

EJMProjectX overview

EJMProjectX has a similar look-and-feel as Microsoft Office products:

- The ribbon changes according to the task at hand: Estimating, Certificates, Subcontractor, Planning/Schedule
- Reports can be sent by e-mail as PDF attachments. Underlying data can be exported to Excel

The screenshot shows the EJMProjectX software interface. At the top is a ribbon with various tabs: Project, Folders, Licence, Password, Project database, Utilities, and Own report. Below the ribbon is the 'Project Menu' which includes options like 'Register or Edit', 'Create from EJMProject', 'List', 'Delete', 'Append from EJMProject', 'Import from CCS', 'Create & edit', 'Select', 'Request Licence', 'Change Password', 'Register', 'Select', 'Compact & Repair', 'Tables', 'Font attrib', 'Design', and 'Delete'.

The main dashboard displays the following information:

- Version date:** 27 April 2020
- Copyright:** (c) 1982-2020 by EMWIN Systems (Pty) Ltd
- Current project:** 0001 Stoor
- Current project path:** C:\EJMProjectX\
- Current project database:** ProjekX1.accdb
- Path to CSV import and export:** C:\EJMProjectX\
- Link to accounting:** C:\EJMProjectX\
- Slot number:** 1
- Company name:** EMWIN Systems (Pty) Ltd
- Selection on Slot Number:** [Dropdown]
- Selection on Project Number:** [Dropdown]
- Days remaining:** 48
- Support:** Office telephone: 011 396 1809 / 3561, Alida: 084 547 0423, Lana: 082 494 5069, Ernst: 082 787 6892
- Buttons:** Request Licence, Download update, EJM Teamviewer support

At the bottom, there are four icons representing different modules: Estimate, Subcontractors, Schedule, and Certificate.

Estimate overview

Resource library

- The estimate is done in terms of resources
- Costs are captured against resources in the accounting and sub-systems – compared in the Variance Report.
- There are 9 major headings such as P&G, Plant, Labour, Material, Subcontractors.
- Every nine major headings can have up to 26 subheadings numbered A to Z
- Resources are entered under the subheadings, e.g. 3B for Artisan and given a unique code such as 3B0010

1 P&G	2 Plant	3 Labour	4 Material	5 Material	6 Pipes	7Roads	8 Subby	9 Provision
1A Establish 1B Running	2A Scaffold 2B Vehicles 2C Small 2D Fuel Oil 2G Concrete 2I Loaders 2J Compress 2K Tractor 2P Excavator	3A Supervise 3B Artisan 3C Operator 3D Skilled	4A Reinforce 4B Aggregates 4C Brick, block 4E Window,dr 4G Plumbing 4H Waterprf 4I Ceiling 4K Ironmng	5A Cement 5B Additives 5C Readymix 5D Shuttering 5E GeoTextile 5F Fasteners 5G Box	6A uPVC 6B mPVC 6C PVC 6D HDPE 6E Polyprop 6G SolilDrain 6N Channels 6O OG pipe	7A Stabilise 7B Bitumen 7C Signs 7D Gabions 7E Guardrail	8A Lab. only 8B Supply,Fit	9A Provision

Example of resources:

Code	Description	Unit	Default Rate	Rate's Date
3B	Labour / Artisans			
3B0010	Carpenter	Hour	50.00	2019-12-18
3B0020	Bricklayer	Hour	50.00	2019-12-18
3D	Labour / Skilled			
3D0010	Skilled	Hour	40.00	2019-12-18
3D0020	Steelfixer	Hour	40.00	2019-12-18

[Click here to download](#) sections from a Housing, Building and Civils resource library.

Cost centres

- Cost centres is a way to link bill of quantity (BoQ) items together
- All BoQ items to do with Earthworks will be assigned to cost centre C and all to do with concrete to F
- Together with the Project and Resource codes, Cost centres are also used when capturing costs in the Costing & Accounting system as well as the Payroll and Tool & Equipment that feeds into the cost ledger.
- Number refers to an internally generated number. Code can be changed and is used in the assigning and report. It must be unique. Accounting refers to the cost centre's code in the accounting system

Number	Code	Description	Accounting
1	A	PRELIMINARY & GEN	A
2	B	SITE & DEMOLITION	B
3	C	EARTHWORKS	C
4	D	FORMWORK & JOINTS	D
5	E	REINFORCEMENT	E
6	F	CONCRETE & WATERPRF	F
7	G	BRICKWORK	G
9	I	PLASTERING	I
10	J	CARPENTRY AND JOINER	J
11	K	ROOFING	K
12	L	CEILING & PARTITION	L
13	M	PLUMBING & DRAINAGE	M
14	N	IRONMONGERY	N
15	O	WINDOWS AND DOORS	O

MasterBill

- The MasterBill a standard list of recipes that the estimator builds up to rapidly price a new Bill of Quantities.
- In its build-up it can consist of two or more resources and or MasterBills with a lower code (use MasterBill A1001 in pricing MasterBill B1001 but not vice versa.)
- A MasterBill can used as it is if the target bill describes the same outcome as an associated MasterBill - e.g. If there is a BoQ item that calls for the excavation in soft material per m3 and there is a MasterBill items B1001 that has been priced to do it, pricing of the target BoQ item becomes linking and copying from the MasterBill item B1001 to the target item
- In pricing a MasterBill, any resource can be used and any MasterBill item lower down (towards the base of the pyramid)

Build up more complex MasterBills. MasterBill's can use resources and other Masterbills lower in the pyramid.

Mortar (G00020) consisting of resources sand (4B3010) cement (5A0030), MasterBills Mixing Team (@Ht070) and Concrete Mixer (@PC019) can be used in a one-brick wall (G42039)

MASTERBILL (hierarchical with increasing complexity from @ to Z)

MasterBill Items

In building up a MasterBill you usually start with the basic building blocks/ assemblies that will be used in more complex build-ups later

MasterBill	Description	Unit	Rate
@HT	LABOUR TEAMS		
@HT050	Excavation team 1 + 4 unskilled	Day	1 170.00
@HT060	Concrete Team 2 + 6 unskilled	Day	2 070.00
@HT110	Carpentry Team 1 + 2 (small boxes, slab edges, columns, stairs)	Day	1 170.00
@HT150	Pipe laying Team 1 + 3	Day	1 440.00
@HT160	Brick laying team 1 + 1	Day	810.00
@HT170	Brick laying Team 1 + 2	Day	1 170.00
@HT200	Kerb laying Team 1 + 3	Day	1 440.00
@HT210	Plaster team 1 + 2	Day	1 170.00
@HT220	Painting team 1 + 2	Day	1 170.00
@P	PLANT, EQUIPMENT & TOOLS CLUSTERS		
@PB	BACKHOE/ LOADERS		
@PB010	Backhoe Loader:2 X D: 7-8 t: (40Kw)	Hour	435.00
@PB020	Backhoe Loader:4*4 D: 7-8 t: (50Kw)	Hour	437.91
@PC	CONCRETE EQUIPMENT		
@PC030	Con Mixer : Diesel/Petrol : 400 l w/o labour	Day	2 030.00
@PC110	Con Trowel/Power Float: Walk Behind	Day	380.80
@PC125	ConCrete Vibrators: Diesel/Petrol Drive plus poker w/o labour	Day	380.80
@PC130	Concrete Saw:Manual Propelled 9.5 kW/13HP w/o labour	Day	417.50
@PD	BULLDOZERS		
@PD010	Bdozer :17-20t125kW: Cat D6	Hour	937.99
@PD030	Bdozer :30-35 t:200W:CatD9	Hour	1 395.18
@PE	EXCAVATORS & LOADERS		
@PE010	Traxc:25t (120kW) Cat963	Hour	905.11
@PE040	Traxc:35t rock bucket (160kW) Cat330	Hour	1 109.00

These are then used in more complex MasterBill items:

MasterBill	Description	Unit	Rate
C000	Trench excavation		
C00010	Excavate trench (excavator) - intermediate material. Trim	M ³	55.38
C00020	Excavate trench (TLB) - soft. Hand trimming	M ³	54.00
C00030	Excavate trench (hand) 2.4m ³ /day/worker	M ³	93.75
C001	Trench bedding		
C00110	Bedding with material from trench	M ³	97.29
C00120	Bedding with material from commercial sources	M ³	422.29
C002	Trench backfill		
C00230	Backfill by hand	M ³	64.86
C00240	Backfilling from excavations compact to 90% Mod AASHTO	M ³	69.52

[Click here to download](#) for items from a Housing, Building and Civils MasterBill.

Pricing the MasterBill

The following demonstrates the concept of MasterBills within MasterBills

Create a MasterBill for the wet rate of a TLB

MasterBill code: Backhoe Loader:2 X D: 7-8 t: (40Kw)		Item:	Click on the variable to insert it:				
0P8010		Unit: Hour	Global variable	Add, edit			
			Local variable	Add, edit			
Code	Type	Description	Unit	Rate	- Quantity formula -	Quantity	Amount
0P8010	R	Backhoe Loader:2 X D: 7-8 t: Cal 426	Hour	230.00		1.000	230.00
2D0010	R	Diesel	Liter	15.50		10.000	165.00
3C0040	R	Operator	Hour	40.00		1.000	40.00
*				0.00		0.000	0.00
						435.00	
						1.00	435.00

Use the previous MasterBill item in a MasterBill item to price excavation

MasterBill code: Excavate trench (TLB) - soft. Hand trimming		Item:	Click on the variable to insert it:				
C00020		Unit: M³	Global variable	Add, edit			
			Local variable	Add, edit			
Code	Type	Description	Unit	Rate	- Quantity formula -	Quantity	Amount
0P8010	M	Backhoe Loader:2 X D: 7-8 t: (40Kw)	Hour	435.00	1.3/20 TLB with labour to him	1.000	435.00
3F0010	R	Section leader	Hour	30.00		1.000	30.00
3G0030	R	Labour - casual	Hour	25.00		3.000	75.00
*				0.00		0.000	0.00
						540.00	
						10.00	54.00

Similarly, create a MasterBill item to load and cart away

Masterbill code: Load and cart away spoil, dump		Item:	Click on the variable to insert it:				
B20015		Unit: M³	Global variable	Add, edit			
			Local variable	Add, edit			
Code	Type	Description	Unit	Rate	- Quantity formula -	Quantity	Amount
0P8010	M	Backhoe Loader:2 X D: 7-8 t: (40Kw)	Hour	435.00	1.3/20 * 30% bulking. Load 20m³/hour	0.065	28.27
0P1020	M	Truck: Tipper: 5 m³	Day	3 310.00	2*1.3/9/20 Two tippers	0.014	47.81
4B2110	R	Fee to dump spoil	M³	55.00		1.300	71.50
*				0.00		0.000	0.00
						147.59	
						1.00	147.59

MasterBill to backfill by hand:

Masterbill code: Backfill by hand		Item:	Click on the variable to insert it:				
C00230		Unit: M³	Global variable	Add, edit			
			Local variable	Add, edit			
Code	Type	Description	Unit	Rate	- Quantity formula -	Quantity	Amount
0P8010	R	Section leader	Hour	30.00	[GhvDsp]	9.000	270.00
3G0030	R	Labour - casual	Hour	25.00	[GhvDsp]*3	27.000	675.00
0P1020	M	Plate compactor/Wacker	Day	500.36	2	2.000	1 000.72
*				0.00		0.000	0.00
						1 945.72	
						30.00	64.86

Use previous MasterBills lower in the hierarchy to create this MasterBill.

Masterbill code: Trench 450mm wide upto 1m deep excavate, backfill dispose - 1500 pipe		Item:	Click on the variable to insert it:				
C00510		Unit: M	Global variable	Add, edit			
			Local variable	Add, edit			
Code	Type	Description	Unit	Rate	- Quantity formula -	Quantity	Amount
0P8010	M	Excavate trench (TLB) - soft. Hand trimming	M³	54.00	[L09]	0.495	26.73
C00230	M	Backfill by hand	M³	64.86	[L09] - [L10]	0.272	17.66
B20015	M	Load and cart away spoil, dump	M³	147.59	[L10]	0.223	32.87
*				0.00		0.000	0.00
						77.26	
						1.00	77.26

Local Variables (applies to only this MasterBill item)

Local var	Note	Value/ formula	Value
L01	Pipe diameter (mm)	150	150.000
L02	Pipe radius (M)	[L01]/2/1000	0.075
L03	Pipe volume	[Gph] * [L02] * [L02]	0.018
L04	Bedding depth floor (0.15)		0.150
L05	Bedding depth over (0.15)		0.150
L06	Width of excavation (0.45)		0.450
L07	Overbreak factor	1.1	1.100
L08	Trench depth (M)	1	1.000
L09	Excavation volume	[L06] * [L07] * [L08]	0.495
L10	Spoil width * (select ([L06] * ([L02] * 2) + [L02])		0.223

P&G	Plant	Labour	Material	Fastener/Sundry	Pipes	Roads	Subby	Prov sum
0.000	39.761	21.575	15.927	0.000	0.000	0.000	0.000	0.000

Note the use of Local Variables. A Local Variable only applies to this MasterBill item.

In this case, variations in pipe diameter, depth and width of the excavation can be adjusted

A more complex MasterBill item: pricing a window with local and global variables:

In this example of pricing a 600 by 600 aluminium window, we use both local and global variables

Local variables are only applicable to this item

The advantage of using a local variable is that you can quickly create a new MasterBill by copying the price-make-up of a previous MasterBill and then change the values of the local variables in the new item e.g. a window of 600 by 900

Global variables values apply to the while project but can differ from project to project.

In this example, it is primarily being used to specify the type of wall finishes as it impacts on plastering, painting, lintels etcetera.

Code	Type	Description	Unit	Rate	- Quantity formula -	Quantity	Amount
030210		Aluminium window 600w 600h	ea	515.00	1	1.000	515.00
000010	M	Align and fix window frame to wall	ea	61.00	1	1.000	61.00
4C1010	R	Concrete Lintel 100mm x 0.9m	Ea	37.00	[GIntClay] * at least 1 lintel	1.000	37.00
4C1010	R	Concrete Lintel 100mm x 0.9m	Ea	37.00	[GXClay] * Additional lintel if plastered outside	1.000	37.00
130050	M	Plaster & paint not exceeding 150mm wide vertical	M	36.17	2 * [Lheight] * internal sides of window	1.200	43.40
140040	M	Plaster & paint soff of window opening n.e. 150mm x M	M	52.62	[Lwidth] * Internal soffit	0.600	31.57
140030	M	Plaster & paint not exceeding 150mm wide window c/M	M	30.68	[Lwidth] * Plaster internal window cill	0.600	18.41
590170	M	Internal lasso cill	M	135.61	[GIntCill] * [Lwidth]	0.600	81.37
130050	M	Plaster & paint not exceeding 150mm wide vertical	M	36.17	[GXPlast] * 2 * [Lheight] * External sides of window	1.200	43.40
140040	M	Plaster & paint soff of window opening n.e. 150mm x M	M	52.62	[GXPlast] * [Lwidth] * External soffit	0.600	31.57
140030	M	Plaster & paint not exceeding 150mm wide window c/M	M	30.68	[GXPlast] * [Lwidth] * Plaster external window cill	0.600	18.41
140020	M	Plaster external band 75mm wide around windows	M	40.96	[GXBandW] * (2 * ([Lwidth] + [Lheight]))	2.400	98.31
9A0290	R	L/D subby Fix curtain track	M	24.75	[Lwidth]	0.600	14.85
4K5030	R	Curtain track 1.27m	NO	246.24	1	1.000	246.24
100020	M	Waterproof window or door along perimeter	M	10.00	2 * ([Lwidth] + [Lheight])	2.400	24.00
				0.00		0.000	0.00

Production / 1 1.00

1 301.53
1 301.53

Select on code

PGC 0.000 Plant 2.700 Labour 327.889 Material/Fastener/Sundry 924.728 31.363 Pipes 0.000 Roads 0.000 Subby 14.850 Prov sum 0.000

Global Variables (applies to all ite...

Global var.	Note	Value/ formula	Value
GHrDay	Work hour per day	9	9.000
GXClay	1 Ext Claybrick 0 no	1	1.000
GXFBS	1 Ext FS 0 no	0	0.000
GXMaxi	1 Ext Maxi 0 no	0	0.000
GXBlock	1 Ext block 0 no	0	0.000
GXBag	1 Ext bagging 0 no	0	0.000
GXPlast	1 Ext plaster 0	1	1.000
GXBandW	1 Band window 0	1	1.000
GIntClay	1 Int clay	1	1.000
GIntMaxi	1 Int Maxi	0	0.000
GIntBag	1 Internal bagging	0	0.000
GIntPlast	1 Internal plaster	1	1.000
GIntCill	1 Internal Cill	1	1.000
GXCill	1 External cill BOE	1	1.000
GSMix	1 Site mix	1	1.000
GValPri	Value of project	0	0.000
Gfoam	Foam walling	0	0.000
GValCon	Rather use local varia	0	0.000
Gphi	Phi	22/7	3.143
Gvp	Value project	1000000	1 000 000.000

Local Variables (applies to only this MasterBill Item)

Local var	Note	Value/ formula	Value
Lwidth		0.600	0.600
Lheight		0.600	0.600
Larea		[Lwidth] * [Lheight]	0.360
*L		0	0.000

Importing the Bill of Quantities

Import the Bill of Quantities from a file such as Excell or WinQs

If you import from Excel, match the columns in the Excel sheet with the fields in the Bill

Pricing the Bill of Quantities using the MasterBill

In the combo box, MCopy, select and click on the MasterBill item that is the closest to the target BoQ item. The rate build-up will now be copied to the item. By double-click on the cost rate, you can change the rate build up without affecting the MasterBill or any other item

Seq.	Item	MCpy	I/Copy	Lvl	Description	Unit	BillQty
39.00	B34.01			2	Pavement layers constructed from gravel taken from		
40.00		C43060		5	(a) Fill (unstabilized gravel) compacted to: (i) 93% of	m ³	10 000.00
41.00		C43060	42.00	5	(b) Gravel Selected C4 (stabilized material) compacted	m ³	2 500.00
42.00		Y0R210		5	(d) Gravel Subbase C4 (Stabilized material) compacted	m ³	2 000.00
43.00	34.10	Y0R310	42.00	5	(f) Gravel base C3 (Stabilized material) compacted to:	m ³	1 500.00
44.00		MBLCode			ShortDescr	Unit	TotalCost
45.00		Y0R310			Crusher run 150mm G2 grader team	M ³	745.88
46.00	34.11	Y0R315			Crusher run by hand 100mm G2	M ³	806.57
47.00	B34.14	Y0R320			Crusher run by hand 100mm G4	M ³	555.68
		Y0R325			Crusher run by hand 150mm G2	M ³	796.57

Pricing from plan – prompt list approach

With this approach, you enter the basic dimensions and parameters of the house such as foundation length, wall height, type of walls, number and type of windows and doors etcetera.

Based on this the nett wall area is calculated.

It then goes through a list of prompts to select on a high level what goes into the building

There are two type of prompt items:

1. Independent items

These are items such as windows, doors, light fittings. They are not dependant on other items but can have an influence on other (dependant) items such as wall area

Class	Prompt	Prompt description	T	UNIT	Rate	Displace external wall area	Prompt memo	Displace
c3	c3200	Aluminium windows 600mm wide	C		0.00	0.00		
c3	c3210	Aluminium window 600w 600h	C	ea	52950170443	0.36		
c3	c3220	Aluminium window 600w 900h						
c3	c3230	Aluminium window 600w 1200h						
c3	c3240	Aluminium window 600w 1500h						
c3	c3250	Aluminium window 600w 1800h						
c3	c3300	Aluminium windows 900mm wide						
c3	c3310	Aluminium window 900w 600h						
c3	c3320	Aluminium window 900w 900h						
c3	c3330	Aluminium window 900w 1200h						
c3	c3340	Aluminium window 900w 1500h						
c3	c3350	Aluminium window 900w 1800h						
c3	c3400	Aluminium windows 1200mm wide						
c3	c3410	Aluminium window 1200w 600h						
c3	c3420	Aluminium window 1200w 900h						

MBL Code	Description	Unit	Rate	Qty	Amount	Note
O30210	Aluminium window 600w 600h	ea	1301.53	1	1301.53	
*			0.00	1	0.00	

Code	Type	Description	Unit	Rate	Quantity formula	Quantity	Amount	Global var.	Note	Value
O30210	R	Aluminium window 600w 600h	ea	515.00	1	1.000	515.00	G43110	1 Ext Claybrick 0 no	1
O00010	M	Align and fix window frame to wall	ea	61.00	1	1.000	61.00	G43110	1 Ext FS 0 no	0
4C1010	R	Concrete lintel 100mm x 0.9m	Ea	37.00	[G43110] * at least 1 lintel	1.000	37.00	G43110	1 Ext Maxi 0 no	0
4C1010	R	Concrete lintel 100mm x 0.9m	Ea	37.00	[G43110] * Additional lintel if plastered outside	1.000	37.00	G43110	1 Ext block 0 no	0
I30050	M	Plaster & paint not exceeding 150mm wide vertical	M	36.17	2 * [Lheight] * internal sides of window	1.200	43.40	G43110	1 Ext bagging 0 no	0
I40040	M	Plaster & paint soffit of window opening n.e. 150mm	M	52.62	[Lwidth] * internal soffit	0.600	31.57	G43110	1 Ext plaster 0	1
I40030	M	Plaster & paint not exceeding 150mm wide window	M	30.68	[Lwidth] * Plaster internal window sill	0.600	18.41	G43110	1 Band window 0	1
G90170	M	Internal brace sill	M	135.61	[G43110] * 1 Lwidth	0.600	81.37			

This is an example of an independent item (600*600 aluminium window) that will have an influence on the external wall area (displaces 0.36 M2 external wall). It does not use any system variables. It triggers MasterBill O30210

2. Dependant items

MBL Code	Description	Unit	Rate	Qty	Amount	Note
G43110	One claybrick wall in super structure incl wi	M²	427.02	1	427.02	
I30020	18mm internal plaster to vertical brick surfac	M²	89.41	1	89.41	
I40010	18mm external plaster to vertical brick surfa	M²	96.18	1	96.18	
R10020	Undercoat and 2 coats pva on external pla	M²	55.84	1	55.84	
R20020	Undercoat and 2 coats pva on internal plas	M²	49.08	1	49.08	
*			0.00	1	0.00	
Total:					717.52	

The quantity depends on the calculated wall area from the basic dimensions minus external openings (variable 8)

It also triggers MasterBill items to build, plaster and paint the wall

Using the prompt list

You can take off your quantities on this [take-off](#) sheet and then enter it into the program

Basic dimensions

Basic dimensions		Independant prompt items	Dependant prompt items																																												
Extended description of project		Global Variables																																													
MRBM design, clay bricks, plastered and painted inside and outside		<table border="1"> <thead> <tr> <th>Global var.</th> <th>Note</th> <th>Value/ formula</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>GHrDay</td> <td>Work hour per day</td> <td>9</td> <td>9.000</td> </tr> <tr> <td>GXClay</td> <td>1 Ext Claybrick 0 no</td> <td>1</td> <td>1.000</td> </tr> <tr> <td>GXFBS</td> <td>1 Ext FS 0 no</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>GXMaxi</td> <td>1 Ext Maxi 0 no</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>GXBlock</td> <td>1 Ext block 0 no</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>GXBag</td> <td>1 Ext bagging 0 no</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>GXPlast</td> <td>1 Ext plaster 0</td> <td>1</td> <td>1.000</td> </tr> <tr> <td>GXBandW</td> <td>1 Band window 0</td> <td>1</td> <td>1.000</td> </tr> <tr> <td>GIntClay</td> <td>1 Int clay</td> <td>1</td> <td>1.000</td> </tr> <tr> <td>GIntMaxi</td> <td>1 Int Maxi</td> <td>0</td> <td>0.000</td> </tr> </tbody> </table>		Global var.	Note	Value/ formula	Value	GHrDay	Work hour per day	9	9.000	GXClay	1 Ext Claybrick 0 no	1	1.000	GXFBS	1 Ext FS 0 no	0	0.000	GXMaxi	1 Ext Maxi 0 no	0	0.000	GXBlock	1 Ext block 0 no	0	0.000	GXBag	1 Ext bagging 0 no	0	0.000	GXPlast	1 Ext plaster 0	1	1.000	GXBandW	1 Band window 0	1	1.000	GIntClay	1 Int clay	1	1.000	GIntMaxi	1 Int Maxi	0	0.000
Global var.	Note	Value/ formula	Value																																												
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GIntClay	1 Int clay	1	1.000																																												
GIntMaxi	1 Int Maxi	0	0.000																																												
Stand area:	450.00	Total stand area used for site clearing calculation.																																													
Beamfill length	58.05	The total length of the external walls on which the rafters rest.																																													
Gable length	0.00	The total length of the wall including the triangular portion between intersecting roof pitches.																																													
House area	140.93	(0.5 * Beamfill_length x Gable_length) Adjust if not square																																													
External foundation (m)	58.05	Beamfill length + Gable length																																													
Internal foundation (m)	32.45	Total length of internal foundations																																													
Internal wall length	32.45	Defaults to Internal foundation measurement																																													
Average height to floor	0.15	Height from top of foundation to finished floor level.																																													
Wall height	2.85	Height of wall from floor level to under roof.																																													
% Pitch of roof	25.00	Enter 30 for 30% roof pitch.																																													
<input type="button" value="Recalculate pricelines based on Global Variables"/>		<input type="button" value="Calculate variables based on dimensions on this page"/>																																													

Select independant prompt items

Independant prompt items		These items do not depend on other items but might have an influence on dependant prompt items (e.g. windows displacing walls.)	
Select prompt class:	<input type="text" value="c3"/>		
Prompt Code	Desc	Unit	Quantity
	c3 Aluminium windows		
	c4 External steel door & frame	Day	1.000
	c5 External timber door in steel frame	Panel	10.000
	c6 External timber door in timber frame	M2	50.000
	c7 External aluminium door	ea	6.000
	c8 Garage doors	ea	2.000
	c9 External openings		
	d1 Internal steel door & frame		
	d2 Internal timber door in steel frame		

Select dependant prompt items

Dependant prompt items		These items might depend on the independant item previously selected (e.g. windows displacing wall areas)	
Select prompt class:	<input type="text"/>	<input type="button" value="Reset calculated variables"/>	
System Variables:	6. Ext w/a m2	0.00	12. Wall height m
1. Stand m2	7. Int w/a m2	0.00	13. Ext fnd m2
2. House m2	8. Bal ext w m2	0.00	14. Int fnd m2
3: (1) - (2) m2	9. Bal int w m2	0.00	15. Bal ext fnd m2
4. Ext. found r	10. Bal floor m2	0.00	16. Bal int fnd m2
5. Int. found m	11. Height to floo	0.00	17. Nett fill m3
Ext. openings	Int. openings	0.00	18. -con int fn m3
			19. Net flr m2
			20. Bal net flr m2
			21. Beamfill m
			22. Gable m
			23. % pitch roof
			24. Int wall m
Prompt Code	Description	Unit	Quantity Depend
n1010	Excavate 600x150mm thickened edge, concrete, rebar	M	58.050 4
p1010	Allow for imported fill u/surface bed 200mm thick	M2	10.000 17
p2040	85mm concrete surface bed, ant poison, USB, mesh, float	M2	124.592 19
p2060	Thickening of slab under internal walls 400w 250d	M	32.450 5
p3020	Ceramic floor tiles on adhesive	M2	124.592 20
q1010	230mm brick wall in super plastered & painted both sides	M2	136.189 8
<input type="button" value="View take-off"/> <input type="button" value="Masterbill items selected"/> <input type="button" value="Create"/>			

Once you have selected the dependant items, click on [View take-off](#)

Click on Create to create a Bill of Quantities according to the MasterBill items that were triggered

Analysing the Bill of Quantities

Once you have priced the BoQ, click on Calculate to display the resources used. You can edit the rates as they apply to the project and then click Update to update all the calculations based on these rates.

Update estimate Update	Suppliers Suppliers	Bill quantity Resource usage	Cum quantity Write back	to Main Library Write back	Insert Global values Utilities
---------------------------	------------------------	---------------------------------	----------------------------	-------------------------------	-----------------------------------

>>	Project Menu	Estimate for Project 0001 House MRBM 140m2	Resources used in Project
----	--------------	--	---------------------------

S	Code	Description	Quantity	PackSize	Unit	Rate
3D	3D0020	Steelfixer	27.15		1 Hour	40.00
3D	3D0060	Bricklayer	365.99		1 Hour	50.00
3F	3F0010	Section leader	20.86		1 Hour	40.00
3F	3F0020	Semi-skilled	1314.27		1 Hour	40.00
3G	3G0000	Unskilled	19.05		1 Hour	25.00
3G	3G0010	Unskilled - hour	146.90		1 Hour	25.00
3G	3G0020	General Worker	90.27		1 Hour	30.00
3G	3G0030	Labour - casual	91.38		1 Hour	25.00
4A	4A0050	Reinforce: High Tensile Bars: Y12 (0.89Kg/m)	0.81		1 Ton	13 250.00

Allowables 0001

House MRBM 140m2

Based on Billed quantity

From Cost centre 1 to 999 From Major Resource category 4 to 4

Resource	Unit	Quantity	BaseRate	FactorRate	FactorAmount
4 Material				<i>Rapid priced:</i>	0.00
4A0050 Reinforce: High Tensile Bars: Y12 (0.89Kg/m) 6.5m length	Ton	0.8	13 250.00	13 250.00	10 781.74
4A1010 Brickforce 75 x 2.8mm	20m	4.1	45.00	45.00	182.77
4A1020 Brickforce 150 x 2.8mm	ROLL	7.5	50.00	50.00	374.52
4A2060 Ref 193 Reinforce Mesh 2.4 x 6m	Sheet	10.0	368.00	368.00	3 661.63
4A3110 4mm galv. wire - 5kg roll	ROL	0.3	110.00	110.00	36.30
4A3120 Binding Wire	Kg	6.2	20.00	20.00	123.99
4A Reinforcing					15 160.95
4B2100 Imported filling	M ³	2.6	316.00	316.00	821.60
4B3010 Building sand	M ³	11.1	146.25	146.25	1 616.46
4B3030 River Sand	M ³	17.4	455.00	455.00	7 905.80
4B3070 Plaster Sand	M ³	14.8	445.00	445.00	6 594.42
4B4040 Concrete Stone 19mm	M ³	18.2	295.00	295.00	5 365.14
4B Aggregates					22 303.42
4C1010 Concrete Liner 100mm x 0.9m	Ea	4.0	37.00	37.00	148.00
4C1020 Concrete Liner 100mm x 1.2m	Ea	8.0	39.00	39.00	312.00
4C1030 Concrete Liner 100mm x 1.5m	Ea	7.0	41.00	41.00	287.00
4C1040 Concrete Liner 100mm x 1.8m	Ea	14.0	75.00	75.00	1 050.00
4C1060 Concrete Liner 100mm x 2.4m	Ea	4.0	96.00	96.00	384.00
4C6040 150*150*22mm terrazo cill	NO	88.2	11.25	11.25	992.25
4C Prefab elements					3 173.25
4D1050 Non-Facing Plaster Brick Standard (NFP)	1000	20.7	1 950.00	1 950.00	40 320.12
4D Bricks & blocks					40 320.12

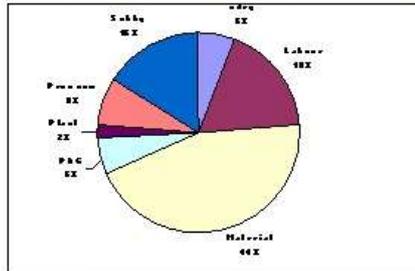
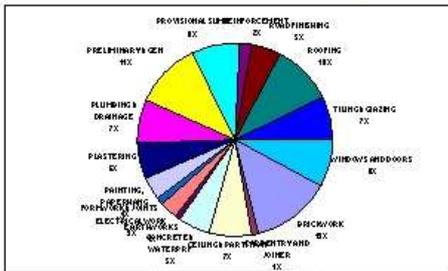
Allowables, based on Billed quantities. For the full report, [click here](#)



Cost centre Analysis Based on Billed quantity
 Project 0001 House MRBM 140m2

Currency of report: R

Cost centre	Sell	Cost	Profit	P&G	Plant	Labour	Material/stener/Sundry	Pipes	Roads	Subby	Prov sum	%Markup	%Cost
A PRELIMINARY &	95 835	83 335	12 500	40300	11235	31800						15.00%	11.42%
B SITE & DEMOLIT	1 612	1 402	210			1402						15.00%	0.19%
C EARTHWORKS	7 435	6 466	969		2666	2635	1164					14.98%	0.89%
D FORMWORK & J	8 642	7 515	1 127			4023	3492					15.00%	1.03%
E RENFORCEMEN	19 313	16 794	2 519			2190	14604					15.00%	2.30%
F CONCRETE & W	41 664	36 229	5 435		3916	6813	13514	11985				15.00%	4.96%
G BRICKWORK	112 549	97 869	14 680		770	42369	49277	9915		1538		15.00%	13.41%
I PLASTERING	46 332	40 290	6 043		1200	25275	6209	7605				15.00%	5.52%
J CARPENTRY AN	6 981	6 071	910				4134			1936		15.00%	0.83%
K ROOFING	84 693	73 646	11 047				63372	1553		8721		15.00%	10.09%
L CEILING & PART	62 589	54 424	8 165				40099			14325		15.00%	7.46%
M PLUMBING & DR	62 297	54 171	8 126				20125			34046		15.00%	7.42%
O WINDOWS AND	63 372	55 106	8 266		91	11697	40662	774		1883		15.00%	7.55%
P ELECTRICAL W	24 308	21 137	3 171							21137		15.00%	2.90%
Q TILING & GAZIN	62 065	53 969	8 096				33886	75		20008		15.00%	7.40%
R PAINTING, PAPE	35 100	30 521	4 579				14125			16396		15.00%	4.18%
S PROVISIONAL S	63 250	55 000	8 250								55000	15.00%	7.54%
Z ROAD FINISHIN	41 155	35 787	5 368									15.00%	4.90%
Grand Total:	830 192	729 731	109 461	40 300	19 878	132 064	324 671	37 828	0	0	119 990	55 000	7.54%
			15.00%	5.52%	2.72%	18.10%	44.49%	5.18%	0.00%	0.00%	16.44%	7.54%	



Seq.	Pge	Item	Description	Unit	BillQty	SellRate	CostRate	M/Up	1 P&G	2 Plant	3 Labour	4 Material	5 Fastener/ Pipes	6
28.0	Secti	n1010	SCBF High Tensile Bars: Y12mm	Ton	0.77	18358.88	15982.50	15.00%			1890.0	14072.5		
28.0	Secti	q1100	4mm dia wire roof tie bolt into brickwork 1600mm long	NO	3.00	17.38	15.10	15.00%			3.0	12.1		
28.0	Secti	p2040	Power floated finish.	M²	124.59	22.89	19.73	15.00%		3.8	12.0		3.9	
29.0	Secti	n1010	20MPa/19mm concrete in footing, cast against excavated surface	M³	19.88	1887.18	1641.03	15.00%		174.9	259.1	822.9	584.1	
30.0	Secti	p2040	250 Micron Waterproofing Sheeting under Floors	M²	124.59	13.58	11.80	15.00%			1.7	10.1		
32.0	Secti	r1010	Half claybrick wall in super- structure	M²	73.84	246.80	214.61	15.00%		2.0	88.8	112.5	11.3	
33.0	Secti	h5050	Brick on edge wall in sides to bath	M²	1.21	442.16	384.48	15.00%		2.1	259.4	111.0	11.9	
34.0	Secti	q1010	One claybrick wall in super structure incl wire ties	M²	136.19	491.08	427.02	15.00%		4.1	177.6	222.8	22.6	

Rate breakdown

Item Description	Unit	Qty	CostRate	Rate*Qty	P&G	Plant	Labour	Material/stener/Sundry	Pipes	Roads	Subby	Prov sum
q1010 One claybrick wall in super structure incl wire ties	M²	136.2	427.02	58 156		4	178	223	23			
p3020 Ceramic floor tiles on adhesive Type 1	M²	124.6	368.85	45 931				224				145
a2010 Contractor's supervision	Mont	3.0	14 345.00	43 035		3 745	10 600					
n1010 20MPa/19mm concrete in footing, cast against excavated surface	M³	19.7	1 641.03	32 300		175	259	623	584			
m101 Provisional sum by client for built in cupboards	Sum	1.0	30 000.00	30 000								30 000
c3540 Aluminium window 1500w1500h	ea	6.0	4 752.54	28 515		7	752	3 902	54			37
h5050 18mm internal plaster to vertical brick surfaces	M²	285.4	89.41	25 516		3	56	15	16			

Sorts the BoQ from the most to the least expensive item. The 80:20 principle usually applies.



0001 House MRBM 140m2

EMWIN Systems (Pty) Ltd

Item	Description	Unit	Quantity	Selling	
				Rate	Amount
CARPENTRY AND JOINERY					
s2010	19*75mm sa pine skirting	M	122.95	56.78	6 981.10
ROOFING					
s3039	Roof tiles ludlow std complete	M ²	180.00	153.72	27 669.60
s3039	Taper ridge std/granular	M	64.00	198.17	12 682.88
s3039	Roof truss type 20 26 deg 8.1m span	NO	10.00	1 901.88	19 018.80
s4010	114*38 sa pine 4.2-6.6m	M	55.00	50.39	2 771.45
s3039	38*38mm batten @ 320mm c/c to receive concrete tiles	M ²	180.00	75.01	13 501.80
s3039	Fibre cement fascia 150*12	M	55.00	164.52	9 048.60
CEILINGS AND PARTITIONS					
s1010	38*38mm sa pine brandlering @ 450mm c/c in 1 direction	M ²	124.59	70.38	8 768.82
s1010	6.4mm gypsumboard ceiling fixed to branders & h/stp	M ²	124.59	234.02	29 157.14
s1110	600x600mm metal ceiling trap door	NO	1.00	535.61	535.61
s1040	75mm gypsum coved cornice	M	122.95	100.43	12 347.87
s1100	50mm fibreglass insulation	M ²	140.93	83.58	11 779.18

Sell bill



Sell Bill of Quantity

0001 House MRBM 140m2

EMWIN Systems (Pty) Ltd

Page	Item	Description	Unit	Quantity	Rates			Amount
					Supply	Install	Total	
FORMWORK & MOVEMENT JOINTS								
Sectio	n1010	Formwork to edge of slabs 300mm high	M ²	29.0	138.35	159.39	297.74	8 641.90
REINFORCEMENT								
Sectio	p2040	Type reference 193	M ²	124.6	33.80	6.61	40.41	5 034.78
Sectio	n1010	SCBF High Tensile Bars: Y12mm	Ton	0.8	16 183.37	2 173.50	18 356.87	14 225.98
Sectio	q1100	4mm dia wire roof tie blt into brickwork 1600mm long	NO	3.0	13.92	3.45	17.37	52.11
CONCRETE & WATERPROOFING								
Sectio	p2040	Power floated finish.	M ²	124.6	8.89	13.80	22.69	2 827.00
Sectio	n1010	20MPa/19mm concrete in footing, cast against excavated surface	M ³	19.7	1 589.19	297.99	1 887.18	37 145.03
Sectio	p2040	250 Micron Waterproofing Sheetting under Floors	M ²	124.6	11.56	2.01	13.57	1 690.72

Supply and install (Electrical) lay-out

Create a quote from the Estimate

Quotation		Company data		Client data	
Project number	0001	Postal Code	6300	Company	My Huisbouers
Project Name	House MRBM 140m2	ResponsiblePerson	Ernst Marais	Address 1	Wonderboomsingel 94
Company name	EMWIN Systems (Pty) L	Phone Number	042 296 1494	Address 2	Wavecrest
Address Line1	Dr BB Keet 36	E-Mail	ernst@emwin.co.za	Address 3	Jeffreysbaai
Address Line2	Noorsekloof	Vat number	4420197560	Contact person	Deon Rathbone
Address Line3	Jeffreysbaai	VAT percentage	15.00	Phone	072 76 5983
				VAT number	3521298651
				Import Bill	
Item	Description	Unit	Rate	Quantity	Amount
	EARTHWORKS		0.00	0.000	0.00
n1010	Excavate in soft for strip footing, use as backfill. Trim excavation	M³	156.89	6.847	1 074.23
p1010	150 mm G7 selected layer compacted to 93% Mos AASHTO (Min CBR 15%)	M³	512.11	2.000	1 024.22
	FORMWORK & MOVEMENT JOINTS		0.00	0.000	0.00
n1010	Formwork to edge of slabs 300mm high	M²	297.74	29.025	8 641.90
	REINFORCEMENT		0.00	0.000	0.00
p2040	Type reference 193	M²	40.41	124.592	5 034.78
n1010	SCBF High Tensile Bars: Y12mm	Ton	18 356.88	0.775	14 225.99
q1100	4mm dia wire roof tie blt into brickwork 1600mm long	NO	17.36	3.000	52.08
	CONCRETE & WATERPROOFING		0.00	0.000	0.00
Sub total:					71 717.20
VAT:					10 757.58
Total invoice:					82 474.78

You can also create a quote from the estimate or part of it.



EMWIN Systems (Pty) Ltd
VAT Registration No. 4420197560

Dr BB Keet 36
Noorsekloof
Jeffreysbaai
6300

Quote number: 0001

Phone: 042 296 1494

Fax:

E-mail: emst@emwin.co.za

REFERENCE **Ernst Marais**

DATE **25-Mrt.-20**

TO:

Deon Rathbone
My Huisbouers
Wonderboomsingel 94
Wavecrest
Jeffreysbaai

VAT registration number: 3521298651

Telephone: 072 76 5983

Item	Description	Unit	Quantity	Rate	Amount
	EARTHWORKS				
n1010	Excavate in soft for strip footing, use as backfill. Trim excavation	M³	6.85	156.89	1 074.23
p1010	150 mm G7 selected layer compacted to 93% Mos AASHTO (Min CBR 15%)	M³	2.00	512.11	1 024.22
	FORMWORK & MOVEMENT JOINTS				
n1010	Formwork to edge of slabs 300mm high	M²	29.02	297.74	8 641.90
	REINFORCEMENT				
p2040	Type reference 193	M²	124.59	40.41	5 034.78
n1010	SCBF High Tensile Bars: Y12mm	Ton	0.77	18 356.88	14 225.99
q1100	4mm dia wire roof tie blt into brickwork 1600mm long	NO	3.00	17.36	52.08
	CONCRETE & WATERPROOFING				
p2040	Power floated finish.	M²	124.59	22.69	2 827.00
n1010	20MPa/19mm concrete in footing, cast against excavated surface	M³	19.68	1 887.18	37 145.03
p2040	250 Micron Waterproofing Sheeting under Floors	M²	124.59	13.58	1 691.97

Sub total 71 717.20

VAT: 10 757.58

Total: 82 474.78

Variance reports

This compares the Allowables from the Estimate/ Certificate interface to the actuals from the Accounting system

<i>Variance Report for Project 0001</i>			<i>House MRBM 140m2</i>						
Allowables based on Cumulative quantity			From Major category: 4 to: 4						
Cost transactions from 2000-01-01 to 2020-05-06									
		Allowable			Actual			Variance	
		Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Amount
4	Material								
			<i>Rapid priced:</i>	0.00					
4A0050	Reinforce: High Tensile Bars: Y12 Ton	0.8	13 250.00	10 781.74	1.0	13 250.00	13 250.00	-0.2	-2 468.26
4A1010	Brickforce 75 x 2.8mm 20m	4.1	45.00	182.77	4.0	45.00	180.00	0.1	2.77
4A1020	Brickforce 150 x 2.8mm ROLL	7.5	50.00	374.52	8.0	50.00	400.00	-0.5	-25.48
4A2060	Ref 193 Reinforce Mesh 2.4 x 6m Sheet	10.0	368.00	3 661.63	10.0	368.00	3 680.00		-18.37
4A3120	Binding Wire Kg	6.2	20.00	123.99	6.0	20.00	120.00	0.2	3.99
<i>Total for</i>	<i>4A Reinforcing</i>			<u>15 124.65</u>			<u>17 630.00</u>		<u>-2 505.35</u>
4B2100	Imported filling M³	3.9	316.00	1 232.40	4.0	316.00	1 264.00	-0.1	-31.60
4B3010	Building sand M³	11.0	146.25	1 611.93	12.0	146.25	1 755.00	-1.0	-143.07
4B3030	River Sand M³	17.3	455.00	7 851.38	17.0	455.00	7 735.00	0.3	116.38
4B3070	Plaster Sand M³	14.8	445.00	6 590.32				14.8	6 590.32
4B4040	Concrete Stone 19mm M³	18.2	295.00	5 365.14	19.0	295.00	5 605.00	-0.8	-239.86
<i>Total for</i>	<i>4B Aggregates</i>			<u>22 651.18</u>			<u>16 359.00</u>		<u>6 292.18</u>
4C1010	Concrete Lintel 100mm x 0.9m Ea	4.0	37.00	148.00	4.0	37.00	148.00		
4C1020	Concrete Lintel 100mm x 1.2m Ea	8.0	39.00	312.00	8.0	39.00	312.00		
4C1030	Concrete Lintel 100mm x 1.5m Ea	7.0	41.00	287.00	7.0	41.00	287.00		
4C1040	Concrete Lintel 100mm x 1.8m Ea	14.0	75.00	1 050.00	14.0	75.00	1 050.00		
4C1060	Concrete Lintel 100mm x 2.4m Ea	4.0	96.00	384.00	4.0	96.00	384.00		
4C6040	150*150*22mm terrazo cill NO	88.2	11.25	992.25	88.0	11.25	990.00	0.2	2.25
<i>Total for</i>	<i>4C Prefab elements</i>			<u>3 173.25</u>			<u>3 171.00</u>		<u>2.25</u>

<i>Cost centre Variance for project 0001</i>		<i>House MRBM 140m2</i>				
Allowables based on Cumulative quantity		Cost transactions from 2000-01-01 to 2020-05-06				
Cost centre	Description	Allowable	Cost ledger	Variance	%Act/All	%Var/All
A	PRELIMINARY & G	65 541.10	58 354.43	7 186.67	89.0	11.0
B	SITE & DEMOLITIO	1 401.82	799.92	601.90	57.1	42.9
C	EARTHWORKS	5 522.43	17 432.86	-11 910.43	315.7	-215.7
D	FORMWORK & JOI	7 514.58	0.00	7 514.58	0.0	100.0
E	REINFORCEMENT	16 748.46	18 140.80	-1 392.34	108.3	-8.3
F	CONCRETE & WAT	36 229.08	42 980.80	-6 751.72	118.6	-18.6
G	BRICKWORK	97 403.59	85 410.79	11 992.80	87.7	12.3
I	PLASTERING	40 289.62	21 708.00	18 581.62	53.9	46.1
J	CARPENTRY AND	0.00	2 499.75	-2 499.75		
K	ROOFING	73 645.77	136 579.31	-62 933.54	185.5	-85.5
O	WINDOWS AND D	55 106.22	39 534.38	15 571.84	71.7	28.3
R	PAINTING, PAPER	0.00	9 015.82	-9 015.82		
	Total:	399 402.66	432 456.86	-33 054.20	108.3	-8.3

Subcontractor overview

Subcontractor evaluation

This is used when two or more subcontractors gives competitive bids for certain parts of the project. It evaluates the bids, taking into account that not all subcontractors quoted on the same items.

Seq.	Jump	Lvl	Item	Description	Clause	Unit	BillQty	CstCn	SellRate	SubbyPack	CostRate
1.00		1		Warehouse				EXC			
2.00		2	Bill 1	Earthworks				EXC		Earthworks	
3.00	5	1.1		Clear site from vegetation, rubbish, shrub, roots e	M2		5 000.00	EXC	2.65	Earthworks	2.00
4.00	5	1.2		Excavate in earth in bulk not exceeding 2M deep	M3		1 500.00	EXC	45.08	Earthworks	40.00
7.00	5	1.5		Extra over excavation in rock (compressor)	M3		100.00	EXC	227.18	Earthworks	
8.00	5	1.6		Earth fill from excavation and compacted to 95%	M3		800.00	BFILL	36.74	Earthworks	0.07
9.00	2	Bill2		Concrete & reinforcing				CONC		Conc subby	
10.00	3	2.1		Mass concrete				CONC		Conc subby	
12.00	5	2.1.2		20MPA Concrete in blinding layer under bases.	M3		5.00	CONC	1 092.40	Conc subby	1 080.73
13.00	5	2.1.3		20MPA Concrete in surface trenches	M3		56.00	CONC	1 092.40	Conc subby	975.36

Creditors & Subcon

Number	Name
3	Acme Earthworks
1	Manny's Concrete
4	Maritz Civils
2	Moolman Grondwerke
*	(New)

Create and edit subby packages

Select

Package: Earthworks Resource:

Package: Rate must be 1

Nr.	Subcontractor number and name	Factor	Sum to spread
1.	2 Moolman Grondwerke	1.00	0.00
2.	3 Acme Earthworks	1.00	0.00
3.	4 Maritz Civils	1.00	10 000.00

Add/ Edit Resource
Add/ Edit Subby's

Register the Subby's Create Subby packages and link the Subby's that will submit rates

Seq.	Jump	Lvl	Item	Description	Clause	Unit	BillQty	CstCn	SellRate	SubbyPack
1.00		1		Warehouse				EXC		
2.00		2	Bill 1	Earthworks				EXC		Earthworks
3.00	5	1.1		Clear site from vegetation, rubbish, shrub, roots e	M2		5 000.00	EXC	2.65	Earthworks
4.00	5	1.2		Excavate in earth in bulk not exceeding 2M deep	M3		1 500.00	EXC	45.08	Earthworks
7.00	5	1.5		Extra over excavation in rock (compressor)	M3		100.00	EXC	227.18	Earthworks
8.00	5	1.6		Earth fill from excavation and compacted to 95%	M3		800.00	BFILL	36.74	Earthworks
9.00	2	Bill2		Concrete & reinforcing				CONC		Conc subby
10.00	3	2.1		Mass concrete				CONC		Conc subby
12.00	5	2.1.2		20MPA Concrete in blinding layer under bases.	M3		5.00	CONC	1 092.40	Conc subby
13.00	5	2.1.3		20MPA Concrete in surface trenches	M3		56.00	CONC	1 092.40	Conc subby

frm_SubbyPackagesAssign

Select item range:

From item: To item:

Assign to subby package:

Assign the items in the BoQ to the Subby packages



Project **0001 Stoor**
Request to quote on package **1 Earthworks**

EMWIN Systems (Pty) Ltd

Discount to apply on quoted rates:	Establishment costs:
------------------------------------	----------------------

Note: Write the rates against items with quantities; 0 against items included elsewhere; NQ if not quoting on an item

Important: please fill in the following:

Subcontractor name:
Contact name and number:

Page	Item	Description	Unit	Quantity	Rate	Amount
1	Bill 1	Earthworks				
1	1.1	Clear site from vegetation, rubbish, shrub, roots etcetera	M2	5 000.0		
1	1.2	Excavate in earth in bulk not exceeding 2M deep	M3	1 500.0		
1	1.5	Extra over excavation in rock (compressor)	M3	100.0		
1	1.6	Earth fill from excavation and compacted to 95% MOD-AASHO	M3	800.0		

Send out Request to Quote to the Subby's

Quote request

Compare quotes

Select subby

Subcontractor work packag evaluation

Project Menu
Subcontractors for Project 0001 Stoor
Select the subby package
Subcontractor rates for package Earthworks

Levi	Item	Description	Ur	Quantity	Moolman Gi	Acme Earth	Maritz Civils
2	Bill 1	Earthworks					
5	1.1	Clear site from vegetation, rubbish, shrub, roots etcetera	M2	5 000.0	2	2.1	2.15
5	1.2	Excavate in earth in bulk not exceeding 2M deep	M3	1 500.0	40	34	33
5	1.5	Extra over excavation in rock (compressor)	M3	100.0	0	190	205
5	1.6	Earth fill from excavation and compacted to 95% MOD-AA	M3	800.0		30	33

Enter the Subby's rates

Compare Subby's for package:

1 Earthworks

Page	Item	Description	Moolman Grondwerk	Acme Earthworks	Maritz Civils
1	Bill 1	Earthworks			
1	1.1	Clear site from vegetation, rubbish, shrub,	10 000	10 500	11 755
1	1.2	Excavate in earth in bulk not exceeding 2M	60 000	51 000	54 120
1	1.5	Extra over excavation in rock (compressor)		19 000	22 413
1	1.6	Earth fill from excavation and compacted to	26 400	24 000	28 864
Total:			96 400	104 500	117 152

The program will now compare quotes, taking into account items not prices (use highest of other Subby's rates) and lump sums that needs to spread.

In the next step, the successful subby is selected and its rates are entered as the cost rates in the BoQ

Edit Milestone and it's Check List

Milestone: 1 Slab

SLAB CHECK LIST

CONTRACTOR:

PER CAST INSPECTION

1. SOIL CLASSIFICATION (FROM GEOTECH)

The soil classification of the site.

2. DPC TESTS
Entire platform is cut and have be
DPC test report attached.

3. DPM
Plastic under floors is continuous

4. SHUTTERS
The shutters are level and square

5. REINFORCING
All reinforcing installed as per Er
Minimum 50mm cover to all reinfo

I Phaphama hereby certify that I hav
..... (date)

1	Slab
2	Walls
3	Roof trusses & cover
4	Beam filling
5	Plaster
6	Paint
7	Apron
8	Ceilings
9	Doors & locks
10	Electrical
11	Facia & bargeboards
12	Gutters & rainwater tar
13	Windows finishing
14	VIP Toilet
15	
16	

Select:

- This system is used in mass housing (RDP) projects to keep track of subcontractor's progress. These are for projects of usually 100 or more housing units
- The work is usually done by labour-only subcontractors
- Every housing unit consist of a number of milestones. The subby gets issued with the material associated with the milestone
- Every milestone has an associated specification and a checklist
- Once a milestone has been reached and has been signed off by the main contractor and the client's agent, the main and subcontractor is eligible for payment

Project Menu Subcontractors for Project 0001 Stoor frm_HouseAllowables

Edit Milestones and default allowables

1 Slab

Code	Description	Unit	Allowable
OPCBulk	OPC CEMENT-BULK	50Kg	10.00
CrushSanc	Crusher sand	M3	2.00
Stone	19MM CRUSHED STONE	TON	3.00
*			

Most Milestones have a material component. For L/O subby's, the material will be issued from a site store

Project Menu Subcontractors for Project 0001 Stoor frm_HouseRegister

Register and edit a house

ID House	ID number: beneficiary	Surname	FirstName	Type	Stand	Status	Subsidy	PHB_Date	Remarks	Finish
1	5803140166085	NDULUMA	FREDA THEDORA	Box Shape	580314					<input type="checkbox"/>
2	2110210218082	TYUTU	KULI MAUREEN	Box Shape	211021					<input type="checkbox"/>
3	2812010321087	NYEDI	LAYLIWE	Box Shape	281201					<input type="checkbox"/>
4	3506210306083	VUMA2ONKE	NOKULULEKILE VICTOR	Box Shape	350621					<input type="checkbox"/>
5	4005040545084	NDYALIVANA	LULAMA	Box Shape	400504					<input type="checkbox"/>

Every housing unit is registered with the beneficiary's details

Subcontractor:

ID House	ID number	Surname	Surname	StandNo	HouseT	Remarks
1	5803140166085	NDULUMA	FREDA THEDORA	580314	Box Sha	

Code	Description	Unit	Allowable	Nr issued	Extra	Reason	To whom	Signature	Issued by
OPCBulk	OPC CEMENT-BULK	50Kg	10.0						
CrushSand	Crusher sand	M3	2.0						
Stone	19MM CRUSHED STONE	TON	3.0						

Issue materials to a specific housing unit, milestone and subcontractor

IDHouse	ID_number	StandNo	Slab	Walls	Roof trusses	Beam filling	Plaster	Paint	Apron	Ceilings	Doors locks	Electrical
1	5803140166085	580314	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>							
2	2110210218882	211021	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	2812010321087	281201	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	3506210306083	350621	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	4005040545084	400504	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	5909090427086	427086	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	4207160176084	420716	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	4112120166086	411212	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Recording milestones reached

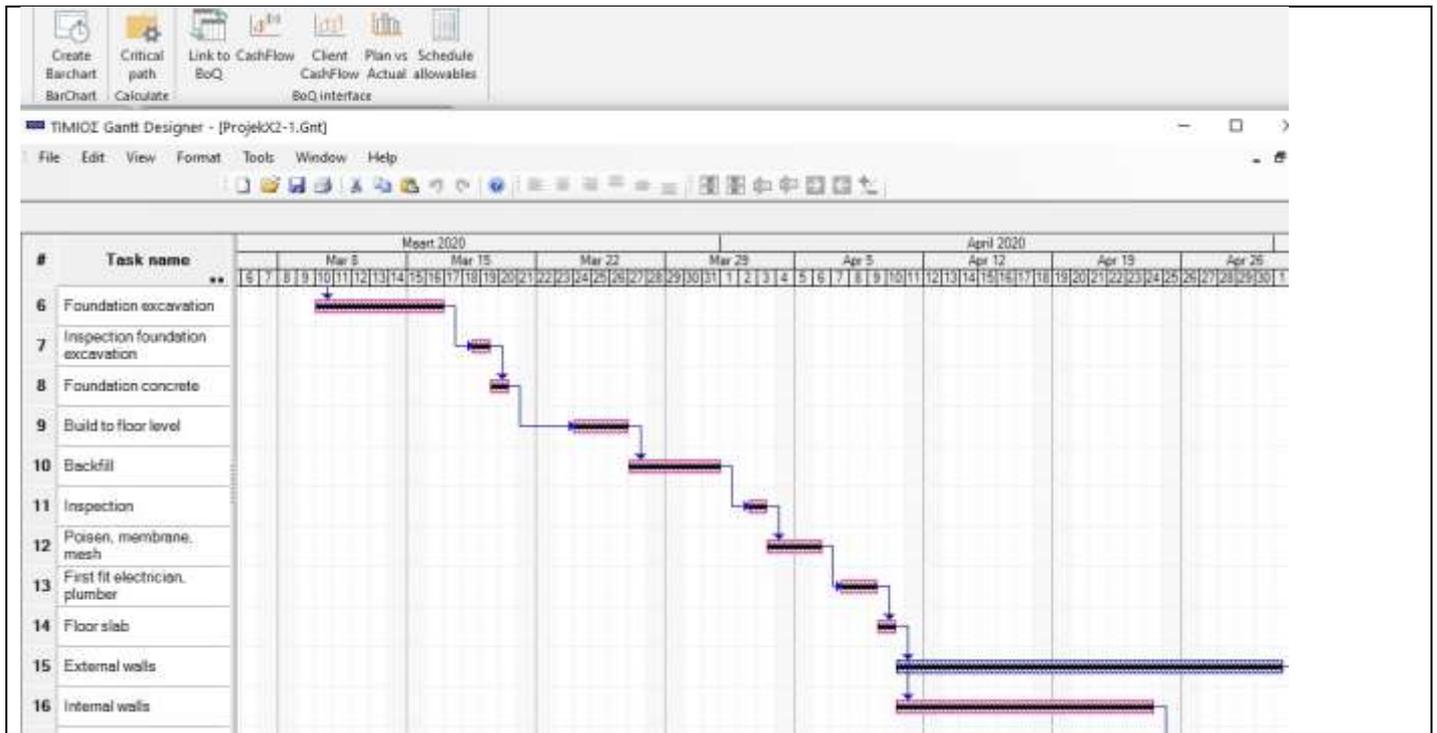
Subby Progress

Subby	EJM Account	Milestone	House ID	Stand
2 Moolman Grondwerke	1001004	1 Slab	3	281201
		1 Slab	2	211021
		1 Slab	1	580314

Number of houses at Milestones

Milestone	Number reached
1 Slab	3
2 Walls	1

Scheduling and cashflow overview

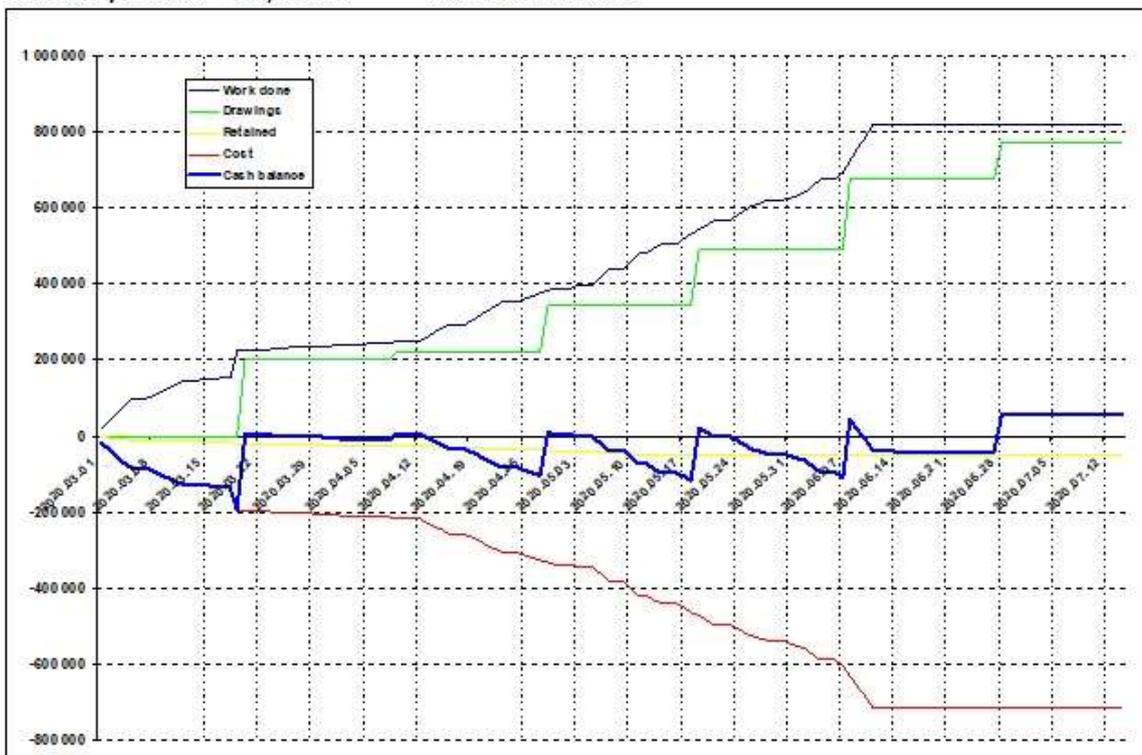


Create the Gantt chart and dependencies - similar to MS Project Progress black, Critical Path is red, non-critical blue

Linking the Bill of Quantity to the Schedule					
From BoQ	To BoQ	Link to Bar	Percent	Bar description	
3.00	9.00	1	100.00	Fixed costs	
10.00	12.00	2	100.00	Time related costs	
14.00	14.00	5	100.00	Set out house	
15.00	20.00	6	100.00	Foundation excavation	
22.00	26.00	8	100.00	Foundation concrete	
28.00	30.00	8	100.00	Foundation concrete	

- Link the Bill to the Schedule.
- A Bill of Quantity item can be allocated to more than one Bar. (e.g. concrete in slabs will be casted in three stages).

Cashflow per week: Project 0001 House MRBM 140m2



Certificate overview

With the Certificate you can certify the amount of work already done on the project by quantity, % or worksheet

- The Certificate system is interlinked with the Estimating system. Once you have created the Bill (either by importing or typing it), you can do a Certificate.
- There is a facility to do your measurements on screen by double-clicking on Cumulative Quantity. You can also use various in-built functions. Refer to the screen.
- You can also enter as a percentage completed per item or over a range of items or per work group / cost centre.
- The system also allows for variable retention, Materials on Site, Escalation and a cover page.
- Because of the link to the Estimate, one can print a report of Allowables based on the month or cumulative progress. There is also a provision for an internal quantity, should the actual progress differ from the claimed quantity.

Record progress: Cumulative, Month, Percentage or Worksheet by double-clicking on the CumQty cell of the item

In this example:

- 10% retention to a maximum of R500 000
- Thereafter, a fixed amount of R50 000

Page	Item	Description	Unit	Rate	Billed		Month		Cumulative	
					Quantity	Amount	Quantity	Amount	Quantity	Amount
		EARTHWORKS								
	n1010	Excavate in soft for strip footing, use as backfill. Trim excavation	MP	156.89	6.8	1 074.23			6.85	1 074.23
	p1010	150 mm G7 selected layer compacted to 93% Mos AASHTO (Min CBR 15%)	MP	512.11	2.0	1 024.22			3.00	1 536.33
		BRICKWORK								
	r1010	Half claybrick wall in super-structure	MP	246.80	73.8	18 224.92	36.92	9 112.46	73.84	18 224.92
	h5050	Brick on edge wall in sides to bath	MP	442.16	1.2	535.01				
	q1010	One claybrick wall in super structure incl wire ties	MP	491.08	136.2	66 879.68	68.09	33 439.84	136.19	66 879.68
	q1060	One claybrick wall in beam- fill exe 250mm n/e 300mm h	M	203.12	58.0	11 791.12	58.05	11 791.12	58.05	11 791.12

Various Certificate layouts available including Sanral

Materials on site

Class	Resource	Description	Unit	Base rate	Current rate	Quantity
4C	4C1010	Concrete Lintel 100mm x 0.9m	Ea	37.00	37.00	10.000
4C	4C1020	Concrete Lintel 100mm x 1.2m	Ea	39.00	39.00	0.000
4C	4C1030	Concrete Lintel 100mm x 1.5m	Ea	41.00	41.00	0.000
4C	4C1040	Concrete Lintel 100mm x 1.8m	Ea	75.00	75.00	2.000
4C	4C1060	Concrete Lintel 100mm x 2.4m	Ea	96.00	96.00	2.000
4C	4C6040	150*150*22mm terrazo cill	NO	11.25	11.25	0.000
4D	4D1050	Non-Facing Plaster Brick Standard (NFP)	1000	1 950.00	1 950.00	0.000
4E	4E3220	Aluminium window 600w 900h	ea	695.00	695.00	2.000
4E	4E3540	Aluminium window 1500w 1500h	ea	3 200.00	3 200.00	2.000

Record the base rate (defaults to tender rate) current price of the material and quantity

Materials on Site

Resource	Description	Unit	Current rate	Base rate	Quantity	Amount@B/rate
4C1010	Concrete Lintel 100mm x 0.9m	Ea	37.00	37.00	10.00	370.00
4C1040	Concrete Lintel 100mm x 1.8m	Ea	75.00	75.00	2.00	150.00
4C1060	Concrete Lintel 100mm x 2.4m	Ea	96.00	96.00	2.00	192.00
4E3220	Aluminium window 600w 900h	ea	695.00	695.00	2.00	1 390.00
4E3540	Aluminium window 1500w 1500h	ea	3 200.00	3 200.00	2.00	6 400.00
Total MOS at Base Rate:						8 502.00

Escalation

Materials | MOS | Escalation

Initial settings | Assign to Workgroup | Index | Sort into Workgroups | Edit work/ period | Escalation Report

Project Escalation Setting

Base date: 2020-01-01
 (H)aylett (C)ivils: C
 Factor: 1.85

By changing the Base Date, the esca periods will be reset with the Base Da month as the first period of 60. The escalation calculation will be done in relation to indices of the Base Date.

Nr	Work Group	Description	Civils split
5	Fr	Fuel	5.00
6	Fu	Fuel	5.00
1	Lc	Labour	10.00
2	Lw	Labour	10.00
4	M	Material	25.00
3	P	Plant	45.00
Total:			100

Escalation

frm_AssignEscalation

Select item range:
 From item: 31.00 To item: 37.00

Select the Escalation Work Group: 3.1

5.2	Reinforcement (supply only)
6	Brick and Block work
7	Masonry
8.1	Waterproofing
9	Non-metal roof covering
10	Carpentry and Joinery
10.1	Suspended non-metal ceiling
10.2	Resilient floor and wall coverings
11	Ironmongery

Enter base date and if it is Civil or Haylett | Assign to worlgroups (Civil: escalate or not)

Work group	Description	Base index		Current index		To date	
		2020-01-01	Prov.	2020-03-28	Prov.	Work done	Escalation
10	Carpentry and Joinery	100.000	<input type="checkbox"/>	101.000	<input type="checkbox"/>	101 681.73	864.29
10.2	Resilient floor and wall covering	100.000	<input type="checkbox"/>	101.000	<input type="checkbox"/>	29 343.67	249.42
13	Metalwork	100.000	<input type="checkbox"/>	101.000	<input type="checkbox"/>	63 372.19	538.66
2	Earthworks	100.000	<input type="checkbox"/>	101.000	<input type="checkbox"/>	300.06	2.55
27	Preliminaries	100.000	<input type="checkbox"/>	101.000	<input type="checkbox"/>	19 660.52	167.11
8.1	Waterproofing	100.000	<input type="checkbox"/>	101.000	<input type="checkbox"/>	69 461.91	590.43
Total:						283 820.08	2 412.46

Escalation report

Provisional Claim

 <p>EMWIN Systems (Pty) Ltd House MRBM 140m2 Dr BB Keet 36 Noorsekloof Jeffreysbaai 6300</p>	<p>Contact: Ernst Marais Telephone: 042 296 1494 Fax: VAT number: 4420197560</p>																																
	<p>TO: My Huisbouers Wonderboomsingel 94 Wavecrest Jeffreysbaai VAT number: 3521298651 Contact: Deon Rathbone Telephone: 072 76 5983</p>	<p>Project 0001 House MRBM 140m2</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>CERTIFICATE NUMBER:</p> <p>Woens dag, 25 Maart 2020</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>NOTE: VAT invoice to be issued as soon as details of certified amounts are received.</p> </div>																															
<table border="1"> <thead> <tr> <th>Des cription</th> <th>Month</th> <th>Previous</th> <th>Cumulative</th> </tr> </thead> <tbody> <tr> <td>Provisional Certified</td> <td>293 034.55</td> <td>175 492.47</td> <td>468 527.02</td> </tr> <tr> <td>Retention</td> <td>-29 303.45</td> <td>-17 549.25</td> <td>-46 852.70</td> </tr> <tr> <td>VAT</td> <td>39 559.67</td> <td>23 691.48</td> <td>63 251.15</td> </tr> <tr> <td>Sub total:</td> <td>303 290.77</td> <td>181 634.70</td> <td>484 925.47</td> </tr> <tr> <td><i>Less previous payments:</i></td> <td></td> <td><i>-181 634.70</i></td> <td></td> </tr> <tr> <td><i>Outstanding from previous periods:</i></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total amount now due:</td> <td>303 290.77</td> <td></td> <td></td> </tr> </tbody> </table>	Des cription	Month	Previous	Cumulative	Provisional Certified	293 034.55	175 492.47	468 527.02	Retention	-29 303.45	-17 549.25	-46 852.70	VAT	39 559.67	23 691.48	63 251.15	Sub total:	303 290.77	181 634.70	484 925.47	<i>Less previous payments:</i>		<i>-181 634.70</i>		<i>Outstanding from previous periods:</i>				Total amount now due:	303 290.77			
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