

Practice exercise – Answer Key

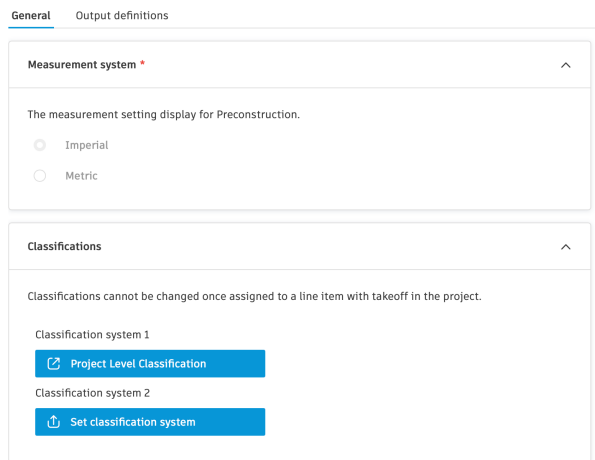
Calculate direct costs in Estimate

The following steps should be completed in **Practice exercise: Measure quantities in Takeoff**. If you completed that exercise, you are ready to start this exercise. If not, make sure these steps are completed:

1. In the Setting menu of Takeoff, you specified a measurement system and uploaded the **Project Level Classification.xlsx** into the Classification system 1.

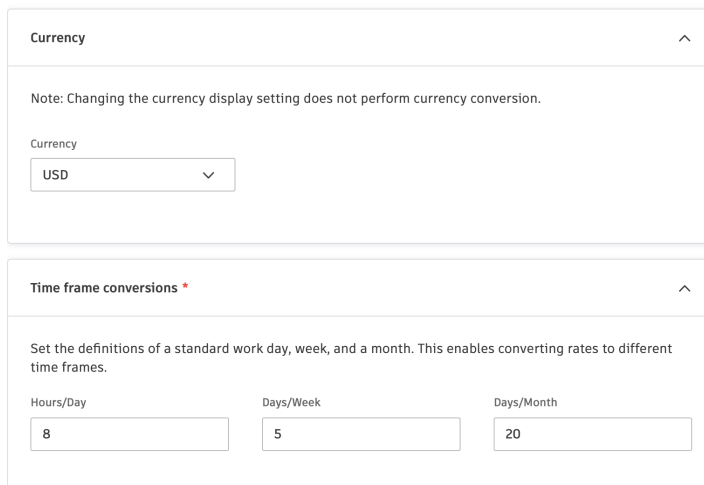
Takeoff /

Settings



The screenshot shows the 'Settings' page in the Takeoff application. It has two tabs: 'General' (selected) and 'Output definitions'. Under 'General', there are two main sections: 'Measurement system' and 'Classifications'. The 'Measurement system' section has a title 'Measurement system *' and a description 'The measurement setting display for Preconstruction.' It contains two radio buttons: 'Imperial' (selected) and 'Metric'. The 'Classifications' section has a title 'Classifications' and a description 'Classifications cannot be changed once assigned to a line item with takeoff in the project.' It lists two classification systems: 'Classification system 1' with a button 'Project Level Classification' (which has a file icon) and 'Classification system 2' with a button 'Set classification system' (which has a plus icon).

2. In the Setting menu of Takeoff, you specified the correct currency and time frame conversions.



The screenshot shows the 'Settings' page in the Takeoff application, specifically the 'Currency' and 'Time frame conversions' sections. The 'Currency' section has a title 'Currency' and a note 'Note: Changing the currency display setting does not perform currency conversion.' It contains a dropdown menu for 'Currency' with 'USD' selected. The 'Time frame conversions' section has a title 'Time frame conversions *' and a description 'Set the definitions of a standard work day, week, and a month. This enables converting rates to different time frames.' It contains three input fields: 'Hours/Day' with the value '8', 'Days/Week' with the value '5', and 'Days/Month' with the value '20'.

3. In the Setting menu of Takeoff, you created at least one output definition, for example, an output definition for Window Type A.

Edit Window Type A
✕

Name *

Window Type A

Unit of measure *

Count (EA)
▼

Cost

100.00

Classification 1

... > 08 50 00 - Windows
▼

Classification 2

Classifications not defined

● Classification 2 is not set for the project. Go to [Settings](#) to import a classification.

4. In the Sheets & Models tool:
 - a. You uploaded the **Architectural Model.rvt** file from the Version 1 folder in the dataset folder to the 3D Models tab.

Sheets & Models

2D Sheets
3D Models

📁 Upload models

☐	Model
☐	Architectural Model.rvt (3D)

- b. You uploaded the **Architectural Sheets.pdf** and **Structural Sheets.pdf** files from the Version 1 folder in the dataset folder to 2D Sheets tab and extracted the correct sheet names and numbers.

Learn Forma Preconstruction ▼

Sheets & Models

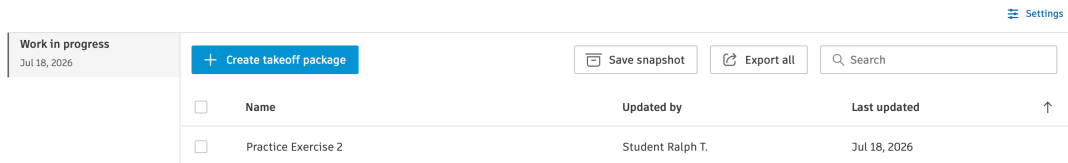
2D Sheets
3D Models

📁 Upload files

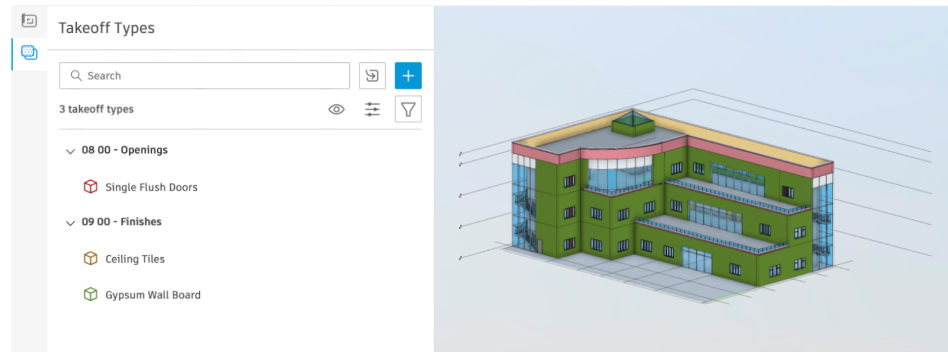
☐	Number	Version set	
☐	S000 Cover Page	①	Version 1
☐	S100 Notes	①	Version 1
☐	S101 Grid Updates	①	Version 1
☐	S102 00 TO Wall Footing	①	Version 1

5. You created a new takeoff package named Practice Exercise 2.

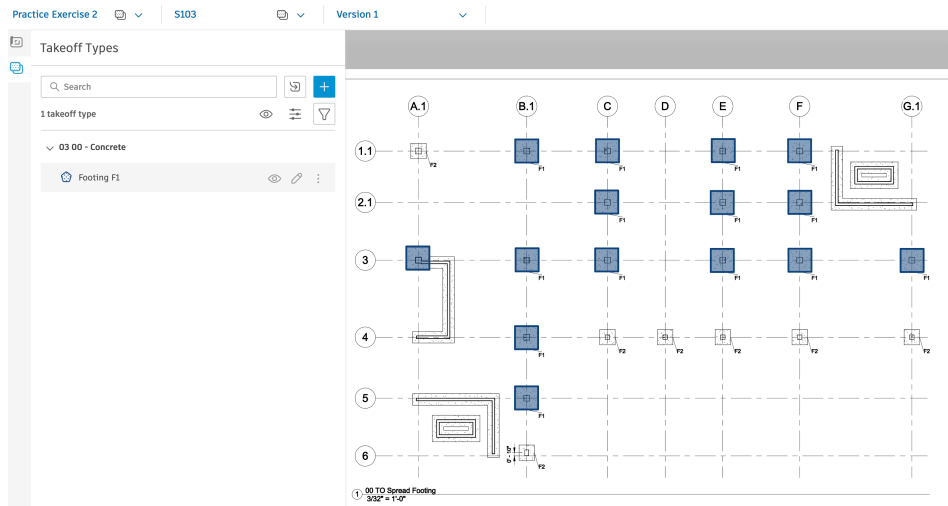
Takeoff



6. You found the following quantities using BIM-based takeoff types and newly created output definitions,
 - a. Number of single flush wooden doors and their frames.
 - b. Number of ceiling tiles.
 - c. Number of gypsum wall boards.



7. You found quantity of cast in place concrete in spread footing F1 using area-based takeoffs on sheet S103 and the concrete line item from the hub library.



Once these steps are completed, you will be ready to start the exercise. You will apply the skills learned in this module to transfer quantities from Takeoff into Estimate and develop project cost information. You will organize estimate data, apply unit costs, calculate direct costs, and add markups while answering the questions provided.

Learning objectives:

By the end of this exercise, you should be able to:

- Transfer quantities from Takeoff to Estimate.
- Organize estimate items and customize cost fields.
- Apply unit costs to estimate items.
- Calculate direct costs.

Success criteria:

- Quantities are successfully transferred from Takeoff to Estimate.
- Estimate items and cost fields are configured correctly.
- Unit costs are applied to estimate items to calculate direct costs.
- Exercise questions are completed and answers are submitted for review.

In Takeoff, open the inventory and send the five quantities you found in the previous exercise, Practice exercise: Measure quantities in Takeoff, to Estimate.

1. In Estimate, apply the appropriate grouping properties to see the quantity of concrete in spread footings.
What is the labor cost for Footing F1?

Answer Key

The labor cost is \$3,008.61

Estimate

Estimate		Cost markups	
+ Add		Export all	Search...
		Group (2) ^	Filters (0) v
☐ Name	Quantity	Unit	Mater
☐ 03 00 - Concrete			
☐ 03 30 00 - Cast-in-Place Concrete			
☐ Footing F1			
☐ Concrete Cast-In-Place	30.09	CY	
		Group by	
		Classification 1	
		Takeoff type	
		Add subgroup	Clear all
		Labor total cost	
		75,544.51	
		75,544.51	
		3,008.61	
		3,008.61	

2. The contractor will hire a subcontractor to complete division 9 who charge \$50 per GWB and \$10 per ACT. What is the total cost of Division 9.

Answer Key

The total cost of Division 9 is \$ 45,110.32.

☐ 09 00 - Finishes	0	45,110.32	0	45,110.32
☐ 09 29 00 - Gypsum Board	0	35,291.24	0	35,291.24
☐ Gypsum Wall Board	0	35,291.24	0	35,291.24
☐ GWB	50.00	35,291.24		35,291.24 09 2
☐ 09 51 00 - Acoustical Ceilings	0	9,819.08	0	9,819.08
☐ Ceiling Tiles	0	9,819.08	0	9,819.08
☐ Ceiling Tiles	10.00	9,819.08		9,819.08 09 5

3. In Estimate, add a filter to show line items with total costs greater than \$50,000. How many line items have a total cost greater than \$50,000.

Answer Key

There are five line items with total costs greater than \$50,000, Shear Walls, SOG, Upper Floors, CMU, and brick.

Estimate

Estimate Cost markups [Send us feedback](#)

[+ Add](#) [Export](#) [Group \(2\)](#) [Filters \(1\)](#) [Review quantities](#)

☐	Name	Component total cost	Sub	Where	Total cost	Is greater t...	50,000.00	Classification 1
☐	03 00 - Concrete	103,053.42						
☐	03 30 00 - Cast-in-Place Concrete	103,053.42						
☐	Shear Walls	22,404.94			0	0	56,012.35	
☐	Concrete Cast-In-Place						56,012.35	03 30 00 - Cast-in...
☐	SOG	41,244.56			0	0	103,111.39	
☐	Concrete Cast-In-Place	41,244.56					103,111.39	03 30 00 - Cast-in...
☐	Upper Floors	39,403.93			0	0	98,509.82	
☐	Concrete Cast-In-Place	39,403.93					98,509.82	03 30 00 - Cast-in...
☐	04 00 - Masonry	72,028.83			88,163.29	0	211,692.74	
☐	04 22 00 - Concrete Unit Masonry	72,028.83			0	0	123,529.45	
☐	Masonry	72,028.83			0	0	123,529.45	
☐	CMU	72,028.83					123,529.45	04 22 00 - Concret...
☐	04 54 00 - Refractory Brick Masonry	0			88,163.29	0	88,163.29	
☐	Masonry	0			88,163.29	0	88,163.29	
☐	Brick		0.85		88,163.29		88,163.29	04 54 00 - Refract...

