** the assignment statements.

To create a User Interface place the cursor where the interface will be created and click on the **User Interface** command.
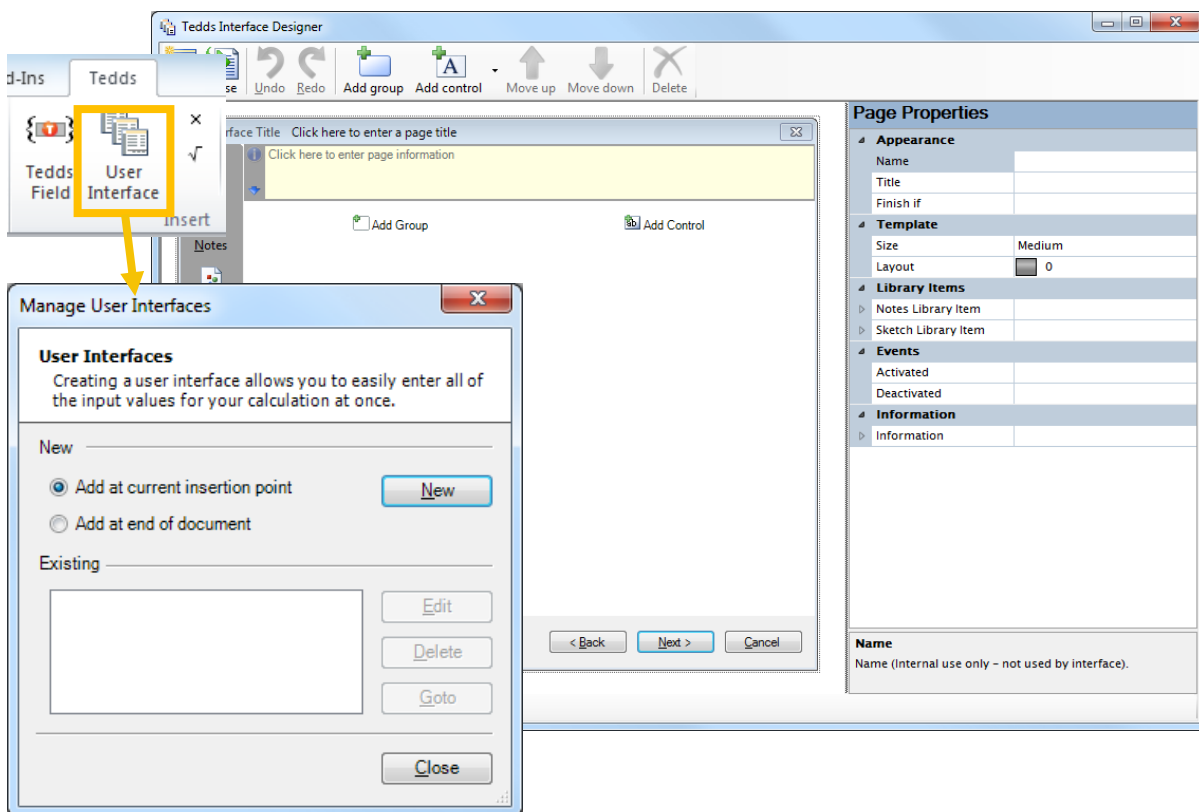
2.3.2   Page Properties

Page Properties can be defined to adjust the content and layout of the User Interface that is being created. These can be entered either graphically, by clicking in the appropriate area in the template on the left, or by using the table on the right. The main ones are listed below:

Name   This is text to be displayed in the Interface Designer only

Title   Text will appear at the top of the interface for the current page. If several pages are created, each can have a different title

Finish if   Enter an expression to replace the **Next** button with a **Finish** button, for example enter **1** or **True** in the box.

Size   This sets the overall size of the interface pages as either Medium or Large. The size can only be set on the first page; all subsequent pages always adopt the same size as the first page.

Layout   This controls the overall layout of the interface page. Different layouts are available depending upon the interface size selected. The layout specifies the maximum number and arrangement of controls on the page. Some layouts include space for one or more page items; these can be used to display sketches or other items within the interface.

Notes Library Item   The browse buttons can be used to select a library item (either a Tedds or User Created item) to enter into the Notes page for the interface. When the calculation is run, the chosen item will then be displayed when the Notes button is clicked on the interface. This field can also be activated by clicking on the Notes button in the template

Sketch Library Item   The browse buttons can be used to select a sketch library item (either a Tedds or User Created sketch) to enter into the Sketches page for the interface. When the calculation is run, the chosen item will then be displayed when the Sketches button is clicked on the interface. This field can also be activated by clicking on the Sketches button in the template

Events   Advanced options for changing inputs to be displayed, calculated or validated depending on settings.

Information   Text displayed in the context help window when the active input control does not have its own information
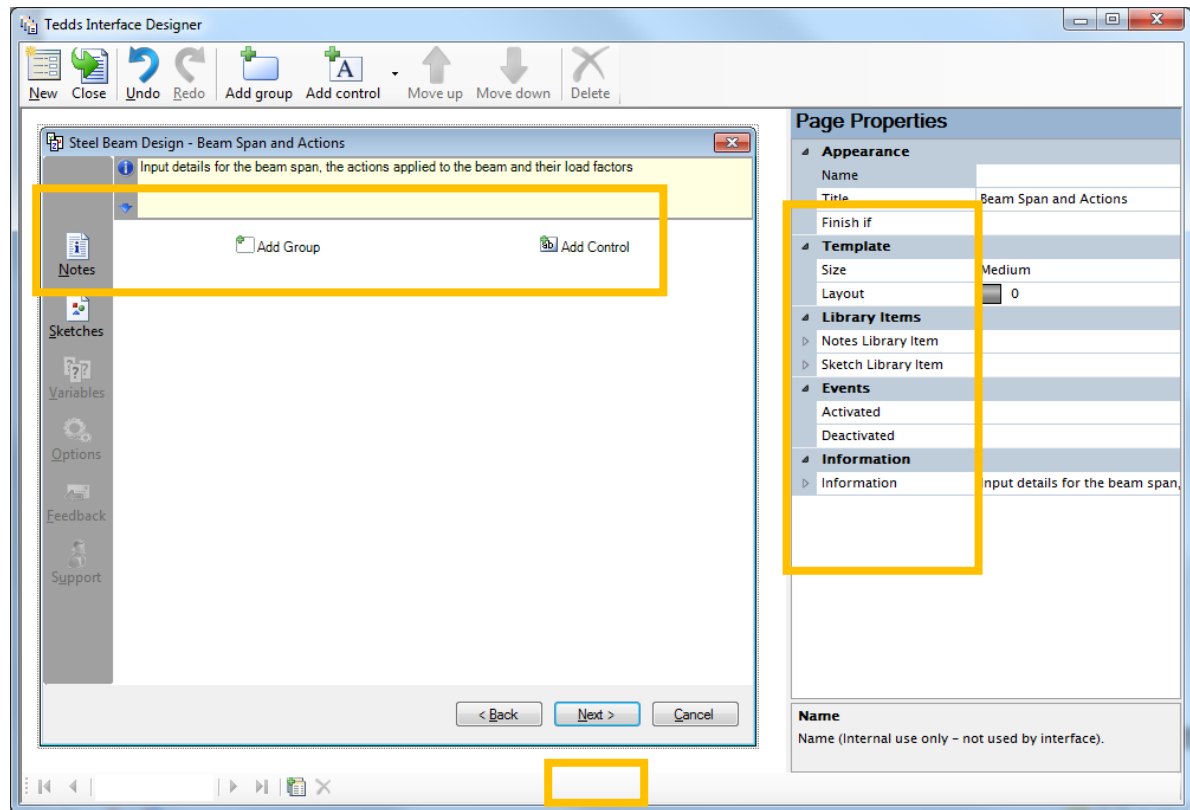
2.3.3   What are Controls and Groups?

A **Control** is the basic part of an interface that allows the user to enter information into the calculation.
- Depending on the type of control being used, various Control Properties need to be defined
- Examples of control properties include descriptions, variable names, default values and units.

A **Group** allows multiple controls to be **grouped** together.
- Allows you to group related controls together in the same area of the interface, with a title.
- Allows for the use of logic, as to whether the controls in the group are enabled or not, dependant on other settings in the calc input

There are several different types of controls depending what you need to input or show:

Blank	A blank line is inserted, used for spacing out controls within the interface
Button	A button is inserted into the interface to perform an operation, such as to run a Data List
Checkbox	A checkbox is inserted into the interface to perform an operation, such as to display other controls within the interface
Drop List	This control gives the user a drop list of standard values, which the user must select from
Edit	An Edit control is an input box for the user to type in a value
Edit Drop List	This control provides a drop down list with standard values, but also allows the user to enter values not in the initial list
Edit Up Down	An input box allowing the user to enter a value is provided with **up** and **down** buttons to adjust the value by a pre-set amount
Label	This option displays a line of text, defined by the user

2.3.4   Inserting Groups

- Clicking the Add Group button with a blank interface template will insert a Group at the top of the template, with a Control inserted inside that Group
- Once a Group has been added into the template, its Group Properties can be seen graphically
- Click into the Title property of the Group to activate it and allow the property to be defined
- When a Group has been activated, its properties will also be displayed in a table on the right hand side of the Interface Designer
- Properties can be defined either graphically or by using the table of properties
- Once a property is defined, clicking into another area of the template will update the Interface to show the information defined
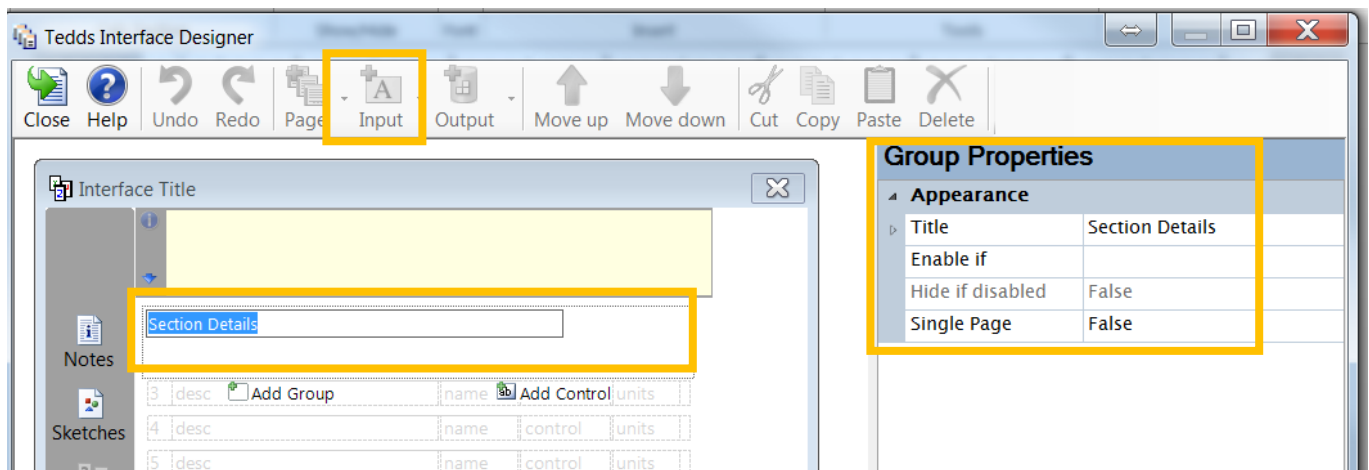
2.3.5   Inserting Controls

- Clicking the **Add Control** button with a blank interface template open will insert a Control at the top of the template
- If other Controls already exist in the template, then the **Add Control** button will add a new control underneath the last one
- If a Group already exists in the template, then the Add Control buttons will add a new Control after the Group
- There is an additional **Add Control** button that appears next to the Group Title when a Group has been inserted
- If this button is used, then a new Control is added to the end of that group
- If a Group or Control has been positioned in the wrong place within the template, it can be activated and then moved up or down the page by using the **Move Up** or **Move Down** buttons
- Groups and Controls can be deleted by activating them and then clicking the **Delete** button
- If mistakes are made while inserting Groups and Controls or editing their properties, the **Undo** and **Redo** buttons can be used
- As a Control is being edited graphically, small buttons appear to allow appropriate **Greek Characters**, **Variable Names**, **Subscript** and **Superscript Characters** and **Units** to be defined, in the same way as defining an Input Field, as discussed earlier in this manual
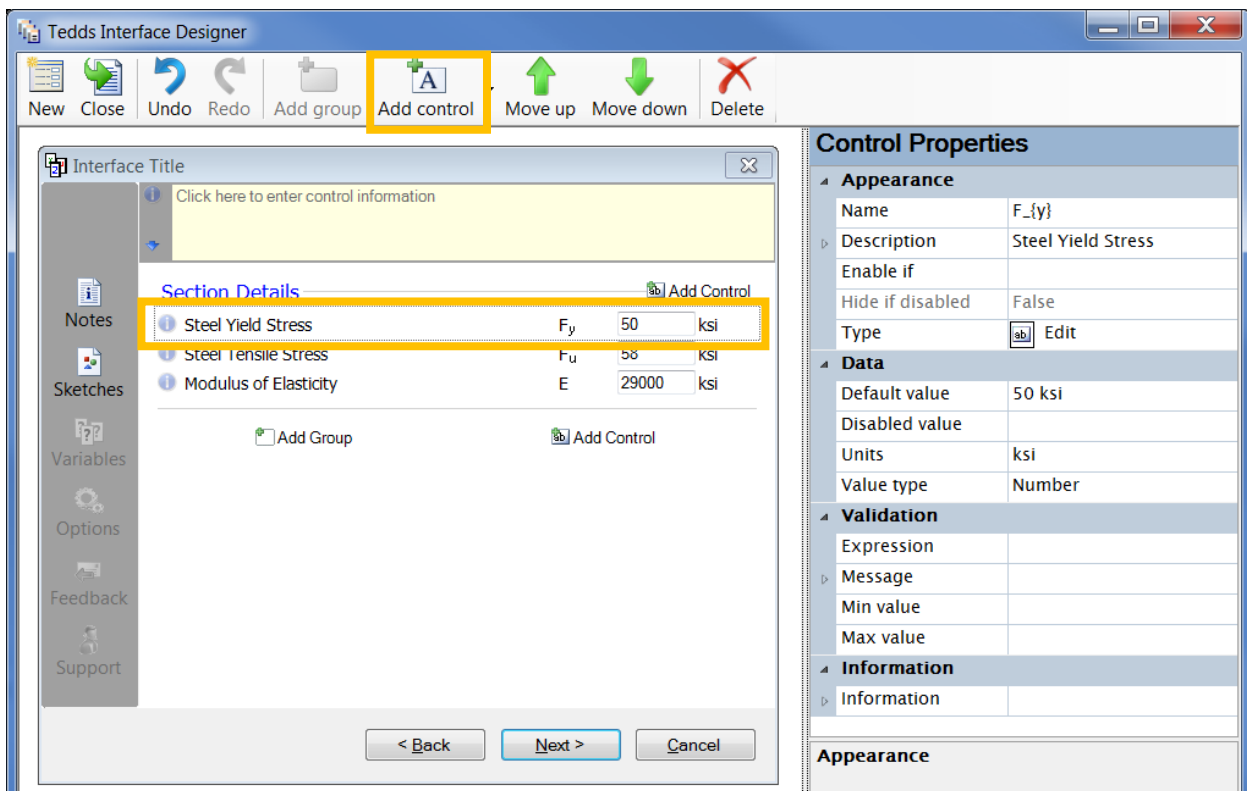
Name	This is the Variable Name of the value being defined
Description	This is the text to describe what the variable is
Default value	This is the default value that will appear automatically when the calc is run
Units	These are the units of the variable being defined
Information	This provides additional information to the user about this individual Control

The button control can be used to insert data fields or launch another interface.
- A description can be added similar to the input types.
- The Name field will put a description graphically on the button
- Click in the command box to open a separate screen, this will set the information the button controls
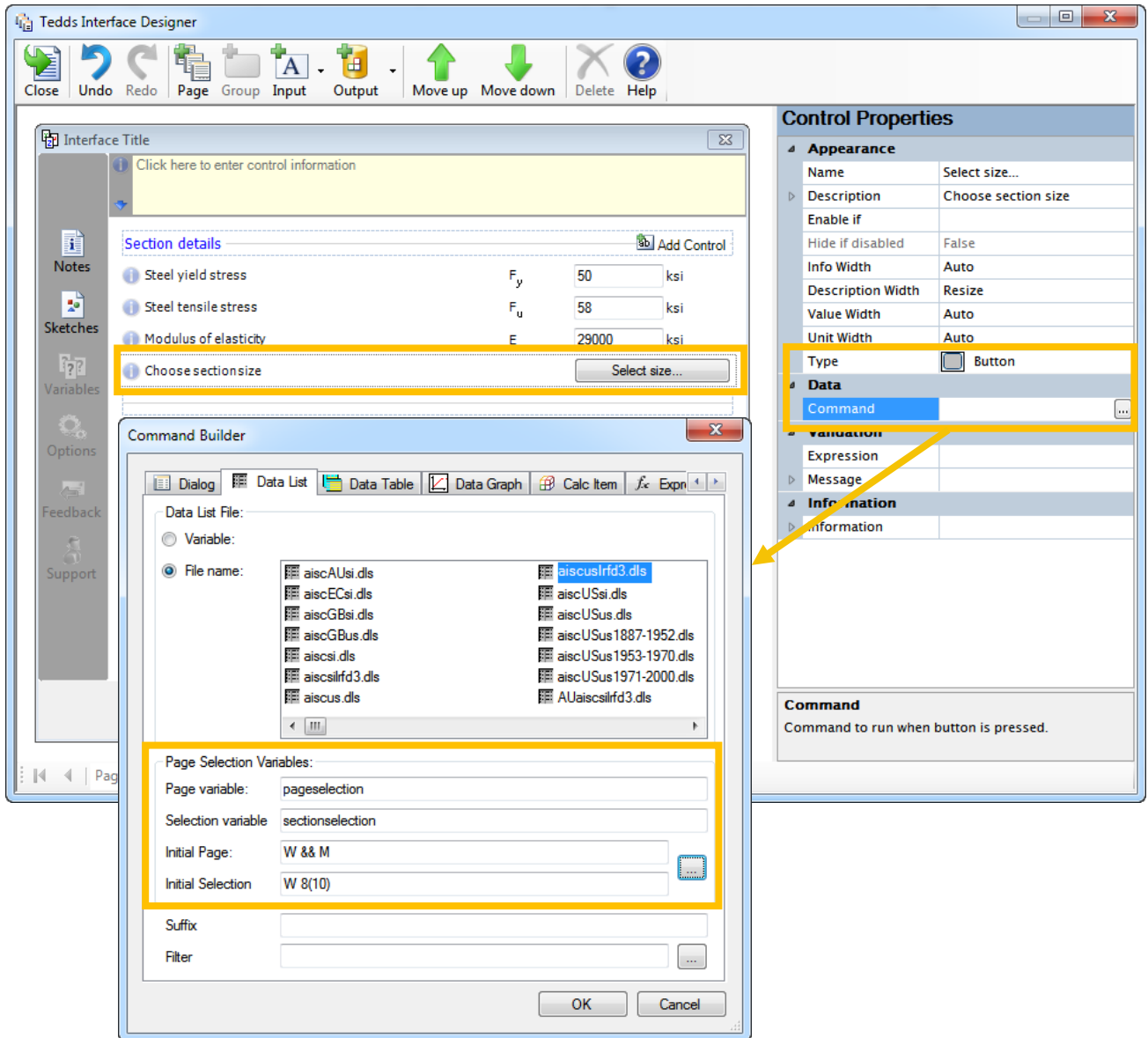
- Choose the data list from the available options – these are the same as the previous options we saw in the Data List Field.
- The page and selection can be set for the first time the calculation is run
  – Click on the button at the right side and choose the default shape and size
- The Selection variable and Page variable need to be defined if you want the program to remember what selection the user previously made when re-calculating the document.
  – These variable names can be anything
  – They must be in quotes
  – They should be unique names that do not occur anywhere else in the document.

2.3.6 Returning the Interface to the document

- Click the **Close** button to return the User Interface to the document once completed or if it needs to be checked that it works correctly.
- You will then be asked if you want to return the interface to the document;
  - **Yes** – will complete this task
  - **No** – will close the User Interface Designer WITHOUT retaining the information entered in this session
  - **Cancel** – will stop the Close process and will return you to the User Interface Designer
- Once the User Interface has been returned to the document, it can be calculated to ensure that the calculation runs correctly with the User Interface.

Editing an existing User Interface

- To edit an existing User Interface in a document, you simply need to have that document as the active document and then click the **User Interface** button
- Select the User Interface and click the **Edit** button to re-open it and make changes as needed.

Enhancing the User Interface

Creating a drop-down menu
- When a particular variable only has a limited number of options for its value, the **Drop List** Control is useful.
- A Default value can be defined, just as the Edit Control did.
- The different options available for the variable value are listed in the Control Properties under **Choices**.
- These can either be typed straight into this box, the options separated by Vertical Bars, or using the small drop-down arrow, they can be entered into a table.
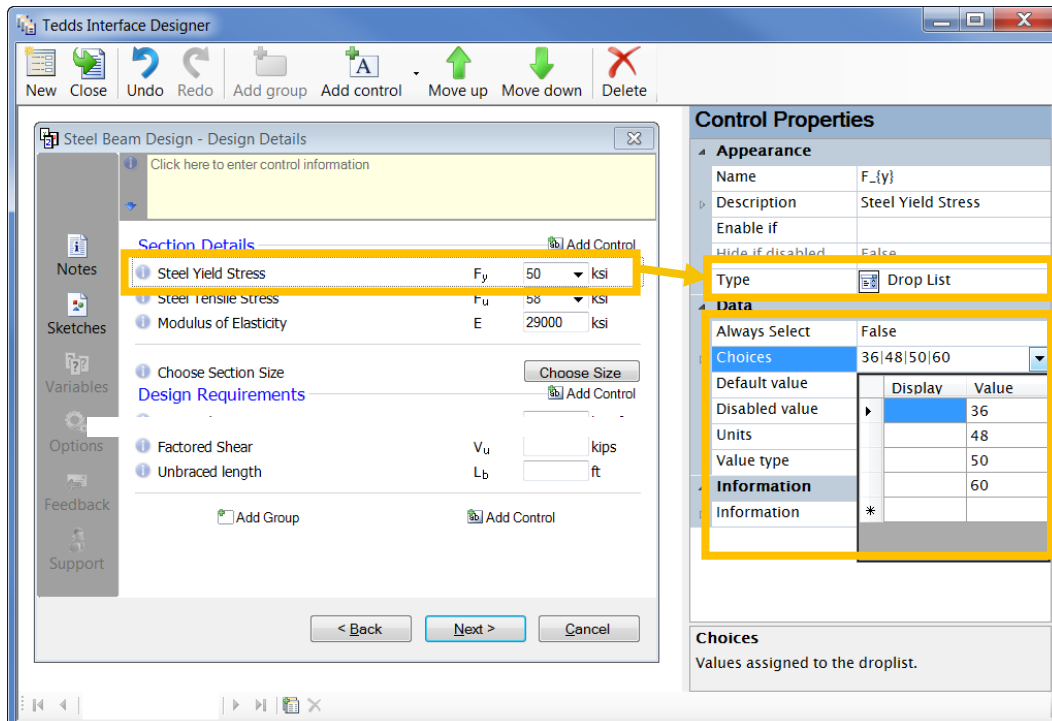
2.3.7   Adding a Check Box

- Check boxes can be used in many ways including to display more calculations or variables inputs.
- This results in two options; True = 1 or False = 0
- Indicate a variable name to use in conditional statements; this will not be displayed in the User Interface.
- The default value will set if the check box is checked or unchecked when the user first calculates the document.
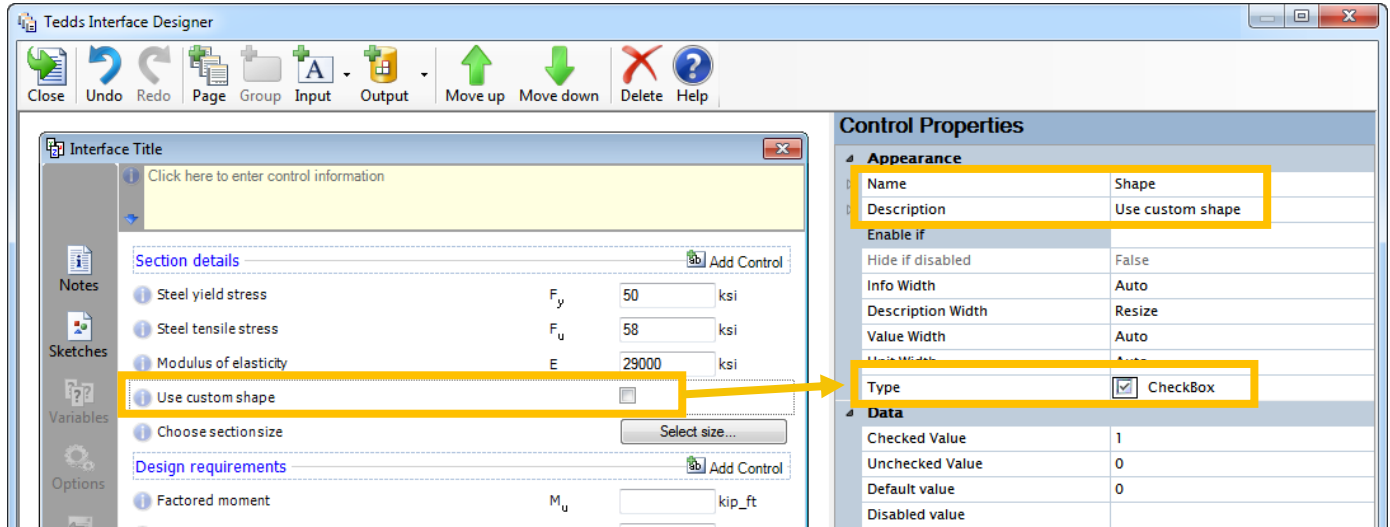
2.3.8   Enabling a Control and changing the visibility

- Controls can be enabled or disabled depending on calculated expressions, this can include:
  - Results from other controls
  - Whether or not a variable exists
  - Conditional statements, etc.
- Enter the expression in the **Enable if** box
- You can hide the control from view if the **Hide if disabled** option is set to **True**
- Use the result from a check box to enable or disable other inputs
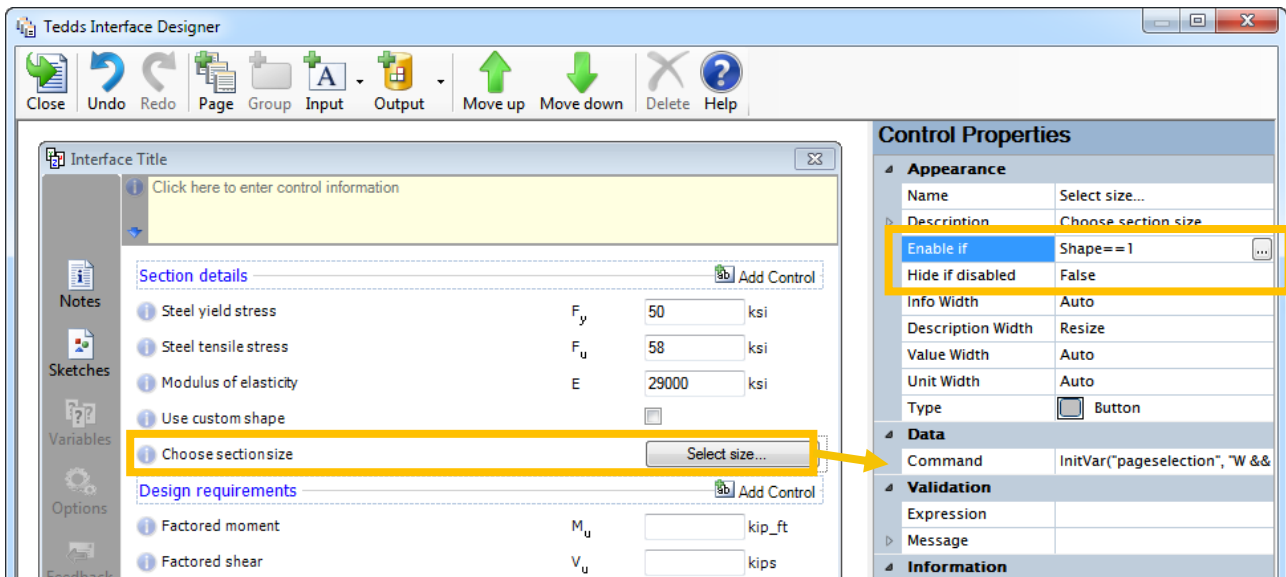
2.3.9 Refining a description

- Descriptions can be dynamic, changing depending on what inputs are selected.
- Input a function or conditional statement in the description box
- Use the GetVar function to show the section size selected or indicate that no size has been selected
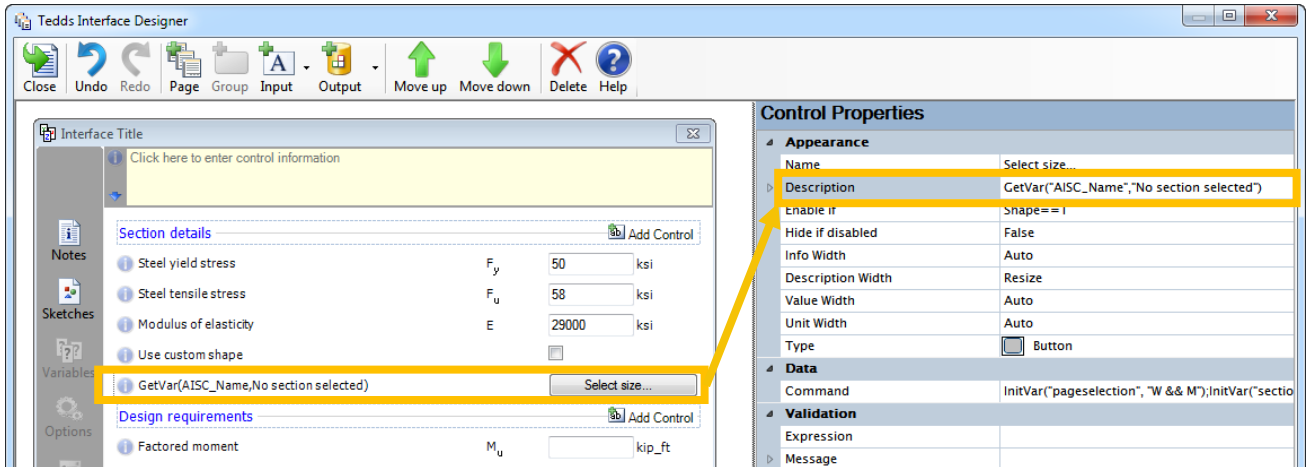
2.3.10 Opening a new interface

- You can create buttons that open a new user interface; this allows you to add more inputs based on initial selections
    - You can set the visibility of the control based on the check mark for further refinement
- This is a button control type with the data as a Calc Item field
  You must create the sub interface and save it to your user library before
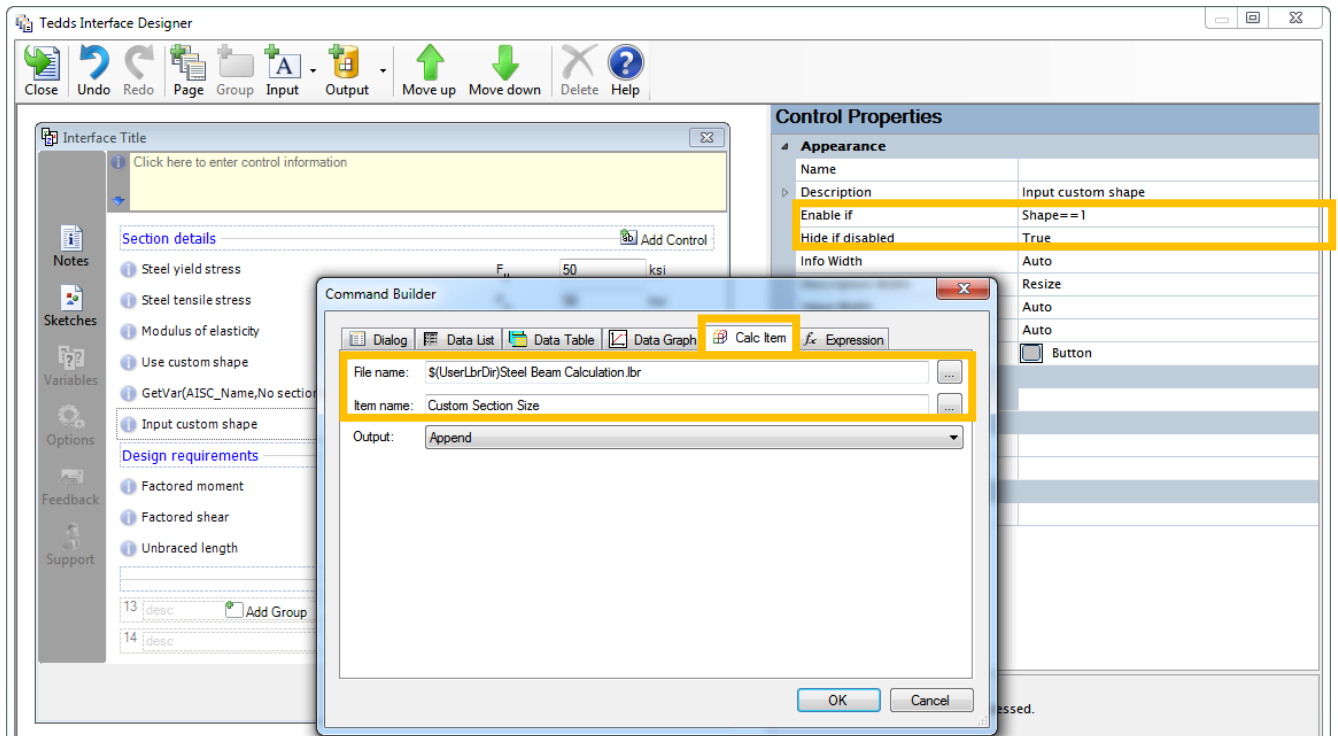
2.3.11 Add another page to the User Interface

- Click on the **Add page** icon at the bottom of the Interface Designer screen
- You can move the new page to any location by clicking on the drop arrow and choosing the new location.
- This will show up as another page when **Next** is clicked during the calculation.

2.3.12 Adding a sketch to a user interface

You can add a sketch to any user interface. These can be static pictures or dynamic sketches.

- You must first save the sketch in the user library as a sketch item, you can then call this item into the user interface as a Library Item using the Calc Item field
- You must select a layout that provides space for the sketch
- Click on the Library Item and then browse to the Library and the sketch item.
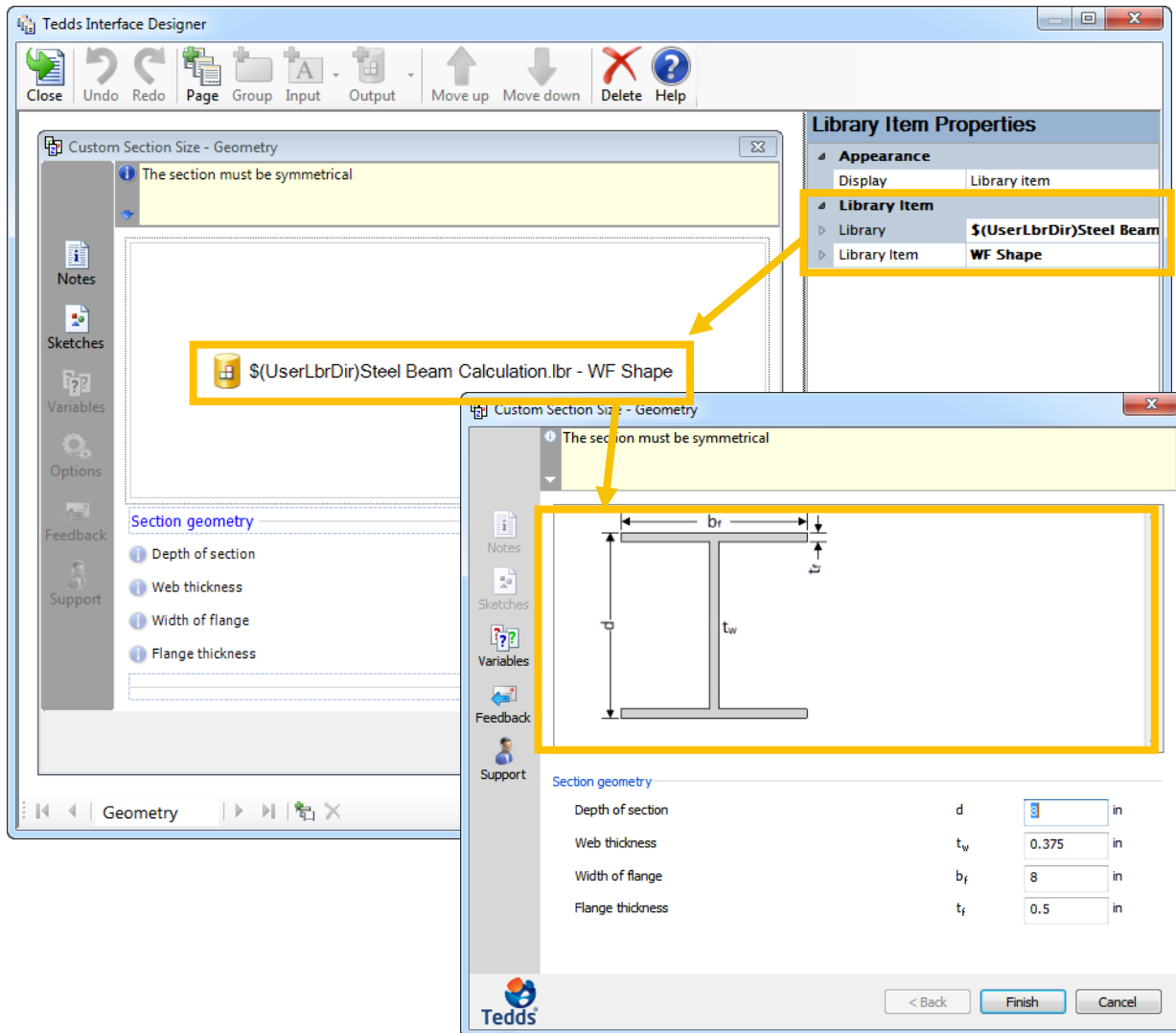
LESSON
3

3   Introduction to active sketches

3.1   Session Topics

- Introduction to creating active sketches
    - Drawing functions needed to create sketches
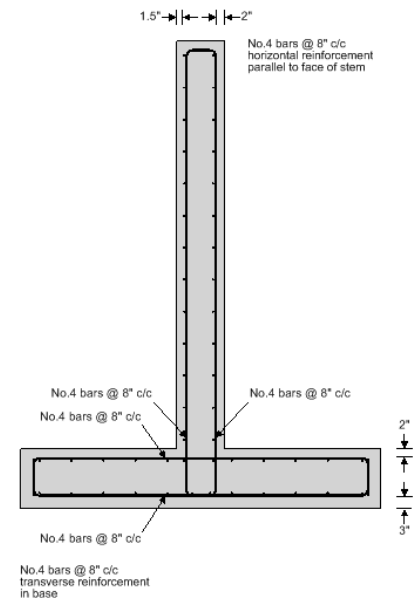   - Proper way to define shape coordinates
    - Look at an advanced example

3.2   Active Sketches

3.2.1   Introduction to Active Sketches

What are active sketches?

- Active sketches are dynamic pictures included in the user interface or output that updates based on inputs in the calculation.
- Many of the calculations in the Tedds Engineering Library include Active Sketches
- Active sketches use the input data for a specific design to create sketches that are drawn to the correct proportions
- Add active sketches to any calculation that you've written
    - Enhance the look of the calculation, help explain inputs in a diagram or show information for the calc
    - You can link the geometry to input data from a specific design to create sketches that are drawn to the correct proportions
    - You can add dimensional marks to the sketch
    - Include notes and tags to describe sections of the sketch
- Active sketches are created using several drawing functions available in Tedds
    - Each function creates a single item, such as a line, a circle, a dimension mark, etc.
    - You write out each one in a list to create the complete picture

A header/sheet table:

|	Project		Job
Tekla Tedds	Section		She
	Calc. by	Date	Chk'd by	Date	App
	M	5/16/2016			

B = 8 in;   D = 12 in;   T = 0.75 in; T_f = 0.5 in;

DrawCreateDrawing(B,D) = ?
DrawFillOutline(True) = ?
DrawFillPolygon(0in, 0in, 0in, D, B, D, B, D-T_f, T, D-T_f, T, T_f, B, T_f, B, 0in) = ?
DrawDimensionLineCap("BarAutoArrow") = ?
DrawDimensionAlignment("Near",0.75in) = ?
DrawDimensionLine(0in, D/2, T, D/2, "T") = ?
DrawDimensionLine(0in, D, B, D, "B") = ?
DrawDimensionLine(0in, 0in, 0in, D, "D") = ?
DrawDimensionAlignment("Far") = ?
DrawDimensionLine(B, 0in, B, T_f, "T_f") = ?

- A full list of all of the drawing functions is available by going to the Library Access System > Writing your own custom calculations > Calculation writing documentation > Tedds functions > Drawing functions
- The number of drawing functions is quite large, but many of them are only required for drawing some of the more complex sketches used by calculations in the Tedds Engineering Library
- Only need a handful of functions are needed for most sketches
- As with all of the standard Tedds calculations, you can view notes and examples of all of the drawing functions available by selecting them in the library and clicking the Preview command
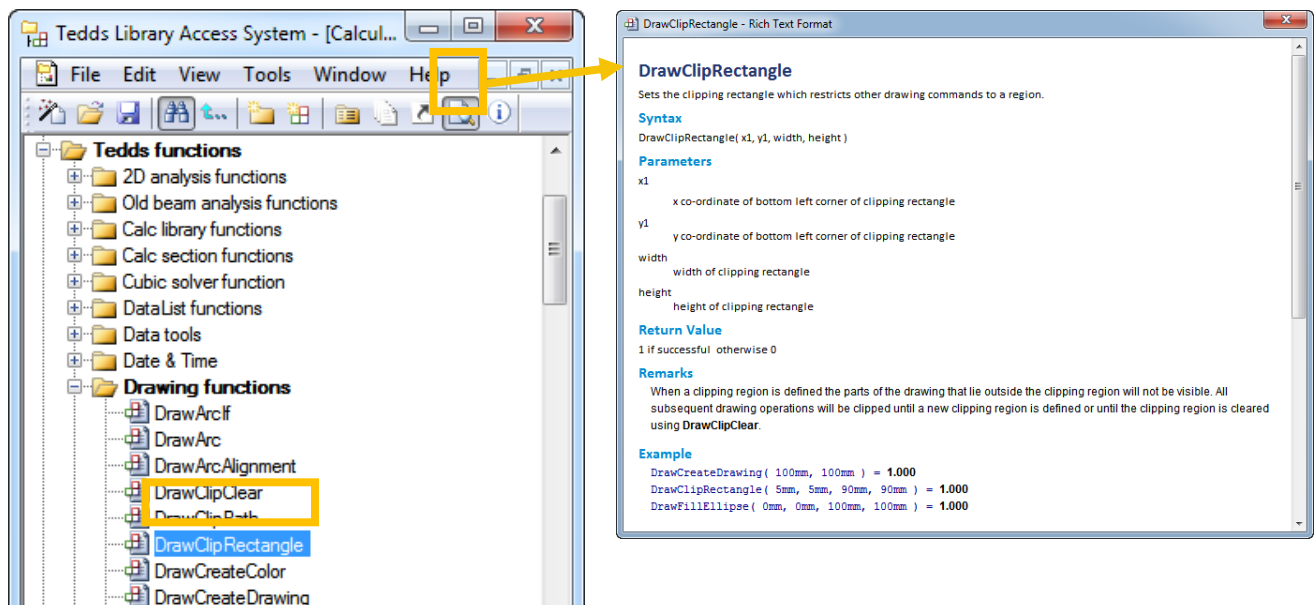
3.2.2   Creating a basic active sketch

When writing out the drawing functions there are a couple rules that needs to be followed
- All arguments should be entered with their appropriate units
- All of the drawing functions must end with **= ?** in order for the function to be calculated
- Multiple drawing functions can then be used to build-up a more complex sketch and the properties associated with it.
  – This includes adding multiple shapes such as rectangles, lines, arcs etc. and detail functions such as colors and line thicknesses.
- The first function you must use to create any new drawing is DrawCreateDrawing
  – This function includes inputs for the width and height of the drawing you want to create
  – **DrawCreateDrawing(width *unit*, height *unit*) = ?**
  – These arguments should be placed immediately after the function inside brackets, separated by commas
- To show the drawing in the document, the Tedds ShowDrawing field must be used
  – A new blank field – **{ }** – can be inserted into a document by pressing **Ctrl+F9** on your keyboard
  – To complete the ShowDrawing field, **=CSC|CALL ShowDrawing()** should be entered inside the field's **curly brackets**
  – **{=CSC|CALL ShowDrawing()}**

You don't have to create a complex shape right away; it may be easier in fact to build up the shape slowly by adding more functions, making sure the shape looks correct as you go. Start with a simple shape or the most basic shape that builds up the picture.
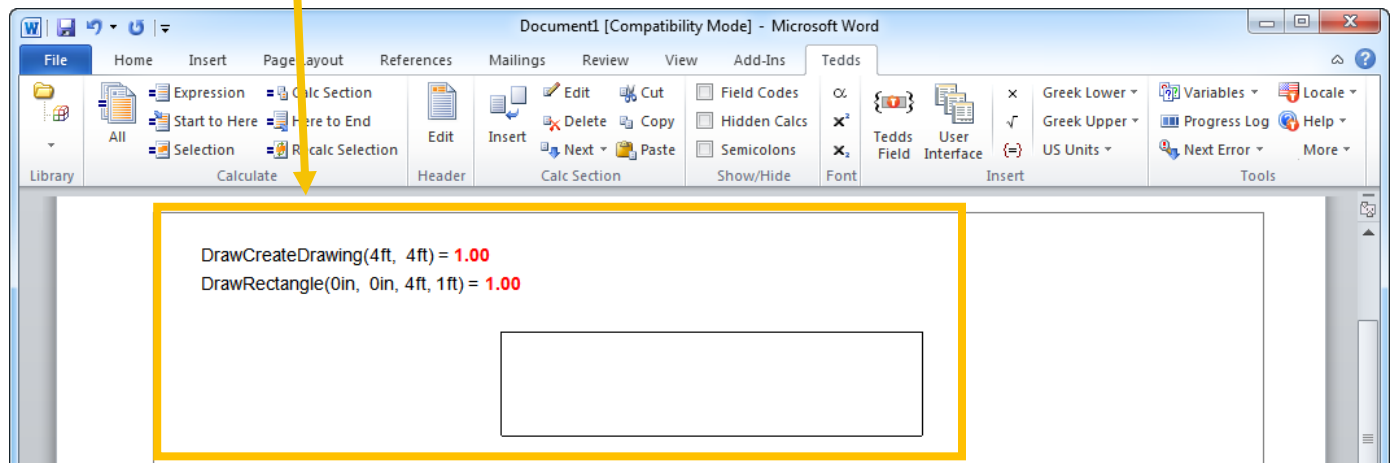
- The ShowDrawing field will be replaced by the sketch once the document is calculated.
- Build on the sketch by adding more functions after the last function, but before the ShowDrawing field
- Open the Library Access System and go to the calculation writing documentation to look up more functions and the available associated properties.
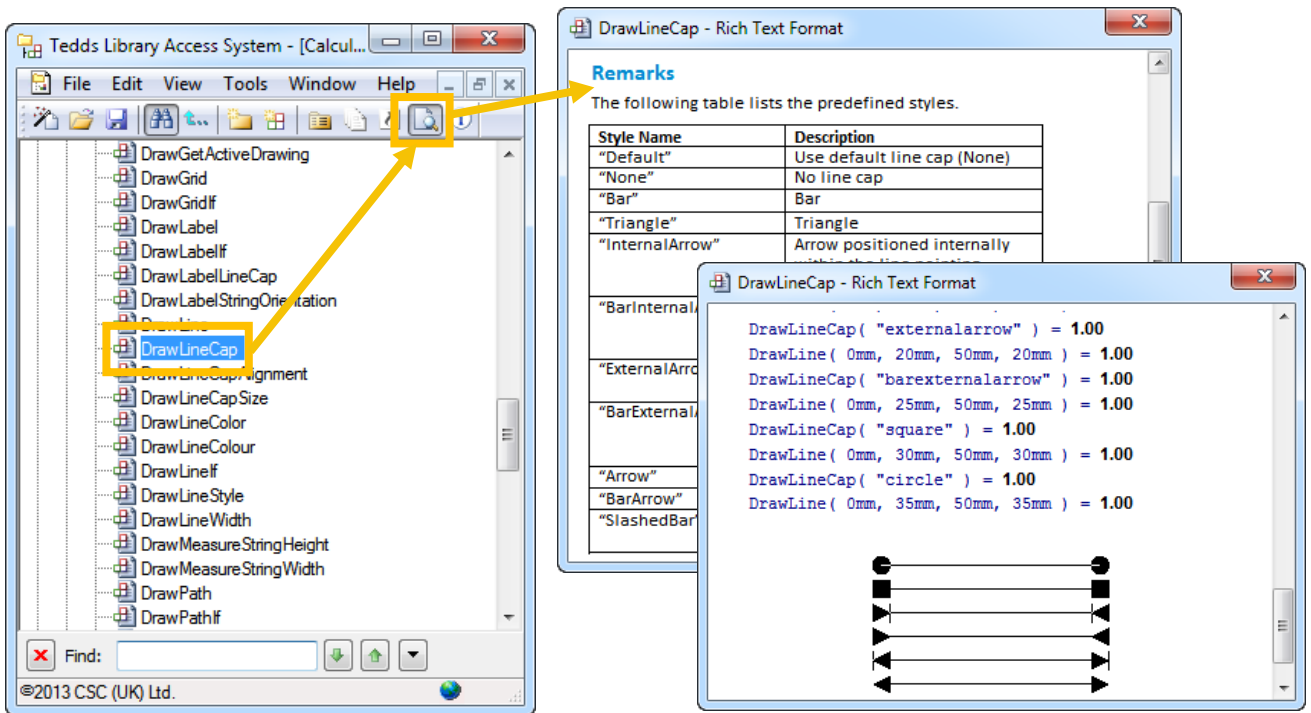
Once the additional functions have been added, re-calculate the document to see the updated sketch.
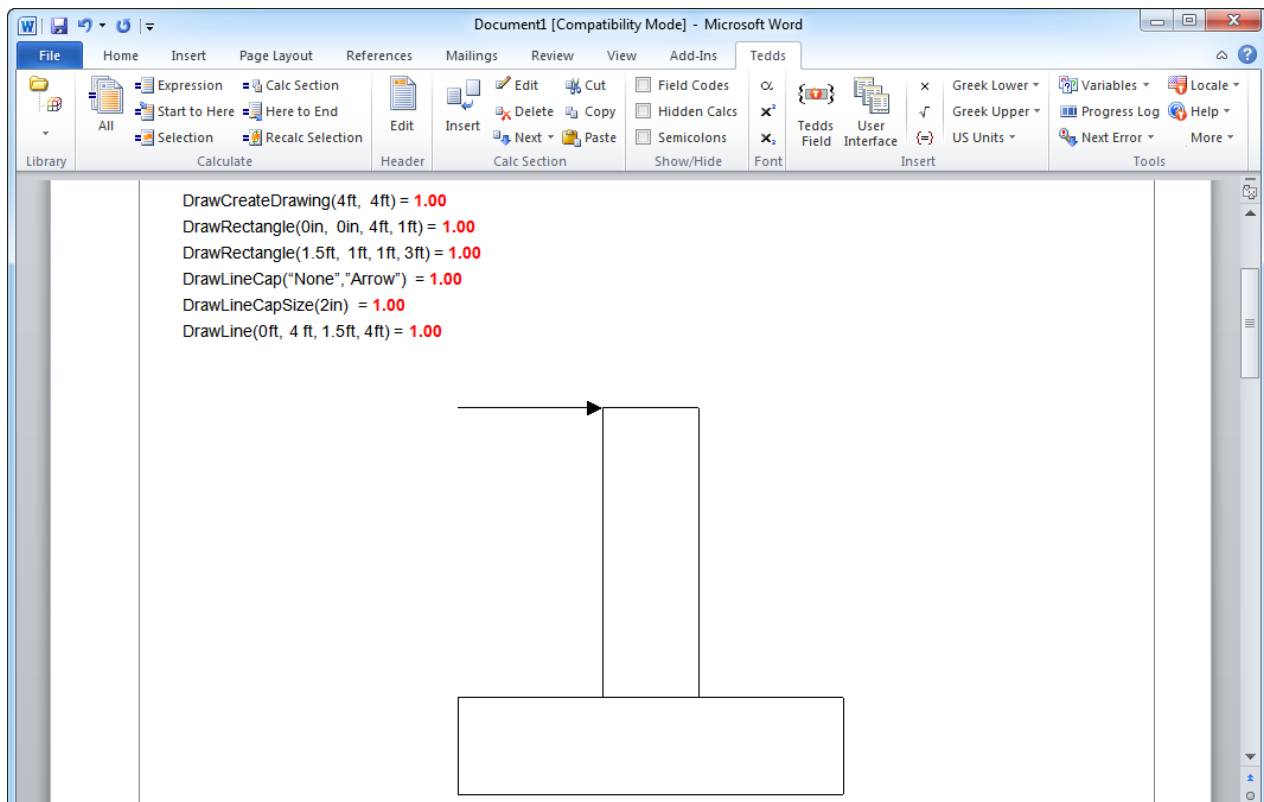
3.2.3   Creating Advanced Active Sketches

It is unlikely that the drawing functions would be used to create a basic shape, such as a rectangle, as this can be done much quicker and easier directly in Word by using the Insert > Shapes command
- It is much more likely that an active sketch would be created to show more useful objects or complex pictures
- The active sketch of a steel section would be based on the section's dimensions, which could be subject to change
  - An example would be to show a steel section
- The active sketch of a steel section would be based on the section's dimensions, which could be subject to change
- Therefore, these dimensional properties should be defined first, just like any other variable assignment

3.2.4   Advanced functions

The DrawFillPolygon function can be used to create a shaded polygon of any shape
- This function requires arguments to define each of the x and y co-ordinates that define the outline of the polygon
- These should start from the origin (0,0) at the bottom left corner of the section and then working clockwise around the shape
- As with the basic active sketch created previously, these arguments should be placed immediately after the function inside brackets, separated by commas and with their appropriate units if required
- The Tedds ShowDrawing field must be used to display the active sketch in the document

It can be useful to draw out the sketch first with all the coordinates defined. You can then copy this information directly into the function.
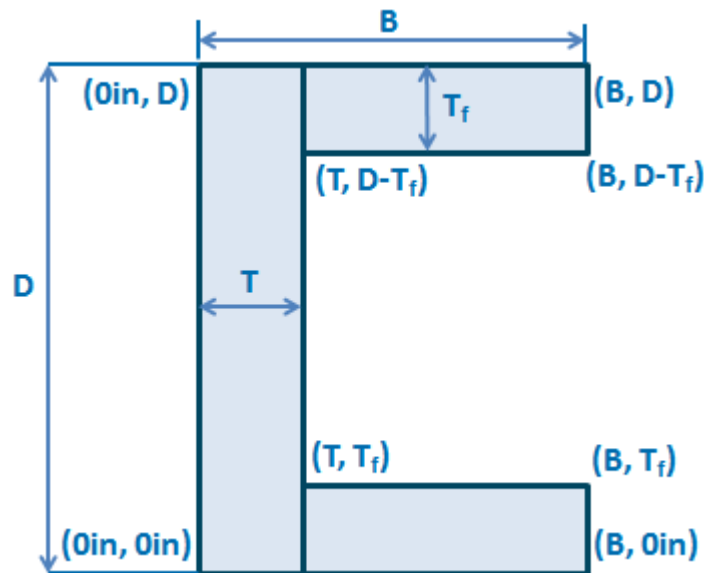

DrawFillPolygon(0in,0in, 0in,D, B,D, B,D-T_f, T,D-T_f, T,T_f, B,T_f, B,0in) = ?
{=CSC|CALL ShowDrawing()}

There are several functions that allow you to refine the sketch. Below are common functions, there are many more available and we encourage you to explore them within the program.

DrawDimensionLine()   Adds a dimension, coordinates in parenthesis for the start and end of dimension.
- This function requires arguments for the co-ordinates for the start and end of the dimension you want to label and a final argument, in quotation marks, for the name of that dimension

DrawDimensionLineCap()   Adds symbol at the end of the dimension line.
- This function requires one argument – the Style Name – which should be placed in quotation marks and inside brackets, immediately after the function
- A full list of style names can be found in the preview window for this function shown in the library

DrawDimensionAlignment()   Allows you to indicate how the dimension line is referenced and shown in the sketch.
- This function requires one argument – the alignment Name – which should be placed in quotation marks and inside brackets, immediately after the function
- A full list of alignment names can be found in the preview window for this function shown in the library
- Depending on which alignment name is selected, there is also an additional argument called Margin which can offset the entire dimension relative to the co-ordinates of the line
- The functions are calculated in the order that they appear in the document, so this function can be changed for different dimensions by placing the function into the document multiple times

DrawFillOutline()   Draws an outline around the filled polygon, should go before DrawFillPolygon function.
- This function requires one argument – either **True** or **False** – to specify whether an outline is created or not
- This function should be placed on the line before the DrawFillPolygon function

3.2.5   Example of an advanced active sketch

When creating advanced sketches you can define the values that make up the sketch as separate variables. These can come from inputs, data lists, calculations, etc. Use the same calc writing rules to define the variables. Then use the variable names in the drawing functions instead of typing out the value.   Since the unit were defined with the variable name, they should not be added again within the drawing function.
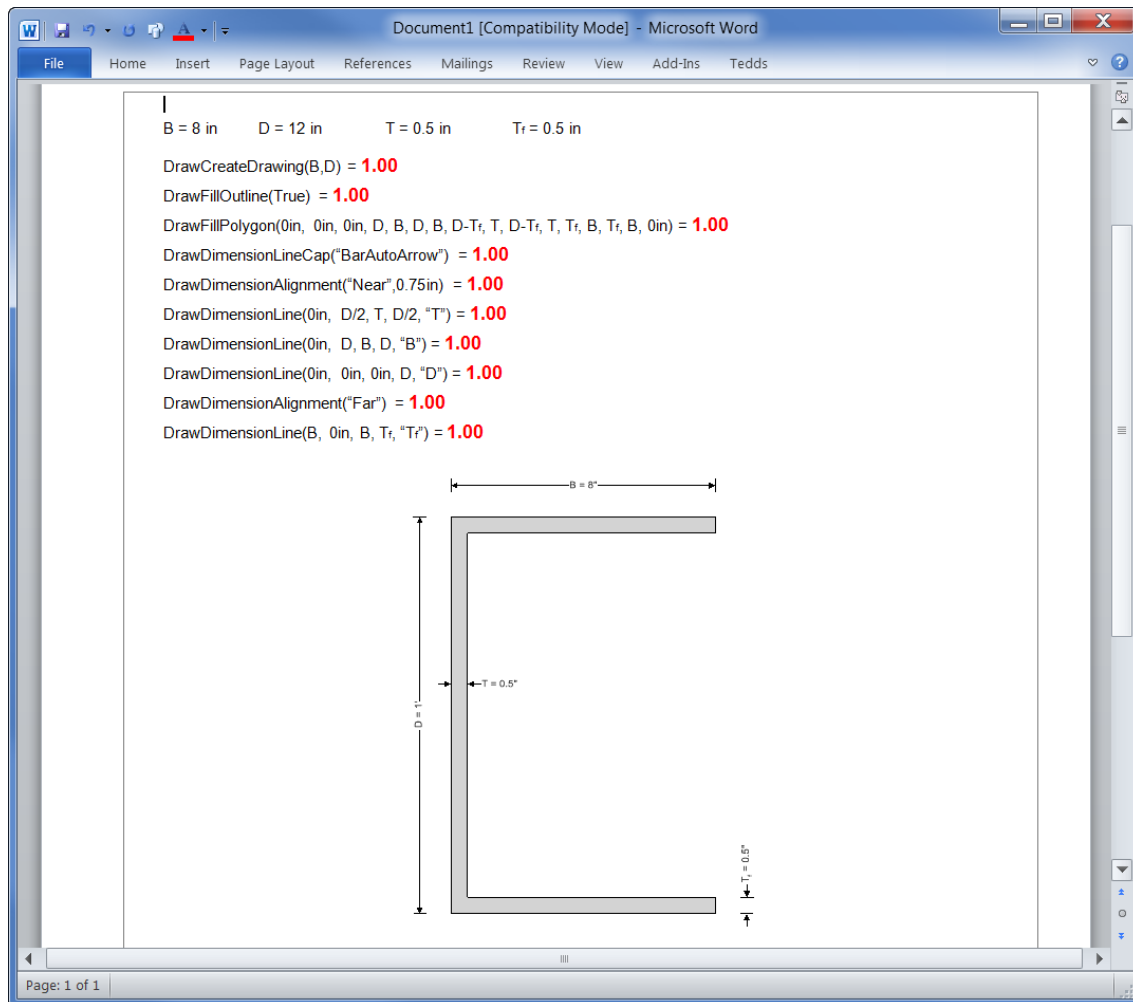
- Note how Tedds has automatically formatted the text for each dimension to include the specified variable name and the value of that variable
- It has also automatically adjusted the arrows used and the location of the text for small dimensions
- You can change the values of D, B, T or Tf, re-calculate the document and the sketch will update to reflect the changes
- There are many other drawing functions available which allow you to create complex sketches using lines, polygons, arcs, paths, and transformations to name just a few
- Instead of creating the same sketch from scratch to use in every document, you can create a Calc Item for the sketch and save it to your library. Then you can simply drag and drop the sketch into other documents.
- If you don't want to see the functions in the document, these could be set to a Hidden text style