



Roof Wizard

Advanced Software for Roof Modeling and Estimating

Estimating Tutorial for Metal Roofs

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Introduction

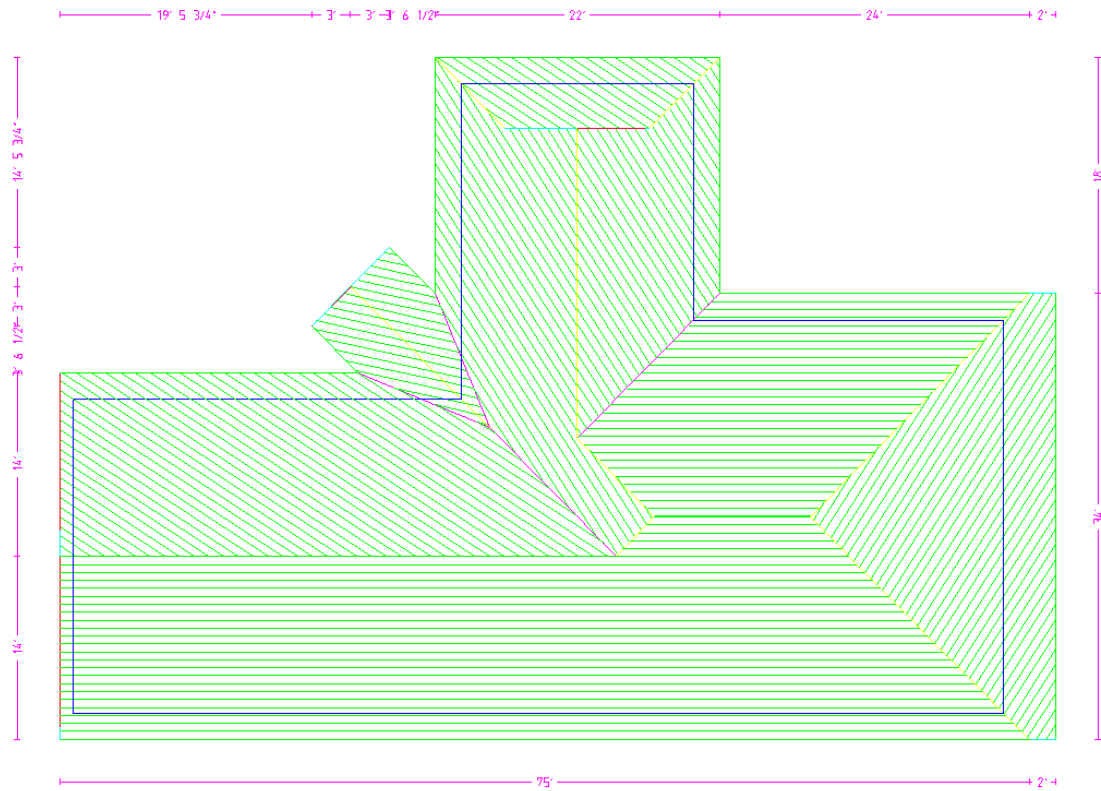
Using this manual

This tutorial is designed to explain, step by step, the process of quoting an individual job in Roof Magician. The exact commands are shown in bold on the left, so once you are used to the process, you can simply follow those commands.

While not essential, it is recommended that the basic tutorial for Sorcerer or Roof Magician has been done prior to attempting to work through this tutorial as an understanding of the process is helpful.

Job Description

The roof will be a simple hip and gable roof like the one below.



Material Description

We have decided that the materials we will be using are as described below. We have not used these materials before so we must enter them into our database. Once entered they are then available for future use.

Roof

Type	Description	Size	Cost
Insulation	JM 1.5" ISO	4x8 Sheets	\$28/100 sq ft
Underlay			
Purlins	.33 Spacing JM Light	1x5	\$1.10 lft
Metal	Bradco Supply – Zinc	22" wide .43g	\$2.80 sqft

Flashing

Type	Description	Size	Cost
Ridge	HR Rolltop Ridge – Zinc	Into 15' Pieces	\$3.25 per length
Valley	HR Valley – Zinc	Into 15' Pieces	\$3.20 per length
Fascia	HR Metal Fascia – Zinc	Into 18' Pieces	\$3.95 per length
Gutter	HR Gutter – Zinc	Into 12' Pieces	\$3.30 per length
Barge (Rake)	HR Barge – Zinc	Into 8' Pieces	\$2.95 per length
Skirt	HR Skirt – Zinc	Into 14' Pieces	\$3.25 per length

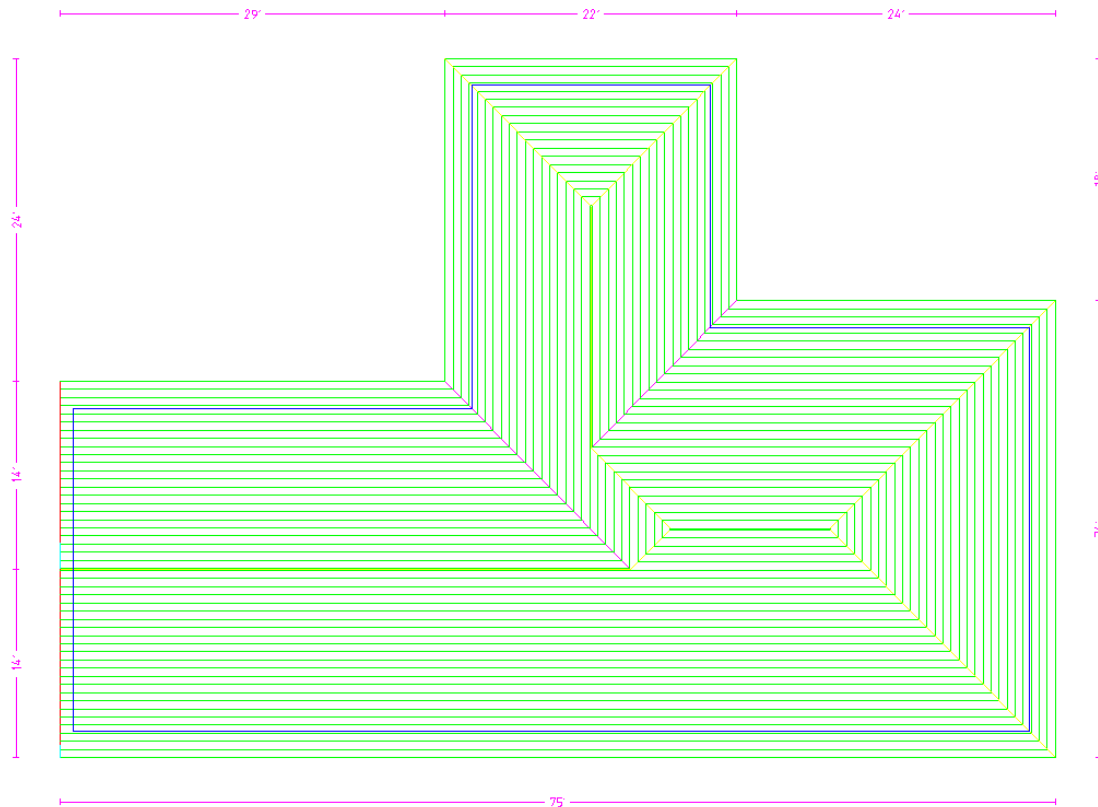
Generating and Modifying the Roof

Define the Roof Outline

First of all, make sure your are using english units by using **Utilities | Preferences**, then setting the units to imperial.



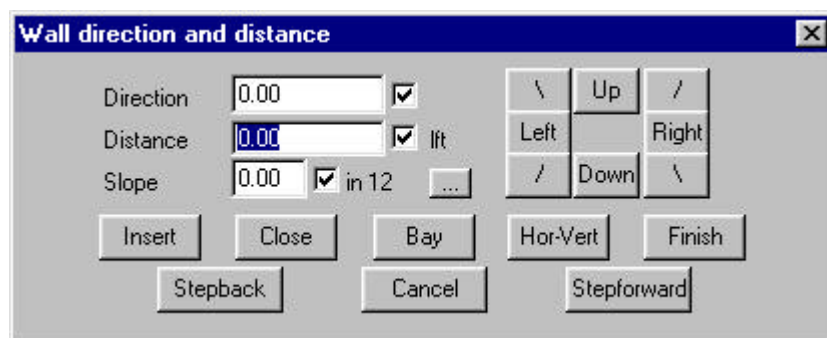
Draw the following roof using the command Gen-Roof | Track-Roof from the main menu.



The **Track-Outline** outline generator dialogue looks like the illustration below, and allows you to input the perimeter dimensions and direction by clicking the direction buttons. You may also simply type **r75** for a line created to the right, 75 feet long.

Once you get to the second last perimeter line, simply select **Close** and **Close Square**. The system will automatically compute the correct geometry to close the perimeter and draw the remaining outline. Check that the last two dimensions are correct. If they are then you may proceed to the next step. At this stage the lines are construction lines only and don't really exist, until we select **Finish** on the dialogue box.

If they are not correct, then the information is incorrect or you made a mistake in setting the perimeter dimensions. In the event of a mistake, select **Stepback** until you delete the wrong line and re-insert it.



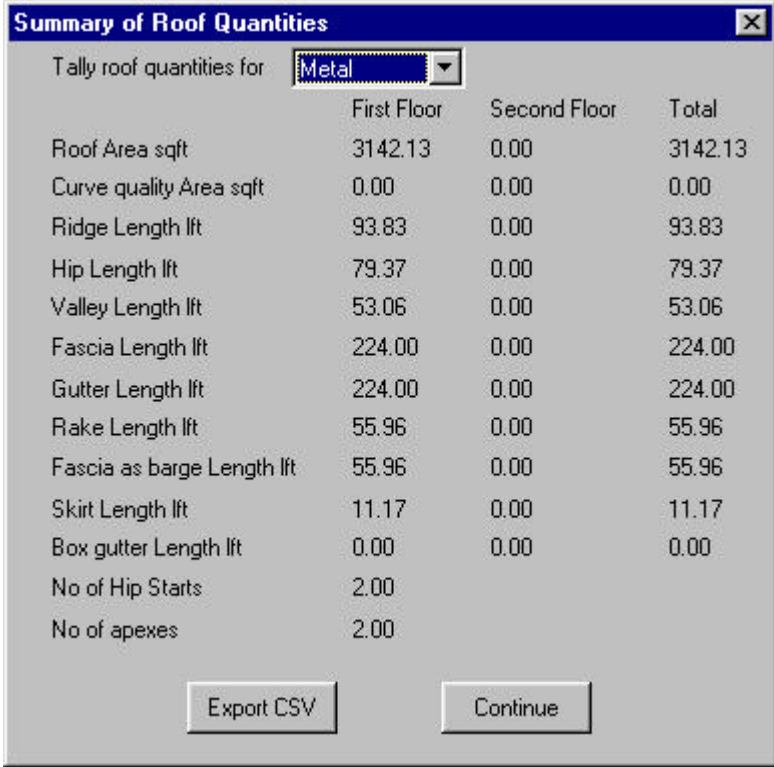
Once complete with cross-hatching to represent our roof surface, you are ready to modify the roof geometry to get the plan on the first page.

Modify the Roof

The next step is to make the modifications shown for the roof. Insert the Gable end, Dutch Gable, Valley Gable, and Drop Fascia on the right hip.

Quantities

You can now achieve area quantities from what you have modeled already.



Summary of Roof Quantities			
Tally roof quantities for Metal			
	First Floor	Second Floor	Total
Roof Area sqft	3142.13	0.00	3142.13
Curve quality Area sqft	0.00	0.00	0.00
Ridge Length lft	93.83	0.00	93.83
Hip Length lft	79.37	0.00	79.37
Valley Length lft	53.06	0.00	53.06
Fascia Length lft	224.00	0.00	224.00
Gutter Length lft	224.00	0.00	224.00
Rake Length lft	55.96	0.00	55.96
Fascia as barge Length lft	55.96	0.00	55.96
Skirt Length lft	11.17	0.00	11.17
Box gutter Length lft	0.00	0.00	0.00
No of Hip Starts	2.00		
No of apexes	2.00		

Define the Materials and Fasteners

We are now ready to select our roof cover materials, however since we are to use materials that we have not used before, we must define them. This is only done once and then the materials are available for future use with other jobs. We define materials according to a generic description. This ensures that all the right information about the material is collected in our database, and that the correct associations are made between materials, accessories and costs.

Insulation

We will define the two insulation materials first. Select **Cover | Define Materials | Insulation** from the main menu. Fill out the blank fields on the dialogue box displayed as shown above. Once complete select the **Add** button to save the insulation to the insulation database. Then define the other insulation we are going to use and select **Add** again.

If we make a mistake or the details from the material manufacturer change, then **Select** the material to change from the list, make the change and select **Update** from the dialogue box. The record that defines this material in our database is updated for future use.

The image shows a software dialog box titled "Define Insulation (rec = 5 of 5)". It contains several input fields and buttons. The fields are: Supplier (JohnsManville), Name (0.5 Perlite), Code (JM05P44), Description (JM Perlite), Large roll size (16), Small roll size (0), Cost of large roll (1.92), and Cost of small roll (0.00). The buttons are: Select, Delete, Add, Update, Cancel, and Ok.

Field	Value
Supplier	JohnsManville
Name	0.5 Perlite
Code	JM05P44
Description	JM Perlite
Large roll size	16
Small roll size	0
Cost of large roll	1.92
Cost of small roll	0.00

Metal Panels

Define the tile using **Cover | Define-Materials | Metal-Panels**. Fill in the black areas of the dialog and select **Add** to save the material for future use.

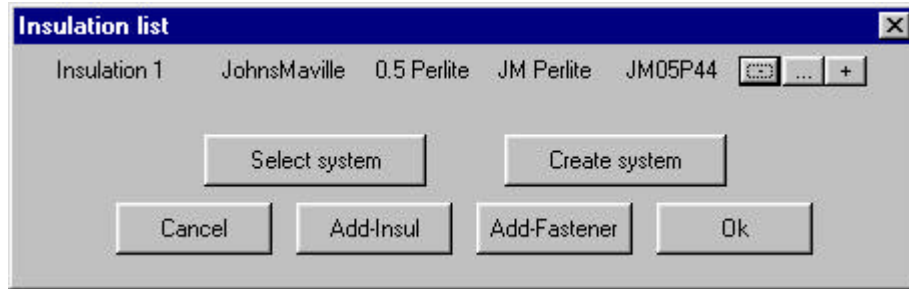
Field	Value
Supplier	Bradco Supply
Profile	Corrugated
Finish	Zincalume
Fastener code	ST40375
Product code	
Fasteners per sqft	2.00
Coverage width	22.00 in
Thickness	0.43
Cost	2.80 / sqft
Min order length	6
Max order length	10

If when you are costing the roof, you want to cost by area, fill in the Roof Tile Coverage Area. If you plan to cost by Course, fill in the max and min tile coverage length. For this tile, we will fill in all the details.

Applying the Initial Roof Materials

Apply the Roof Insulation

We have now completed defining the materials we are to use on this job, and checked that each is correct. The next step is to select those materials and apply them to our roof. Working up from the roof base, we will select each material in turn. While the order does not matter from a take-off point of view, it certainly helps in the interpretation to have the materials listed in the order they are to be laid.

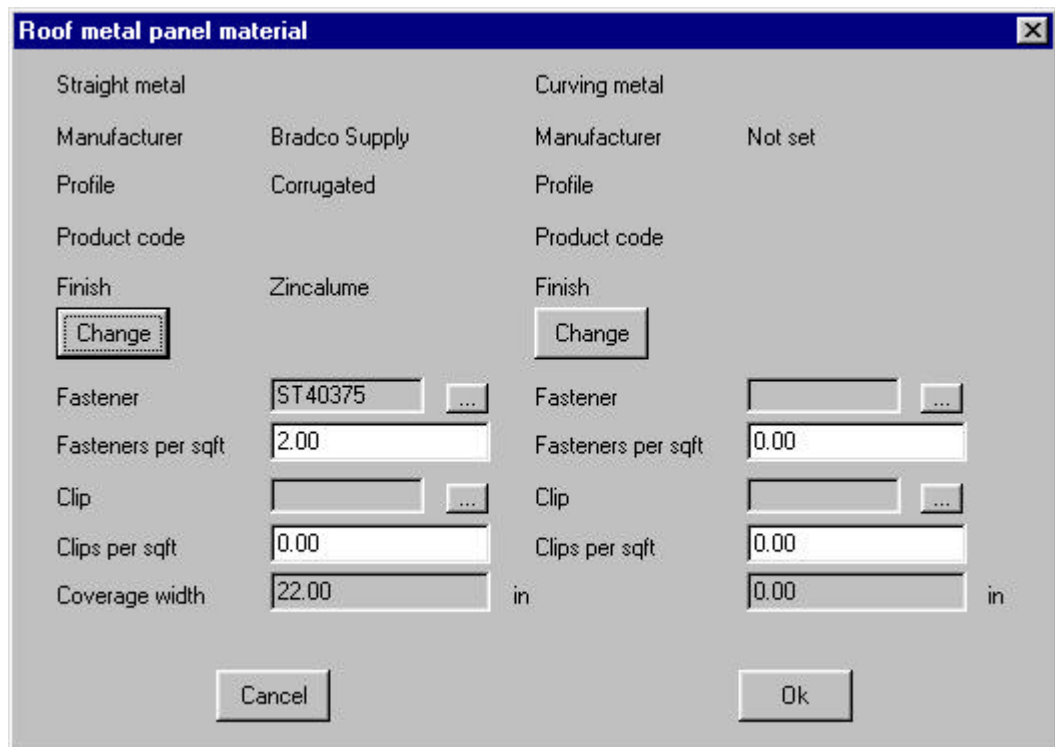


Using the command from the main menu **Cover | Insulation | Select-default**, select the types of insulation and the screws and plates with the **Add-Insul** and **Add-Fastener** buttons.

Notice on the right hand side of this dialogue box three buttons. These are used to delete, change a line item relating to that material ply or add a ply before the line item.

Apply the Roof Cover Material

When you have defined your insulation, select **OK**, to finish and go to the next step. Using **Cover | Select-Metal**, select the metal you created earlier.



When you have selected your tiles, select **OK**, to finish and go to the next step. At this point we can estimate the number of sheets for the job.

Estimating the Metal

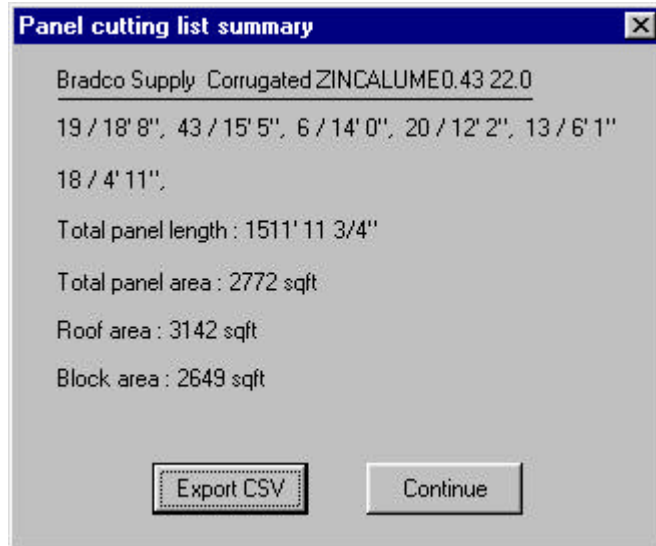
Auto-Blocking

We now wish to automatically block the roof, using the Estimate | Auto-Block method.

This will place blocks of like metal panels in groups (ie. Blocks). When you select Auto-Block, this will automatically create the most likely blocks necessary for the roof. On some roofs, you may wish to go into Man-Block to manually change the blocks.

Tally-Blocks

Once the blocks are calculated, you need to tally the blocks, which will extract the number of panels from the blocks and display the result.



Preliminary Costing

Using the Costing | Supply-Install command from the main menu, you can see the materials listed.

Category	Supplier	Description	Qty	Rate	SubTotal	Discount %	Total
Cartage			0.00	0.00	0.00	0	0.00
Straight	Bradco Supp	,Corrugated, ZINCALUME	2771.95	2.80	7761.47	0	7761.47
Fasten	Stratco	ST40375,40x3.75,Helical Thread,ZINCALUME	2.00	66.83	133.66	0	133.66
Insulation	JohnsMaville	JM05P44,0.5 Perlite, JM Perlite	197.00	1.92	378.24	0	378.24
Extra		Material delivery charge	1.00	10.00	10.00	0	10.00
Extra		Chimneys	2.00	10.00	20.00	0	20.00
Extra		Second storey	1.00	100.00	100.00	0	100.00

Labor subtotal	8061.11	Material subtotal	8403.37
Labor markup	10.00	Material markup	15.00
Labor total	8867.22	Material total	9663.88
Sales tax	1853.11	Job total	20384.21

Notes Re-Calc Save Load Print Misc-Item Fasteners Add-Lineitem
 Cancel ExportCSV ExportGRIM Ok

Any values may be over written if the operator wishes to change an individual line item. If a change is made to a line item, select **Re-Calc** so that the change is carried through to the Job Total. Additional miscellaneous items may also be added at this time. The take-off may be saved for later retrieval or printed as a quotation.

Typically though, you would add various flashings and other roof hardware. To do this we need to define and then generate flashing cutting lists.

Flashings and Accessories

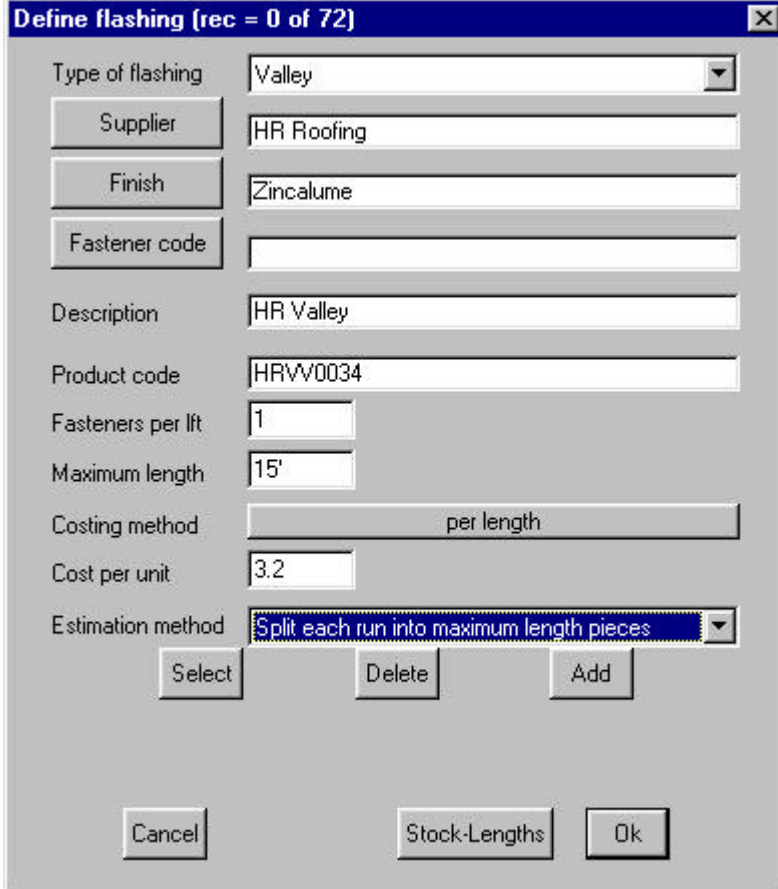
Define the Flashing

Define the 3 metal flashings required for this job using the **Cover | Define-Materials | Flashing** command. Most fields are self explanatory, however, the estimation method field may require more information. Here you have the option to specify the way you determine the amount of flashing material and how it is costed.

In our example, we break each run into maximum length of the flashing material, which is 18'. The system also takes account of overlap as defined in the allowances section (**Cover | Flashing | Allowances**). For this exercise we will accept the default or preset allowances.

Notice also that you can set the accessory items such as corner brackets, splice plates, clips etc as appropriate for each flashing type. You may also set a range of stock lengths. These variables will be determined by the type of flashing being

defined. Once defined, all items are automatically accounted for when the material is used, and the take-off done.



The image shows a software dialog box titled "Define flashing (rec = 0 of 72)". It contains several input fields and buttons for defining a flashing item. The fields are: "Type of flashing" (dropdown menu set to "Valley"), "Supplier" (text box "HR Roofing"), "Finish" (text box "Zincalume"), "Fastener code" (empty text box), "Description" (text box "HR Valley"), "Product code" (text box "HRVV0034"), "Fasteners per lft" (text box "1"), "Maximum length" (text box "15'"), "Costing method" (text box "per length"), "Cost per unit" (text box "3.2"), and "Estimation method" (dropdown menu set to "Split each run into maximum length pieces"). At the bottom, there are buttons for "Select", "Delete", "Add", "Cancel", "Stock-Lengths", and "Ok".

Type of flashing	Valley
Supplier	HR Roofing
Finish	Zincalume
Fastener code	
Description	HR Valley
Product code	HRVV0034
Fasteners per lft	1
Maximum length	15'
Costing method	per length
Cost per unit	3.2
Estimation method	Split each run into maximum length pieces

Define flashing (rec = 74 of 75)

Type of flashing: **Fascia**

Supplier: HRRoofing

Finish: Zinalume

Fastener code:

Description: HR Fascia

Product code: HRF0544

Fasteners per lft: 1.00

Maximum length: 18.00

Costing method: per length

Cost per unit: 3.95

Estimation method: Split each run into maximum length pieces

Select Delete Add

Update

Cancel Accessories Stock-Lengths Ok

Define flashing (rec = 75 of 75)

Type of flashing: **Gutter**

Supplier: HRRoofing

Finish: Zinalume

Fastener code:

Description: HR Gutter

Product code: HRG04344

Fasteners per lft: 1.00

Maximum length: 12.00

Costing method: per length

Cost per unit: 3.30

Estimation method: Split each run into maximum length pieces

Select Delete Add

Update

Cancel Accessories Stock-Lengths Ok

Generate the Flashing Lists

Once you have defined you flashings, you can generate the Flashing Lists. Select Cover | Flashings from the main menu. Set the Valley, Fascia and Gutter to be the appropriate flashing, and make sure the others are set to None.



As previously mentioned, we could modify our allowances by selecting on the Allowances button, but we will leave them as they are. To generate the Flashing List click the Generate button.



Detailed Costing and Reports

Costing

From the main menu, select Costing | Supply-Install. This creates a 2 page report summarizing all the materials and labour for the job being quoted.

Supply and install quote : No-Name Page 1 of 2							
Category	Supplier	Description	Qty	Rate	SubTotal	Discount %	Total
Roof Tiles	Henry Rollins	Hacienda,Swiss terracotta	2797.00	1.25	3496.25	0	3496.25
Ridge Tiles	Henry Rollins	Hacienda,Swiss terracotta	174.00	2.20	382.80	0	382.80
Rake Tiles	Henry Rollins	Hacienda,Swiss terracotta	0.00	3.20	0.00	0	0.00
Hip Start	Henry Rollins	Hacienda,Swiss terracotta	2.00	2.00	4.00	0	4.00
Apex Tiles	Henry Rollins	Hacienda,Swiss terracotta	2.00	4.00	8.00	0	8.00
Underlay			32.00	2.00	64.00	0	64.00
Purlin		Timber purlin 1x5	938.57	0.70	657.00	0	657.00
Cartage			2971.00	0.00	0.00	0	0.00
Valley	HRRoofing	HRV0034,HR Valley, ZINCALUME @ 15'	6.00	3.20	19.20	0	19.20
Fascia	HRRoofing	HRF0544,HR Fascia, ZINCALUME @ 18'	30.00	3.95	118.50	0	118.50
Labor subtotal				4129.00	Material subtotal		5343.79
Labor markup				10.00	Material markup		15.00
Labor total				4541.90	Material total		6145.35
Sales tax				1068.73	Job total		11755.98

Notes Re-Calc Save Load Print Misc-Item Fasteners Add-Lineitem
 Cancel ExportCSV ExportGRIM Next-Page Ok

Printing the Reports

Select the Print button from the Supply and Install dialog. The program will ask you to select a database and model to write, give the file a database name (usually the builder) and a model name (usually the address). After the database has been saved, select the reports you wish to print.

Printing the Drawings

Select Drawings from the main menu, then select from the list which drawings to print.