# CHAPTER 15

## Current Designs Excel Tutorial

**Using Excel® to Make Decisions at Current Designs**

**Topic(s):** **Preparation of Budgets**

**Excel**® **Functions and Tools: Split screen tool; Absolute cell referencing**

This document provides instructions that explain how to use Excel’s split screen tool and absolute cell referencing to complete the Current Designs problem that appears in the student file. A **What-if** question at the end of the solution will help you see how changes in one section of the worksheet can affect accounting information in other sections of the worksheet. Download the Excel file containing the Chapter 15 Excel Templates from the Wiley resources. It includes an Excel Template to use to solve the Current Designs problem.

### Problem Statement

Diane Buswell is preparing the 2027 budget for one of Current Designs’ rotomolded kayaks. Extensive meetings with members of the sales department and executive team have resulted in the following unit sales projections for 2027.

| 2027: | Quarter 1 | 1,000 | kayaks |
| --- | --- | --- | --- |
|  | Quarter 2 | 1,500 | kayaks |
|  | Quarter 3 | 750 | kayaks |
|  | Quarter 4 | 750 | kayaks |
| 2028: | Quarter 1 | 1,100 | kayaks |
|  | Quarter 2 | 1,500 | kayaks |

Current Designs’ policy is to have finished goods ending inventory in a quarter equal to 20% of the next quarter’s anticipated sales. Ending inventory of finished goods at December 31, 2026, will be 200 rotomolded kayaks.

Production of each kayak requires 54 pounds of polyethylene powder and a finishing kit (rope, seat, hardware, etc.). Company policy is that the ending inventory of polyethylene powder should be 25% of the amount needed for production in the next quarter. Assume that the ending inventory of polyethylene powder on December 31, 2026, is 19,400 pounds. The finishing kits can be assembled as they are needed. As a result, Current Designs does not maintain a significant inventory of the finishing kits.

The polyethylene powder used in these kayaks costs $1.50 per pound, and the finishing kits cost $170 each. Production of a single kayak requires 2 hours of time by more experienced, type I employees and 3 hours of finishing time by type II employees. The type I employees are paid $15 per hour, and the type II employees are paid $12 per hour.

Selling and administrative expenses for this line are expected to be $45 per unit sold plus $7,500 per quarter. Manufacturing overhead is assigned at 150% of labor costs. The cost and production data in tabular form are presented here.

Follow the following steps below to learn how to use Excel®’s split screen tool and absolute cell referencing to aid the preparation of budgets for Current Designs’ managers. Save your file frequently while working.

Selling and administrative expenses for this line are expected to be $45 per unit sold plus $7,500 per quarter. Manufacturing overhead is assigned at 150% of labor costs. The cost and production data in tabular form are presented here.

| Desired ending inventory of polyethylene powder | 25% | of next month's production |
| --- | --- | --- |
| Desired ending inventory of finished units | 20% | of next month's unit sales |
| Estimated inventories |  |  |
| Finished goods inventory at Dec. 31, 2026 | 200 | kayaks |
| Polyethylene powder at Dec. 31, 2026 | 19,400 | pounds |
| Polyethylene powder at Dec. 31, 2026 | 15,930 | pounds |
| Production requirements |  |  |
| Polyethylene powder | 54 | pounds |
| Finishing kit | 1 | kit |
| Type I employees labor time | 2 | hours |
| Type II employees labor time | 3 | hours |
| Manufacturing overhead | 150% | of direct labor costs |
|  |  |  |
| Cost of polyethylene powder | $1.50 | per pound |
| Cost of finishing kits | 170.00 | per kit |
| Labor rate of type I employees | 15.00 | per hour |
| Labor rate of type II employees | 12.00 | per hour |
| Selling and administrative expenses | 45.00 | per unit sold |
| Selling and administrative expenses | 7,500 | per quarter |

### Instructions

Prepare the production budget, direct materials budget, direct labor budget, manufacturing overhead budget, and selling and administrative budget for this product line by quarter and in total for 2027.

### What-if Question

Perform what-if analysis to answer the following:

Suppose the sales in units for the second quarter are now estimated to be 1,200 units. Adjust the budgets to reflect these changes.

### Solution Tutorial

Follow the step-by-step directions to prepare selected budgets for Current Designs.

#### Part 1

**Use sheet tab Part 1.**

**Step 1:** Open the worksheet template file in Microsoft Excel. Save the file on your computer’s desktop. The data area which appears in rows 10 to 15 and 29 through 47 contains the information provided by Current Designs.

**Step 2:** Scroll down the worksheet so that the first row displayed on your monitor is row 41. Select cell A47. Select the **View** menu tab, and then click **Split f**rom the **Window** group. A ‘split’ bar will appear just above row 48.

**Hint:** The split screen option is useful for viewing rows or columns that are located in different areas of the worksheet at the same time. It separates the worksheet window into separate panes so that you can scroll separately in each pane. When your cell pointer is positioned in the upper window, you can scroll up and down in that window. You can separately scroll in the lower window when your cell pointer is positioned in the lower window. The dual windows allow you to avoid excessive scrolling when referencing amounts in other sections of the worksheet.

##### Production Budget

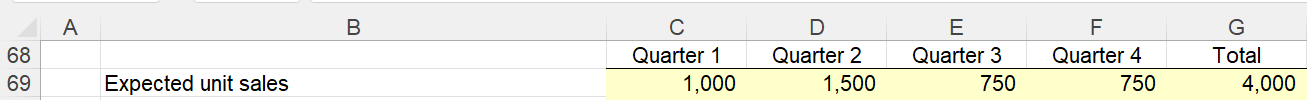
**Step 3:** Select any cell in the lower window and scroll to display the rows of the production budget. In cell C69, cell reference the units expected to be sold in Quarter 1 of 2027 from the data area.

**Hint:** Select cell C69. Press the equal symbol key, then immediately move your mouse to the scroll bar in the upper window and scroll up to display row 10. Immediately select cell D10. Press the **Enter** key.

**Step 4:** In cells D69, E69, and F69, cell reference the units expected to be sold in quarters 2, 3, and 4 of 2027 from the data area.

**Hint:** Moving the cell pointer from window to window speeds up this process.

**Step 5:** Use the SUM function in cell G69 to add the expected sales in units for the year. The amounts in row 69 should appear like the exhibit that follows, though the rows displayed may differ depending on the scrolling you performed in each window.



**Step 6:** Use a formula in cells C70 to F70 to calculate the desired ending inventory in units.

**Hint:** Because the ending inventory in units is based upon the next quarter’s unit sales, you will cell reference the percentage of inventory desired from the data area times the sales of the next quarter. The ending inventory for quarter 1 is 20% of quarter 2 which appears in the production budget. The sales for quarters 3 and 4 also appear in the production budget, but you must cell reference to the data area for quarter 4.

**Step 7:** Use the SUM function in cells C71 to F71 to add the unit sales to the desired ending inventory amounts.

**Step 8:** In cell C72, use cell referencing to the beginning inventory units for Quarter 1, 2028 from the data area. Cell reference the beginning inventory of Quarters 2, 3, and 4 from the respective amounts in the production budget.

**Hint:** The ending inventory of any quarter becomes the beginning inventory of the next quarter.

**Step 9:** Select cell G70 and cell reference the ending finished goods inventory amount from the end of Quarter 4 (cell F70). Select cell G72 and cell reference the beginning finished goods inventory amount from the beginning balance of Quarter 1 (cell C72).

**Step 10:** Use the SUM function in cell G71 to add the total unit sales to the desired ending inventory amounts for the year.

**Step 11:** Use formulas in cells C73 to G73 to subtract the beginning finished goods inventory from the required units. Verify that your work matches the solution that follows.

"An illustration shows an Excel spreadsheet with six columns displays line item labels in the first column followed by columns for each of 4 quarters and a total. The data are as follows: Expected unit sales: Quarter 1, 1,000; Quarter 2, 1,500; Quarter 3, 750; Quarter 4, 750; and Total, 4,000;
Add desired ending finished goods units: Quarter 1, 300; Quarter 2, 150; Quarter 3, 150; Quarter 4, 220; and Total, 220;
Total required units: Quarter 1, 1,300; Quarter 2, 1,650; Quarter 3, 900; Quarter 4, 970; and Total, 4,220;
Less beginning finished goods units: Quarter 1, 200; Quarter 2, 300; Quarter 3, 150; Quarter 4, 150; and Total, 200;
Required production units: Quarter 1, 1,100; Quarter 2, 1,350; Quarter 3, 750; Quarter 4, 820; and Total, 4,020."


##### Direct Materials Budget

**Step 12:** Use cell referencing in cells C80 to G80 to cell reference the units to be produced fromthe respective quarters and for the year in the production budget.

**Step 13:** In cell C81, use absolute cell references to the pounds amount in the data area and the units to be produced in this budget to calculate the total pounds of powder needed for production for each period.

**Hint:** Absolute cell references are used to identify a specific cell in a formula that remains fixed even if the formula is copied to other cells.

1. Select cell C81. Use cell referencing to enter “ =D36 ” into cell C81.
2. Before pressing **Enter**, place the mouse pointer between the “ = ” sign and the D36 label, and press the **F4** key. The **F4** key is a function key located at the top of your keyboard.
3. The **F4** key will place a dollar sign ($) before the column name, D, and before the row number, 36, which will appear as:

=$D$36

**Note:** If the F4 key does not generate the dollar signs, the function keys may be disabled or modified on your keyboard. In this case, manually type the two dollar signs into the formula.

1. Copy the contents of cell C81 to cells D81 through G81. A cell with an absolute reference will continue to reference the same cell no matter where the formula is copied.

**Step 14:** In cells C82 to G82, input a formula with cell references to the units to be produced and the pounds of polyethylene powder required in this budget.

**Step 15:** In cells C83 to E83, use formulas with cell references to percentage of inventory desired to be on hand in the data area and to next quarter’s production units in this materials budget to calculate the desired ending inventory in pounds. You will need to cell reference the next quarter’s materials requirements for the fourth quarter in cell F83 from the data area.

**Step 16:** In cell G83, cell reference the ending inventory of the fourth quarter, as it is the same as the ending inventory for the year.

**Step 17:** Use the SUM function in cells C84 through G84 to determine the total pounds of powder needed for each quarter and yearend.

**Step 18:** Input the beginning inventory of powder for Quarter 1, 2028 into cell C85 by cell- referencing the data area.

**Step 19:** In cells D85 through F85, cell reference the beginning powder inventory amount from the end of the previous quarter. Recall that ending inventory for one quarter is the same as the beginning inventory for the next quarter. In cell G85, cell reference the beginning inventory of quarter 1 (dated January 1 which is the same beginning date as applied to the entire year).

**Step 20:** In cell C86, input a formula to subtract beginning inventory form the total pounds of available. Copy the formula to cell D96 through G86.

**Step 21:** Use an cell reference in cell C87 to the cost per pound in the data area. Change the cell reference to absolute references and copy to cells D87 through G87.

**Step 22:** In cells C88 to G88, use a function to multiply the cost per pound by the number of pounds to be purchased. Because the worksheet formatting is set to display no decimals, you will see the amounts rounded to the nearest whole dollar.

**Step 23:** In cell C89, use a formula with cell referencing to reference the number of finishing kits required per kayak and the cost per kit. From the data area, and the number of kayaks to be produced for quarter 1 from this budget. Change the number of finishing kits and the cost per kit components to absoluter cell references to and then copy the contents of cell C89 to cells D89 to G89.

**Step 24:** In cells C90 to G90, use a formula to add the cost of polyethylene powder and the finishing kits to determine the total cost for material purchases.

**Step 25:** Verify that your work matches the solution that follows.

"An illustration shows an Excel spreadsheet with six columns where the first column displays line item labels and the next five columns contain amounts for each of 4 quarters and a total. The data are as follows, Units to be produced: Quarter 1, 1,100; Quarter 2, 1,350; Quarter 3, 750; Quarter 4, 820; and Total, 4,020;
Pounds of polyethylene powder per unit: Quarter 1, 54; Quarter 2, 54; Quarter 3, 54; Quarter 4, 54; and Total, 54;
Total pounds needed for production: Quarter 1, 59,400; Quarter 2, 72,900; Quarter 3, 40,500; Quarter 4, 44,280; and Total, 217,080;
Add: desired ending inventory of powder: Quarter 1, 18,225; Quarter 2, 10,125; Quarter 3, 11,070; Quarter 4, 15,930; and Total, 15,930;
Total pounds of powder required: Quarter 1, 77,625; Quarter 2, 83,025; Quarter 3, 51,570; Quarter 4, 60,210; and Total, 233,010;
Less: beginning inventory of powder: Quarter 1, 19,400; Quarter 2, 18,225; Quarter 3, 10,125; Quarter 4, 11,070; and Total, 19,400;
Cost per pound: $1.50 for each quarter and in total; 
Cost of polyethylene powder to be purchased: Quarter 1, 87,338; Quarter 2, 97,200; Quarter 3, 62,168; Quarter 4, 73,710; and Total, 320,415;
Cost of required finishing kits: Quarter 1, 187,000; Quarter 2, 229,500; Quarter 3, 127,500; Quarter 4, 139,400; and Total, 683,400;
Total costs of direct materials: Quarter 1, $274,338; Quarter 2, $326,700; Quarter 3, $189,668; Quarter 4, $213,110; and Total, $1,003,815."


##### Direct Labor Budget

**Step 26:** In cells C97 to G97, cell-reference the units to be produced from the respective quarters in the production budget.

**Hint:** To make cell referencing these amounts easier, select any cell in the top screen, then scroll in that screen to display the production budget amounts.

**Step 27:** In cells C98 to G98, cell reference the hours of Type I labor per kayak from the data area.

**Hint:** Use absolute references in cell C98, then copy cell C98 to cells D98 to G98.

**Step 28:** In cells C99 to G99, use a formula to calculate the total hours of type 1 labor needed for production.

**Step 29:** In cell C100, use absolute cell referencing to reference the Type I hourly labor rate from the data area. Copy C100 to cells D100 to G100.

**Step 30:** In cells C101 to G101, use a formula to calculate the total cost of type 1 labor needed for production.

**Step 31:** In rows 103 through 107, perform steps like those in steps 26 through 30 for the type II labor calculations.

**Step 32:** Input a formulain cells C108 to G108 to calculate the combined total cost of the two labor types.

**Step 33:** Verify that your work matches the solution that follows.

"An illustration shows an Excel spreadsheet with two sections. The first section displays a budget resulting in the total cost of more skilled labor. The first column shows line item labels, with a column for each quarter and a total in the next 5 columns as follows:  
Units to be produced: Quarter 1, 1,100; Quarter 2, 1,350; Quarter 3, 750; Quarter 4, 820; Total, 4,020;
Number of hours of more skilled labor or unit: 2 hours for each quarter and the total column; 
Total number of hours of more skilled labor: Quarter 1, 2,200; Quarter 2, 2,700; Quarter 3, 1,500; Quarter 4, 1,640; Total, 8,040;
Hourly rate for more skilled labor: $15 for each quarter and in total;
Total cost of more skilled labor: Quarter 1, $33,000; Quarter 2, $40,500; Quarter 3, $22,500; Quarter 4, $24,600; and Total, $120,600. 
The second section is the completion of the direct labor budget and arrives at the total cost for direct labor. It consists of the following line items and amounts:  Units to be produced: Quarter 1, 1,100; Quarter 2, 1,350; Quarter 3, 750; Quarter 4, 820; Total, 4,020;
Number of hours of less skilled labor per unit: 3 hours for each quarter and in total;
Total number of hours of less skilled labor: Quarter 1, 3,300; Quarter 2, 4,050; Quarter 3, 2,250; Quarter 4, 2,460; Total, 12,060;
Hourly rate for less skilled labor: $12 per hour for each quarter and in total;
Total cost of less skilled labor: Quarter 1, $39,600; Quarter 2, $48,600; Quarter 3, $27,000; Quarter 4, $29,520; Total, $144,720. 
Total cost of direct labor is the sum of the total cost of more skilled labor and the total cost of less skilled labor: Quarter 1, $72,600; Quarter 2, $89,100; Quarter 3, $49,500; Quarter 4, $54,120; Total, $265,320."


##### Manufacturing Overhead Budget

**Step 34:** In cells C115 to G115, cell reference the total cost for direct labor from the respective quarters in the direct labor budget.

**Step 35:** In cells C116 to G116, cell reference the manufacturing overhead rate from the Data area.

**Hint:** Use absolute referencing in cell C116, then copy cell C116 to cells D116 to G116.

**Step 36:** In cells C117 to G117, use a formula to calculate the total manufacturing overhead cost.

**Step 37:** Verify that your work matches the solution that follows.


"An illustration shows an Excel spreadsheet with the first column for line item labels followed by a column for each quarter and a total. The data are as follows: 
Total costs for direct labor: Quarter 1, $72,600; Quarter 2, $89,100; Quarter 3, $49,500; Quarter 4, $54,120; Total, $265,320;
Manufacturing overhead rate per direct labor dollar: 150% for each quarter and the total; 
Manufacturing overhead costs: Quarter 1, $108,900; Quarter 2, $133,650; Quarter 3, $74,250; Quarter 4, $81,180; Total, $397,980."


##### Selling and Administrative Expense Budget

**Step 38:** In cells C124 to G124, cell reference the expected unit sales from the respective quarters in the data section.

**Step 39:** In cells C125 to F125, use a formula to the selling and administrative expense cost per unit sold and to the unit sales in this budget to calculate the total variable selling and administrative cost.

**Hint:** In cell C125, use an absolute reference to the per unit cost, then copy cell C125 to cells D125 to G125.

**Step 40:** In cells C126 through F126, cell reference the fixed selling and administrative cost from the data area in cell D47.

**Hint:** Absolute referencing works well here.

**Step 41:** In cell G125 and G126, use the SUM function to add the variable selling and administrative costs for the four quarters shown on row 125, and to add the total fixed selling and administrative costs for the four quarters shown in row 126.

**Step 42:** In cells C127 to G127, use the SUM function to add the variable and fixed selling and administrative costs.

**Step 43:** Verify that your work matches the solution that follows.

**"An illustration shows an Excel spreadsheet with the first column displays line item labels followed by a column for each of the four quarters and a total. The data are as follows: 
Expected unit sales: Quarter 1, 1,000; Quarter 2, 1,500; Quarter 3, 750; Quarter 4, 750; Total, 4,000;
Variable selling and administrative costs: Quarter 1, $45,000; Quarter 2, $67,500; Quarter 3, $33,750; Quarter 4, $33,750; Total, $180,000;
Fixed selling and administrative costs: $7,500 for each quarter, and 30,000 for the total;
Total selling and administrative costs: Quarter 1, $52,500; Quarter 2, $75,000; Quarter 3, $41,250; Quarter 4, $41,250; Total, $210,000."
**

### What-if Solution

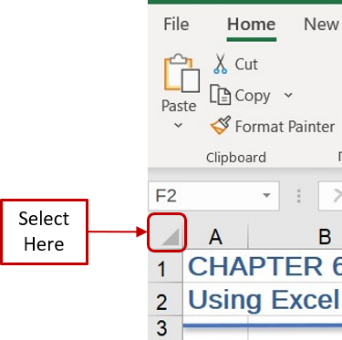
Once worksheet formulas are set up in Excel, you can perform what-if analysis to see the impact of the change under different scenarios.

### Part 2

**Use the Part 2 What-if sheet tab.**

**Step 1:** A blank worksheet named CD15Part 2 What-if has been created for you. After completing part 1, copy the worksheet containing your solution and paste to the blank worksheet. To copy:

1. On the worksheet that contains your solution, select the small triangle that appears to the left of the row A label and just above the label for row 1. You will see the entire worksheet dimmed to denote that the entire worksheet is selected.



1. Right click your mouse to display a list of options. Select **Copy**.
2. Select the **CD15 Part 2 What-if** worksheet tab.
3. Place your cell pointer in the same location on this blank worksheet as you did to copy in step **a.** above—i.e., the triangle to the left of the column A label and to the right of the label for row 1. Right click your mouse and select the first icon under the **Paste** options, labeled as **Paste (P),** to paste the contents. The worksheet should look identical to your original worksheet.

**Step 2:** In the data area, input the changes to the units to be sold to 1,200 during Quarter 3.

**Step 3:** All budgets should automatically adjust to reflect the change in sales units. Examine the total production costs of materials, labor, and overhead because of the change.

**Decision Analysis:** Direct materials costs during Quarter 3 increased from $189,668 to $272,738, an increase of $83,070. In the same quarter, direct labor costs increased from $49,500 to $73,260, an increase of $23,760. Manufacturing overhead increased from $74,250 to $109,890, an increase of $35,640. In addition, total selling and administrative costs increased during quarter 3 to $61,500.

You may want to try some alternative changes in units produced or costs to see how each change affects the total cost.