

Chapter 9

Making a Titleblock and A1-A2-A3-A4 Borders

In this chapter, you will learn the following to World Class standards:

- **Designing a Titleblock in Solid Edge**
- **Drawing a Titleblock**
- **Adding Text to Titleblock Using the Text Tool**
- **Borders in Solid Edge**
- **Saving the Titleblock and Borders**

Watching a crew of workers build a bridge, you may see a construction site manager looking over a set of drawings while observing the erection of steel girders or the pouring of a foundation. These drawings have many orthographic projections showing the front, top, right side, left side and maybe even additional details about the project. Designers print the drawings on paper that you will learn has a special name like “A2 Wide Sheet,” and if one drawing sheet is the dimension of 594 x 420 mm, then the entire set of drawings are similar in area and are bundled together. On every single blueprint there is a rectangular region referred to as the titleblock, which contains the name, project, signatures, dates, identification number, sheet number, revision label and scale. The titleblock also displays the company name, address, city, state, zip code and possibly either a phone number or email address. A properly prepared drawing has signatures and stamps, showing the construction manager and crew that the information provided is correct and approved for manufacturing. Without this essential data and authorization, the construction company is venturing into an area where legally they most likely do not have the permission to construct the job.

	NAME	DATE	World Class CAD WCC-Creating World Class Standards		
DRAWN					
CHECKED					
ENG APPR					
MGR APPR					
1147 Rice Avenue Gahanna, Ohio 43230 www.worldclasscad.com			SIZE	DWG NO	REV
			A2		
			Project		
			SCALE:	WEIGHT:	

Figure 9.1 – World Class CAD Titleblock

Designing a Titleblock in Solid Edge

As an architect, designer or engineer, sometime in your career your manager will ask you to design, from scratch, or modify an existing titleblock. Sounds easy to you, right? As you have discovered, each task in the world of manufacturing involves specified knowledge. Designing a titleblock in this chapter will not only give you some important insight into planning essential drawing data, but by actually creating the titleblock instead of just reading a textbook, you will learn what to expect when viewing another company’s print describing and authorizing a part or assembly. Although drawing formats will vary from one organization to another, let us see what sections are common in most titleblocks.

Title

TITLE

The first item of information is the “Title,” which is present on every print. In the field of architecture, the names can be *First Floor Plan* or *Foundation Plan*. In mechanical engineering, the names can look funny, like *Screw, Hex Hd 1/4-20 – 2 LG* or *Bracket, Steel Mounting*; the first word of the drawing title matches a common list of descriptions so the organization’s drawing database can be sorted easily by their categories, such as *Screw* or *Bracket*.

Project

Project

The project description is also very important. Again, in the field of architecture, the project identification could be the *James Street Steel Bridge*. In mechanical engineering, the project can be the product to which the drawing is associated, like *403/404/406 Vertical Motor Mount Assembly*.

**Drawn: Name &
Date**

	NAME	DATE
DRAWN		

The next blocks of data added to the titleblock are the name of the person who made the drawing and the date on which they drew it. In many cases, the person who started and ended the drawing would either type in their name or sign the drawing under the “**Name**” column of the “**Drawn**” row of the titleblock. This will depend on the company’s protocol for releasing drawings to the manufacturing shop or construction site. When a person does not finish the initial attempt and the drawing is handed over to another CAD drafter or designer, then the individual that completes the entire drawing is considered the drawer. When another individual adds or removes any entities to or from the original drawing, it does not entitle that person to take credit for the design and replace the drawer’s name. The addition or subtraction will be a revision and would be added to the drawing’s revision block, along with the documentation in a file or database explaining the change. When a drawing name is changed, the industry in which you will be working can consider your attempt to take credit for another’s work as plagiarism. Normally this is discovered when drawings are being submitted for patent or an investigation after an accident or product failure. The question is always, “who made the drawing?”

Instead of just typing your name in the drawing, you may want to have an electronic signature in the name block. This makes the document much more authentic since signatures are much more respected than a set of initials or a typed name.

For the “**Date**” column of the “**Drawn**” row of the titleblock, always put the date the drawing was started. It is a frequent occurrence for design times to be long in their duration, so the initial drawer will be modifying the entities in the CAD drawing while other elements of the project are coming together. The print will not be released to another department or organization without being checked and approved, so anyone can see the date for release from the project manager’s approval date. You will discover over time how significant the drawing start date will become. In a project with hundreds or even thousands of parts and assemblies being documented, having the Drawn date, Checked date and Approved date being the same is almost worthless for project analysis. Just a few simple, logical questions could not be answered if these dates are incorrect.

When did a drawing start?

How long did the department take to finish different aspects of the effort?

When did the designer first think of that idea?

Always capture the Drawn: Name and Date information during the first day you create the computer aided design file.

Checked: Name & Date

CHECKED		
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Most companies that, either through time or through experience, have found that quality is the number one issue in the business of architecture and engineering and will enforce a multiple signature rule in their departments. This will be evident when viewing their titleblock. The “**Checked**” signature, typed name or initial shows when the drawing is 100% inspected for proper form, fit and function. The dimensions and tolerances are checked with corresponding parts and assemblies. Notes will be reviewed to see if they exhibit proper material, finish, coating for corrosion control, appearance and other special concerns. The checker becomes one of the most important individuals in the design process, eliminating silly mistakes that could cause the project to overrun or terminate. When the CAD file is checked, sign and date the print and send the file to the project manager for approval.

**Project Manager
Approval**

MGR APPR		
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The project manager, who probably is a highly experienced designer, engineer or architect, should be the only person able to sign off the “**Manager Approval**” name and date blocks for the release of the drawing. The job supervisor has to have the knowledge to control the entire content in the package of blueprints, but may not check every single item since the drawer and checker verify every detail in the creation of the CAD file. Typically, the project director will have multiple reviews where their team and other invited specialists sort through the most important details to examine significant portions of the design. The project manager can have reports on file showing calculations and various approvals from other engineers and architects.

You will learn many facets of the building trade and design theory throughout your career, but you must realize that the majority of professionals in your field will eventually take on a level of responsibility sometime during their tenure. Therefore, you must take every opportunity to learn the correct method of detailing object lines, dimensioning, noting and encompassing the views in the correct orthographic presentation. There are laws or codes in nearly every country outlining the methods for constructing a project. In the end, when the drawings are complete, like many qualified technical specialists before you, you will be the individual signing off the package of drawings for release.

**Sheet Size,
Drawing Number
and Revision**

SIZE	DWG NO	REV
A2		

The drawing number is a serial descriptor identifying the individual blueprint so that there can be a level of control when discussing, ordering, building or inspecting a part or assembly. Some part numbers are generated from a database that may have existed a decade or even a hundred years before you arrived at the corporation. In this case, when your supervisor asks you to check out fifty drawing numbers for the project, you can enter the data list and capture the next fifty numbers available for distribution. This process of blocking out drawing numbers requires listing the number and project. As each drawing is completed, go back into the organization's catalog of numbers and record the proper name, drawer and date drawn in the database. Your company might have additional fields in their catalog database that they will require you to fill out for documentation of the project.

Other companies use a logical numbering system, like *2005-031-002*, which could mean the part was designed in the year 2005, that the print was in the thirty-first project of the year and the second drawing of the project. Many groups apply logical coding system to identify their drawings. You only need to study the company's drawing number method to learn how to deploy the system.

The block containing the sheet size is for the use of the drawer, checkers and people printing and using the drawing in manufacturing. The size of the sheet can often coincide with the size and complexity of the part.

**Organization's
Name and
Mailing
Address**

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The next block that you will create contains the organization's name and mailing address. In Solid Edge, the companies name is in the top right corner and their address is in the lower left corner. Businesses that are proud of their product will have their company's identification largely displayed in the titleblock.

Drawing Scale

SCALE:

The drawing scale can be 1:1 for mechanical drawings or 1/4"-1' for architectural prints. All computer-aided designs are drawn with a one-to-one scale but in order to fit a large commercial building on a drawing like the A1 Wide drawing sheet will require a drawing scale.

Drawing a Titleblock

Now that you know some technical details concerning the formation of a valid titleblock, you will use the default titleblock in Solid Edge to format your own titleblock (Figure 9.2). You can put in your own name, address and contact number in the organization name and address blocks instead of the World Class CAD information. To modify the Solid Edge title block, you must first activate the **Background** tool on the **Sheet Views** panel under the **Views** tab (Figure 9.3). Next, you need to select the **A2-Sheet** from the sheet tabs along the bottom of the graphical screen (Figure 9.4).

	NAME	DATE	<h1 style="text-align: center;">SOLID EDGE</h1> <p style="text-align: center;"><i>UGS - The PLM Company</i></p>		
DRAWN		Error: Not defined.			
CHECKED			TITLE		
ENG APPR					
MGR APPR					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS ANGLES ±X.X° 2 PL ±X.XX 3 PL ±X.XXX			SIZE A2	DWG NO	REV
			FILE NAME: Draft1		
			SCALE:	WEIGHT:	SHEET 3 OF 1

Figure 9.2 – Standard Solid Edge Titleblock

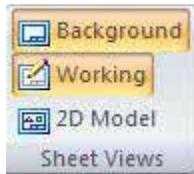


Figure 9.3 – Background Tool Active

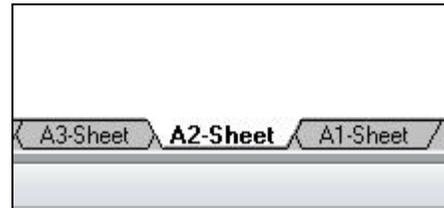


Figure 9.4 – A2-Sheet Selected

Select the **Zoom Area** tool at the bottom right of the graphical screen, then click with your left mouse button, and drag a box around the Solid Edge titleblock so that it takes up the whole screen. The first area of the titleblock that you are going to modify is the company name box. In the upper right corner in large bold print is the Solid Edge company name. Left click on the top text box surrounding the text “Solid Edge” (Figure 9.5). In the Text Window that appears to the left of the screen, select your font as **Arial**. Set your font size to **6.10** and make sure the text is **Bold** (Figure 9.6). Now, highlight the words “Solid Edge” by left clicking with your mouse and moving the cursor across the words. Type in either your company name or your own name (Figure 9.7).



Figure 9.5 – Selecting Text Box

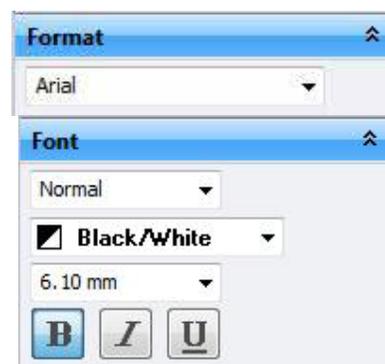


Figure 9.6 – Arial Font, 6.10 and Bold

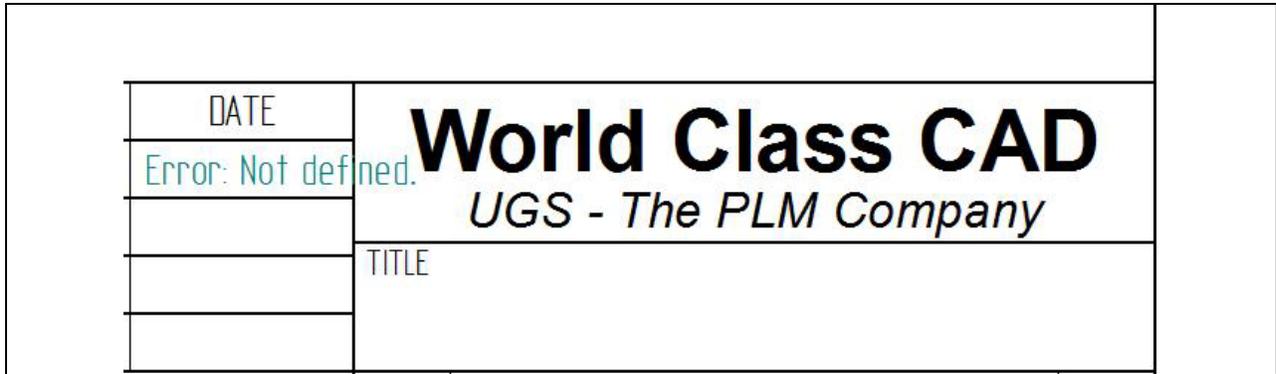


Figure 9.7 – Company Name Added

Below the company name is another textbox. For the World Class CAD titleblock, a short slogan is added. For your own titleblock, you can either select the text box and delete the text inside or add a small phrase about yourself. If you want to add a small phrase, select the box, set the font to **Arial**, size **3.00** and **Bold**.



Figure 9.8 – Selecting Second Text Box



Figure 9.9 – Writing Short Phrase

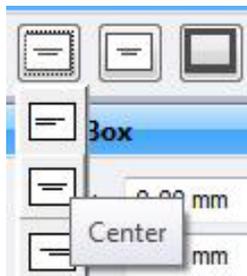


Figure 9.10 – Center Aligning the Text

Also, you are going to have to center align both the name and the short phrase so after selecting the textboxes using the shift key, go to the Paragraph panel of the Text Window and click on the **Right Justify** tool. A number of options will drop down from the tool. You need to select the **Center** tool to center align the text.

The next part to add to the titleblock is the address and phone number. The area where you are going to place this information is the lower left hand text box on the default titleblock. Begin by selecting the text box (Figure 9.11). Next, change the font to **Arial**, size **3.00**, **Bold** and **Center** aligned. Now, type in your address and phone number as in Figure 9.12.

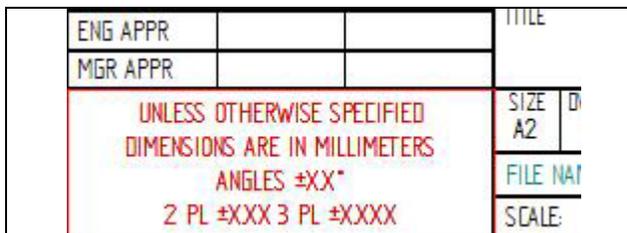


Figure 9.11 – Selecting Text Box



Figure 9.12 – Adding Address

You will now have to delete some of the text within the titleblock that Solid Edge automatically inputs. You cannot alter the text in any way because it only changes when you save the file or change which sheet you are on. With the cursor, select the three pieces of text in the titleblock as shown in Figure 9.13. After selecting the text, use the delete key on your keyboard to remove the text from the titleblock.

	NAME	DATE	World Class CAD WCC-Creating World Class Standards					
DRAWN		Error: Not defined.				TITLE		
CHECKED								
ENG APPR								
MGR APPR			SIZE A2	DWG NO	REV			
1147 Rice Avenue Gahanna, Ohio 43230 www.worldclasscad.com			FILE NAME: Draft1					
			SCALE:	WEIGHT:	SHEET 3 OF 1			

Figure 9.13 – Selecting 3 Pieces of Text for Deletion

Adding Text to Titleblock Using the Text Tool

After deleting some of the unwanted text from the titleblock, you can use the **Text** tool to add your name and date you started the drawing in the “Drawn” row of the titleblock. You also need to add the Project block. Select the **Text** tool from the **Annotation** panel under the **Home** tab. In the box where “FILE NAME: Draft1” was originally written, draw a textbox starting at the upper left corner of the block. Drag the text box to the lower right corner (Figure 9.14). Keep the font as **Solid Edge ISO** but change the font size to **2.00**. Type in “**Project**” and then right click to end the **Text** command. If the text is too close to the edges of the block, you can use the **Move** tool to adjust its position within the block but make sure that the text stays in the upper left corner of the box (Figure 9.15).



SIZE A2	DWG NO	REV
[Empty text box]		
SCALE:	WEIGHT:	

Figure 9.14 – Making Text Box

SIZE A2	DWG NO	REV
Project		
SCALE:	WEIGHT:	

Figure 9.15 – Project Block

Select the **Text** tool another time to add your name and date in the “Drawn” row of the titleblock. Begin by drawing a text box in the “Name” column of the “Drawn” row. With a font size of **3.00** and the **Solid Edge ISO** font, type in your first name. Once again, if you need to move the textbox, select the **Move** tool and adjust the placement of the text (Figure 9.16). Reselect the **Text** tool and draw another text box in the “Date” column of the “Drawn” row.

Change the font size to **3.00** and keep the **Solid Edge ISO** font. Type in the full date with the abbreviated name of the month included in the box. It is best to have the full date so that there is no confusion if the drawing is viewed by people in other countries. Select the **Move** tool to place the date as in Figure 9.17.

	NAME	DATE
DRAWN	Paul	
CHECKED		

	NAME	DATE
DRAWN	Paul	Aug 8, 2009

Figure 9.16 – Adding Your Name

Figure 9.17 – Adding the Date

Borders in Solid Edge

In Solid Edge, the four standard borders are the A1 Wide, A2 Wide, A3 Wide and A4 Wide borders (Figures 9.19 – 9.22). Unlike in AutoCAD where the default drawing space is model space, Solid Edge automatically starts in sheet space. This means that, instead of having to draw all of the borders and create a titleblock from scratch, you simply have to activate the **Background** tool on the **Sheet Views** panel under the **Views** tab as in Figure 9.3. With the four different borders sitting on tabs on the bottom of the graphical screen, modifying each different border becomes very easy because you simply have to select and change any part of the border or titleblock you want. This is convenient because you have a template for your titleblock in that the Solid Edge titleblock can easily be modified to display your own company name and information.

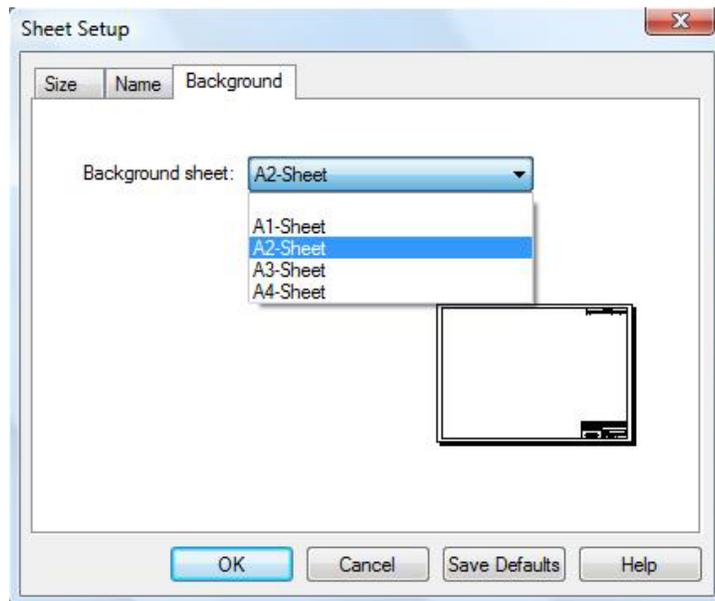


Figure 9.18 - Changing the Working Sheet

You already changed the titleblock of the A2-Wide. Now you need to change the titleblocks of the remaining three borders so that all four will have your own custom titleblock. With all the borders customized, it is very easy to change between which border you have as you active sheet. In sheet space, it is very easy to change which sheet. Begin by double-clicking the **Sheet1** tab on the bottom of the graphical screen. The Sheet Setup window will appear in the screen. Select the Background tab and left click on the drop-down arrow. As you can see in Figure 9.18, you can choose between the four different borders to change the background.

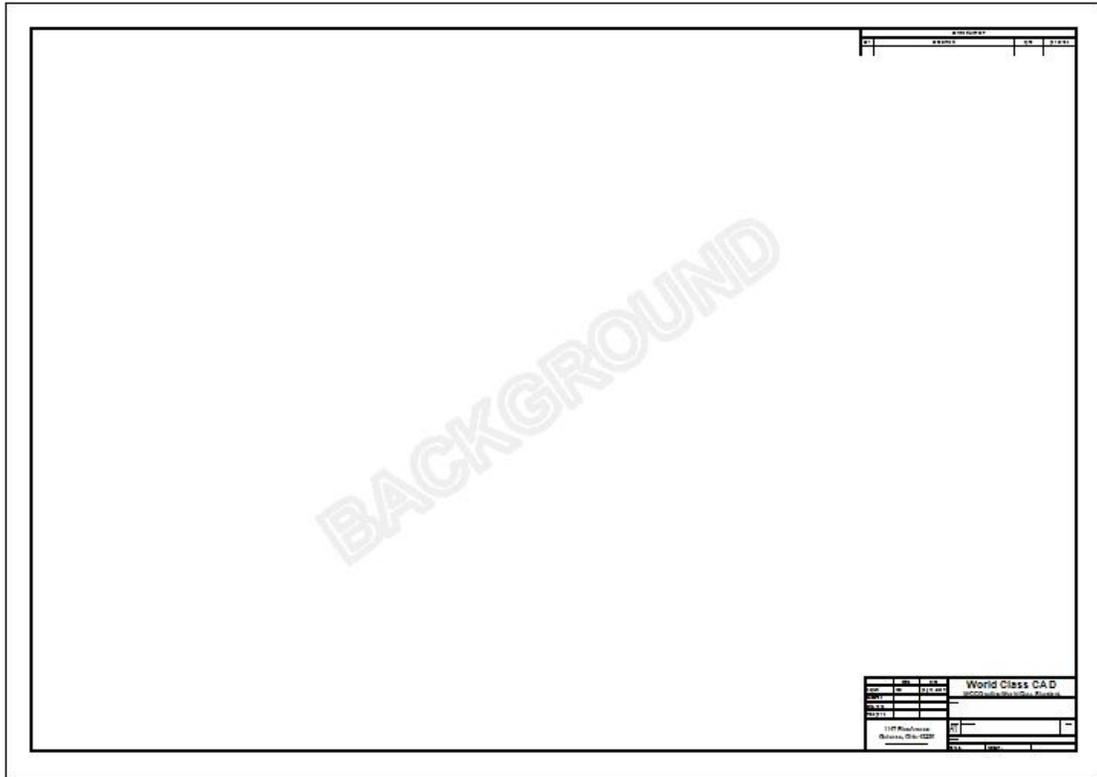


Figure 9.19 – A1 Wide Border (841mm x 594mm)

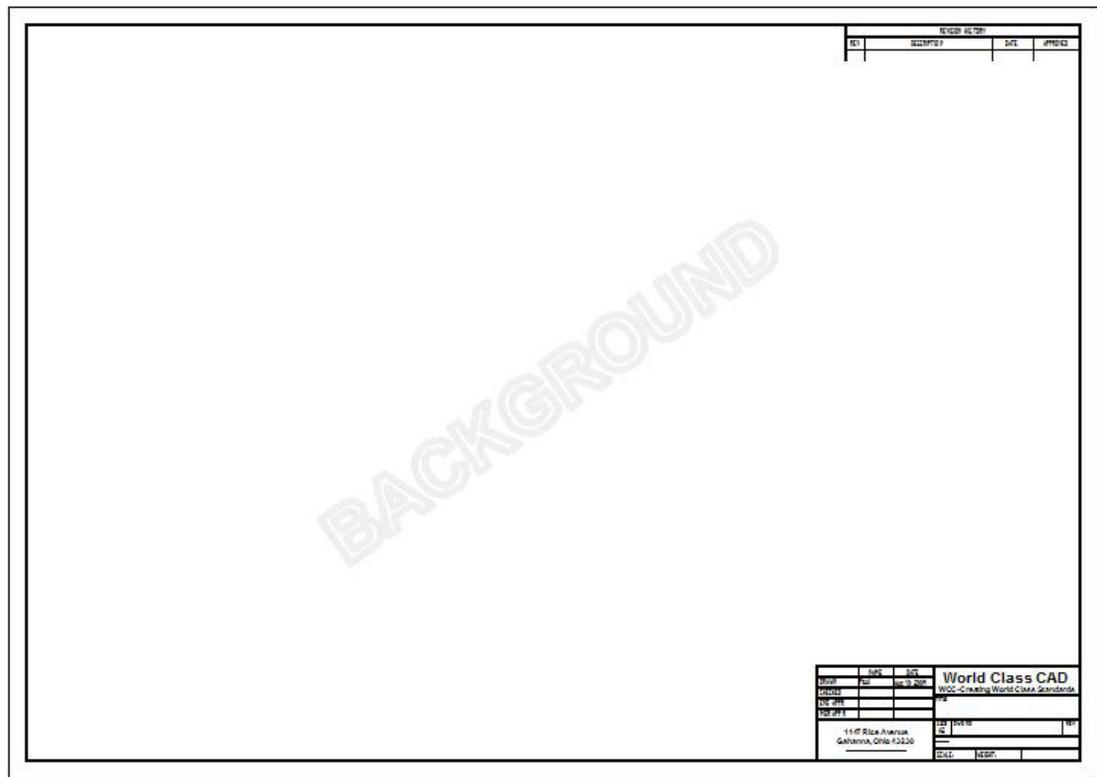


Figure 9.20 – A2 Wide Border (594mm x 420mm)

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED

	NAME	DATE	World Class CAD	
DRAWN	Paul	Aug 10, 2009	WCC-Creating World Class Standards	
CHECKED			TITLE	
ENG APPR				
MGR APPR				
1147 Rice Avenue Gahanna, Ohio 43230 <small>© 2008 World Class CAD, Inc. All Rights Reserved</small>			SIZE	DWG NO
			A4	
			PROJECT	REV
			SCALE:	WEIGHT:

Figure 9.21 – A3 Wide Border (420mm x 297mm)

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED

	NAME	DATE	World Class CAD	
DRAWN	Paul	Aug 10, 2009	WCC-Creating World Class Standards	
CHECKED			TITLE	
ENG APPR				
MGR APPR				
1147 Rice Avenue Gahanna, Ohio 43230 <small>www.worldclasscad.com</small>			SIZE	DWG NO
			A4	
			PROJECT	REV
			SCALE:	WEIGHT:

Figure 9.22 – A4 Wide Border (297mm x 210mm)

Saving the Titleblock and Borders

To save the drawing, select the **Save** tool from the **Quick Access** toolbar on the upper left of the screen. The Save As window will appear in the display. You can make your own directory or you can place the drawing in the My Documents folder. Ask your Network Administrator or Supervisor to show you where you should store your finished drawing. You should type the name of the drawing “titleblock and borders” in the File Name text box. The “.dft” suffix is added automatically to the name when you save the drawing.

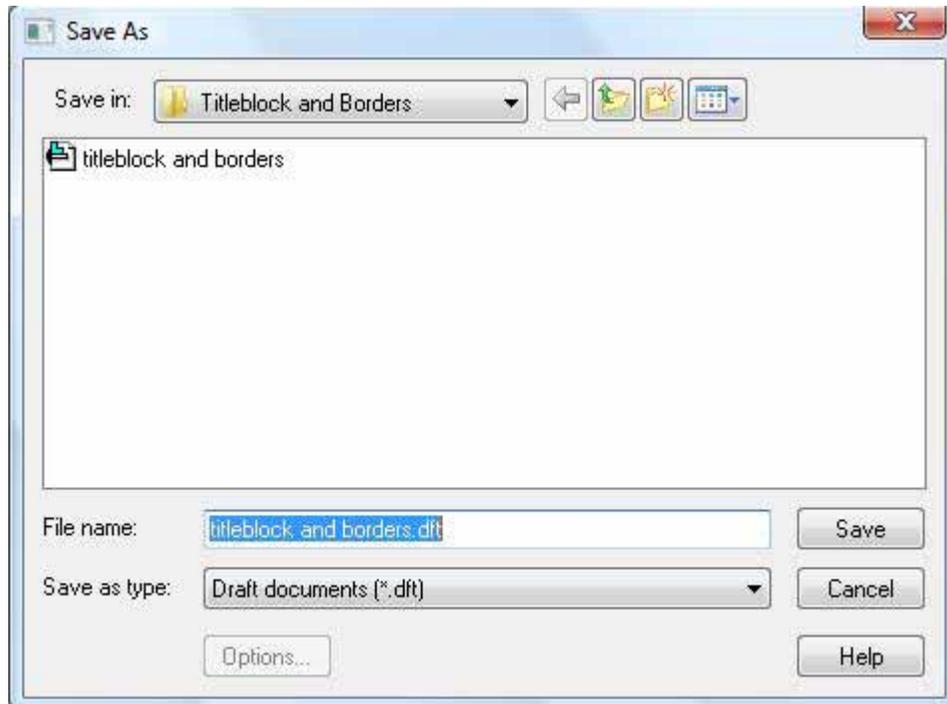


Figure 9.23 – Saving the Titleblock and Borders

*** World Class CAD Challenge 22-18 * - These tasks are not timed but we do challenge you to test your knowledge for modifying the titleblocks in the A1-A4 borders to maintain your World Class ranking.**