Rider Hunt

CRC Construction Innovation
BUILDING OUR FUTURE

CRC for Construction Innovation Research Conference

Gold Coast

28th to 30th July 2003

What is a quantity surveyor?

Architect gives you good news

What is a quantity surveyor?

The QS gives you the bad news

Taxi Driver and Researcher

"Oh you're the people that count bricks"

QS is a Cost Manager & Cost Planner

Brief, CBD Hotel

Hotel:	500 rooms, 5 star
Podium:	8000 m^2
Carpark:	500 cars

Cost Plan

- Basic building
- 5 Star area 95-110m2 per room Car Park 40-50m2/car
  - Hotel Range $2,200 - $3,000/m2
  - Podium Range $2,500 - $3,500/m2
  - Car Park Range $950 - $1,100/m2

- FF&E $40,000 - $75,000/Room

Cost Plan

- Time frame
- Contract Type
  - Negotiated
  - GMP
  - Tendered
- Existing site condition
- Extraordinary issues
- Industrial factors
- What else is happening in market
- Escalation
- Contingency
- Risk

Estimating

Car Park

- Measure scheme
  - Concept stage
  - Sketch plan
  - Documentation
  - Working drawing

Cost Control

Does not meet budget

- Not efficient enough 45m^2/car space
- Floor to floor height too generous
- Construction not appropriate
  - Structure
  - External walls
- Finishes too generous

What Do We Do?

Quite simply …

- **Appropriate quantification**
- **Appropriate pricing**

Quantity

Concept	GFAs on historical info
Sketch Plan	GFAs on historical measurement
Design development	Detailed measurement No details
Working drawing	Full measurement Incl. details and labours

Pricing

Concept	Historical GFA rates	Big Picture Historical
Sketch plan	Detailed global rates includes extras	Which lasts as long as subbie market thinks is appropriate
Design development	More detail	Same as above Different time frame
Working drawing	Price for today's market rates in detail from BoQ	Same as above Different time frame

Consider Risk

- Architect
- Contract type
- Market place → up or down
- Ground conditions
- Site
- Current Builders Pricing
- Contingency

Rider Hunt Cost Index

PERIOD ENDING	RHBCI SYDNEY	BUILDING MATERIALS PRICE INDEX	CPI SYDNEY
Dec 80	100.0	100.0	100.0
Dec 81	116.7	111.0	110.8
Dec 82	125.5	126.3	124.0
Dec 83	133.0	132.9	133.5
Dec 84	141.0	138.4	136.5
Dec 85	162.2	149.4	147.8
Dec 86	180.0	161.1	162.2
Dec 87	198.4	176.4	174.1
Dec 88	215.8	192.1	190.1
Dec 89	232.3	206.3	204.1
Dec 90	225.2	218.8	217.0
Dec 91	201.1	222.1	220.3
Dec 92	191.2	220.0	220.9
Dec 93	194.1	220.5	223.8
Dec 94	201.9	227.2	229.9
Dec 95	212.0	233.4	243.3
Dec 96	224.7	233.2	247.6
Dec 97	240.4	236.5	247.0
Dec 98	257.7	238.3	251.7
Dec 99	273.4	239.0	256.5
Dec 00	273.4	239.6	271.9
Jun 01	273.4	241.7	277.7
Dec 01	276.1	243.7	281.0
Mar 02	278.2	244.1	283.6
Jun 02	280.3	248.5	285.5
Sep 02	282.3	249.8	287.8
Dec 02	284.4*	251.0*	290.2*
Mar 03	286.6*	252.9*	292.6*
Jun 03	288.7*	254.8*	295.0*
Sep 03	290.8*	256.7*	297.0*
Dec 03	293.0*	258.6*	298.9*

* Denotes forecast index

Building Cost Indices

These indices reflect the change in tender levels for commercial buildings in Sydney as compared with the consumer price index and the materials used in construction. The figures take into account labour and material cost changes and market conditions.

Automated Quantities

Where are we going 2005 ➔

Concept:	?
Sketch Plan:	?
Design Development:	Potential
Working Drawing:	Yes

Pricing

Where are we going 2005 ➔ Same as today ???

Price Book

- Rawlinson
- Cordells

Quantity Surveying Firm

- Previous projects
- Main contractor
- Subcontractors
- Suppliers

Where We Are Today?

Parametric Estimating

e.g. Apartments

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RESIDENTIAL CONSTRUCTION ESTIMATE INPUT

(PROJECTS GREATER THAN 3 STORIES)

MUST ANSWER QUESTIONS 1 TO 18

Net Profit:	No feasibility	Return on Inv:	No feasibility
Total Cost:	#N/A	Cost / m2 GFA:	#N/A

1 PROJECT NAME: CRC Innovations

2 LOCATION: STATE: New South Wales — LOCATION: Sydney Suburbs

3 DATE OF ESTIMATE (dd/mm/yy): 15/Jul/05

4 CONSTRUCTION START DATE (dd/mm/yy: 15/Jul/06

5 UNIT DATA

	No	Saleable Area incl Balconies	No of Bathrooms	Area of Balconies *(OPTIONAL)*
1 Bedroom	95	80	1	
1 Bedroom				
1 Bedroom				
2 Bedroom	110	90	2	
2 Bedroom				
2 Bedroom				
3 Bedroom	20	120	2	
3 Bedroom				
3 Bedroom				
Penthouse	5	190	3	
Penthouse				
Penthouse				
Totals	230	18,950	370	2,842

6 DOES THE BUILDING HAVE PODIUM LEVEL?: Yes

ANSWER QUESTION 7

7 ASSIGN PODIUM AREAS TO THE FOLLOWING USE

Core and Circulation Should be around 15% of the total podium area

Commercial	1,700	m2
Retail		m2
Café		m2
Restaurant		m2
Units		m2
Foyers, communial	170	m2
Carparking above ground	280	m2
Core and circulation	280	m2
TOTAL AREA OF PODIUM	2,430	m2

CARPARKING ABOVE GROUND

Based on 37 m2 per car you are providing
8 Carparks above ground
You can change the area per car in Question 2

CORE AND CIRCULATION

15% core & circulation would be: 365 m2
You currently have 11.5 %

8 IS THE BUILDING A "TOWER ONLY" BEING CONSTRUCTED ON TOP OF AN EXISTING PODIUM: No

If Yes enter area of existing podium: m2

If Yes do you wish to allow for tower footings:

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RESIDENTIAL CONSTRUCTION ESTIMATE INPUT

(PROJECTS GREATER THAN 3 STORIES)

9 AREA OF SITE 2,600 m2

10 FACILITIES PROVIDED
- Pool and spa inground
- Pool and spa suspended
- Pool and spa on roof
- Sauna
- Gymnasium

11 QUICK OR DETAILED BUILDING PROFILE: Detailed

(Use Quick if you have limited or no data on floor areas and number of floors)
(Use Detailed if you have actual floor areas and number of floors)

SKIP QUESTION 12, ANSWER QUESTION 13

12 ENTER A QUICK BUILDING PROFILE

13 DETAILED TOWER PROFILE BUILDUI
GO TO DETAILED PROFILE WORKSHEET AND FILL IN DETAIL

14 DOES THE BUILDING HAVE TERRACES A' BUILDING SETBACKS

15 QUALITY OF UNITS: Medium/High

If you have penthouses you can select qualit upgrades over standard units as require

- Kitchen
- Appliances
- Sanitary Fixtures
- Tiling
- Carpet
- Air-conditioning
- $5,000 Sundries

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RESIDENTIAL CONSTRUCTION ESTIMATE INPUT

(PROJECTS GREATER THAN 3 STORIES)

16	FAÇADE SYSTEM	Painted rendered block			
	OR ENTER $ / M2				
	WALL TO FLOOR RATIO	Medium rectangular			
17	ARE UNITS AIRCONDITIONED	Central ducted system			
18	ARE FOYERS AIRCONDITIONED	Yes			

QUESTIONS 19 TO 29 ARE OPTIONAL

19	NO OF LIFTS SERVING THE BUILDING	4	OR DEFAULT	6
20	GEOTECH CONDITION OF SITE	Hard Rock	OR DEFAULT	Clay
21	FLOOR TO FLOOR HEIGHT OF TOWER	2.88 m	OR DEFAULT	3.10 m
22	FLOOR TO FLOOR HEIGHT OF PODIUM	4.00 m	OR DEFAULT	3.20 m
23	STRUCTURAL SYSTEM	Concrete Framed	OR DEFAULT	CONC FRAMED
24	QUALITY OF EXTERNAL SITE FINISH	Medium	OR DEFAULT	Medium
25	NO OF CARPARKS REQUIRED BELOW GROUND (DEFAULT IS 1 PER UNIT LESS ABOVE GROUND PARKING)	210	OR DEFAULT	222
26	NO OF SQUARE METRES PER CAR	37	OR DEFAULT	36
27	TYPE OF BALCONY ARRANGEMENT	Long - internal	OR DEFAULT	Long - Internal

28	ENTER DATA FOR DETAILED PRELIMINARIES (IF THIS QUESTION IS NOT ANSWERED PRELIMS WILL BE CALCULATED BY THE DEFAULT PERECENTAGE)	Select a Location	
		Select length of footpath gantry required	
		Select No of Tower cranes	
		Having calculated detailed preliminaries d you wish to over-ride and use the defaul percentage	

29	FREEFORM AREA Enter in description and amount of mone for any additional known cost: *(eg) Headworks, demolition of exist buildings, site contamination, work outside site boundary, footpath landscaping, façade features, etc)*	Description	Amount
		Demolition works	$2,000,000.00

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RESIDENTIAL CONSTRUCTION ESTIMATE INPUT

(PROJECTS GREATER THAN 3 STORIES)

ANSWER QUESTIONS 30 TO 32 TO PRODUCE A FEASIBILITY STUDY

30	LAND COST			
31	INTEREST RATE ON BORROWED MONEY			
32	INCOME FROM SALES			
	1 Bed units		/ m2	
	2 Bed units		/ m2	
	3 Bed units		/ m2	
	Penthouse Units		/ m2	
	Commercial		/ m2	
	Retail		/ m2	
	Café		/ m2	
	Restaurant		/ m2	
	Management Rights		/ unit	
33	DEVELOPER'S EQUITY IF OTHER THAN 30%			Answering this question is optiona
34	PROFESSIONAL FEES IF OTHER THAN 8.0%			Answering this question is optiona
35	MARKETING FEES IF OTHER THAN 4.3%			Answering this question is optiona
36	ADVANCE COMMISSION (IF ANY			Answering this question is optiona
37	COUNCIL & SUNDRY FEES IF OTHER THAN 2.0%			Answering this question is optiona
38	DEV. CONTINGENCY IF OTHER THAN 0.5%			Answering this question is optiona
39	REAL ESTATE COMMISSION IF OTHER THAN 4.0%			Answering this question is optiona

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COST SUMMARY

Project name	CRC Innovations
Location	Sydney Suburbs
Estimate Date	15/Jul/03
Commencement of Construction	15/Jul/04

Building Component	Floors	Area	Net Cost / m2	Net Cost
Foundations				$ 52,500
Basement Carpark	3	7,500	#N/A	#N/A
Podium Levels	2	2,450	#N/A	#N/A
Tower Unit Levels & plantrooms	18	23,100	#N/A	#N/A
Lifts				$ 7,960,000
External Works				#N/A
Other Additional Items				$ 2,000,000
Sub-Total				**#N/A**
Preliminaries			18.0%	#N/A
Builder's Margin			4.0%	#N/A
Contingency			3.0%	#N/A
Escalation			5.08%	#N/A
TOTAL ESTIMATE	**23**	**33,050**	**#N/A**	**#N/A**

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SPECIFICATION

Project name	**CRC Innovations**
Location	**New South Wales** **Sydney Suburbs**
Estimate Date	**15/Jul/03**
Commencement of Construction	**15/Jul/04**
Construction Estimate	**#N/A**

RESIDENTIAL TOWER COMPONENT		
No of 1 Bedroom units	95	No
No of 2 Bedroom units	110	No
No of 3 Bedroom units	20	No
No of Penthouses	5	No
Saleable area of units (incl balconies)	18,950	m2
Area of Balconies only	2,842	m2
Total GFA of unit tower only	23,100	m2
Quality of units	Medium/High	
Façade System	Painted rendered block	
Shape of floorplate	Medium rectangular	
Airconditioning of units	Central ducted system	
Foyers airconditioned	Yes	
Type of balcony arrangement	Long - internal	
No of lifts servicing building	4	No
Efficiency of unit floors	84%	
Terraces at unit setbacks	Yes	

PODIUM		
No of Podium Levels	2	No
Total GFA Podium	2,450	m2
Consisting of		
Commercial	1,700	m2
Retail	0	m2
Café	0	m2
Restaurant	0	m2
Units	0	m2
Foyers, communal	170	m2
Carparking above ground	280	m2
Core and Circulation	280	m2

BASEMENTS (BELOW GROUND)		
Total GFA of Basement	7,500	m2
No of Basements	3	No
No of carparks below ground	210	No
Square metres per car	37	m2

SITE AND FACILITIES		
Site Area	2,600	m2
Geotechnical condition of site	Hard Rock	
Quality of external site finish	Medium	
Facilities		
Inground pool and spa	No	
Suspended pool and spa	Yes	
Pool and spa on roof	No	
Sauna	No	
Gymnasium	Yes	

ADDITIONAL REQUIREMENTS OF THIS PARTICULAR PROJECT	
Demolition works	$2,000,000

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CRC Innovations
PROPOSED RESIDENTIAL DEVELOPMENT
OUTLINE FEASIBILITY STUDY

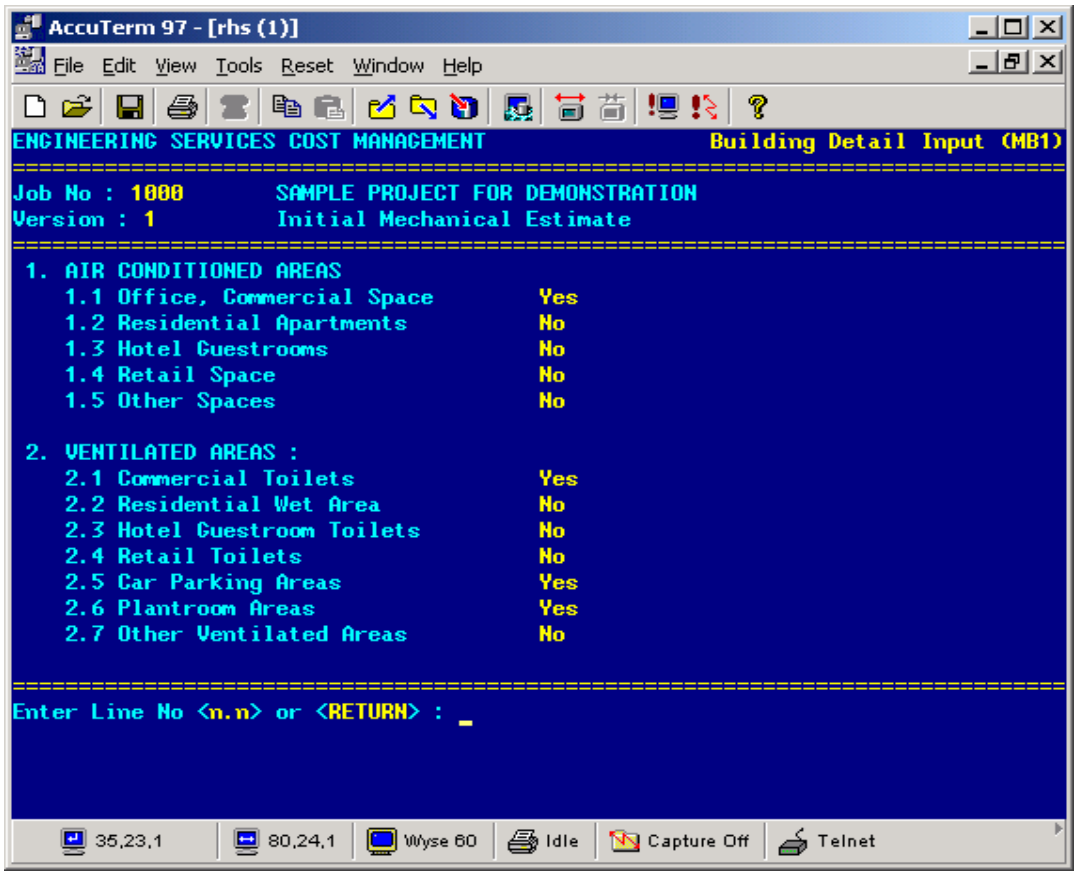
1.00	**TOTAL CAPITAL COST**			**$**
1.01	Land			0
1.02	Stamp Duty, Rates & Land Tax			0
1.03	Building (GFA 33,050 m2 @ #N/A			#N/A
1.04	Building variation allowance (Incl in 1.03)	0.0%		#N/A
1.05	Professional Fees	8.0%		#N/A
1.06	Marketing	4.3%		0
1.07	Advance commission			0
1.08	Council and sundries	2.0%		#N/A
		Sub Total		#N/A
1.09	Developers' Contingency	0.5%		#N/A
	NETT CAPITAL REQUIREMENT		**$**	#N/A
1.10	Pre-construction Interest on Land	0.0% Interest after 30% equity (Excl GST)		0
1.11	Construction Interest	0.0% Interest after 30% equity (Excl GST)		#N/A
1.12	Stamp Duty			#N/A
1.13	Establishment Fee			#N/A
1.14	Other lending authority charges			#N/A
	GROSS CAPITAL REQUIREMENT		**$**	#N/A
1.15	**GST on 1.03 to 1.07,1.09,1.13,1.14 and REIQ Commission**			#N/A

2.00	**INCOME FROM SALES**									**$**
	The following requires confirmation									
		Average Sell Price								
	One bed Units	$	-	95	No	5,700	m2	$	- /m2	0
	Two bed Units	$	-	110	No	9,900	m2	$	- /m2	0
	Three Bed Units	$	-	20	No	2,400	m2	$	- /m2	0
	Penthouse Units	$	-	5	No	950	m2	$	- /m2	0
	Commercial			Yield	10%	1,700	m2	$	- /m2	0
	Retail			Yield	10%	0	m2	$	- /m2	0
	Café			Yield	10%	0	m2	$	- /m2	0
	Restaurant			Yield	10%	0	m2	$	- /m2	0
	Management rights			230	No			$	- /unit	0
	GROSS INCOME FROM SALES								**$**	0
	LESS: Real Estate Commission				4.0%	0				
	Previously included in costs					0				0

Building Services

ESCM Mechanical Services

Building Detail

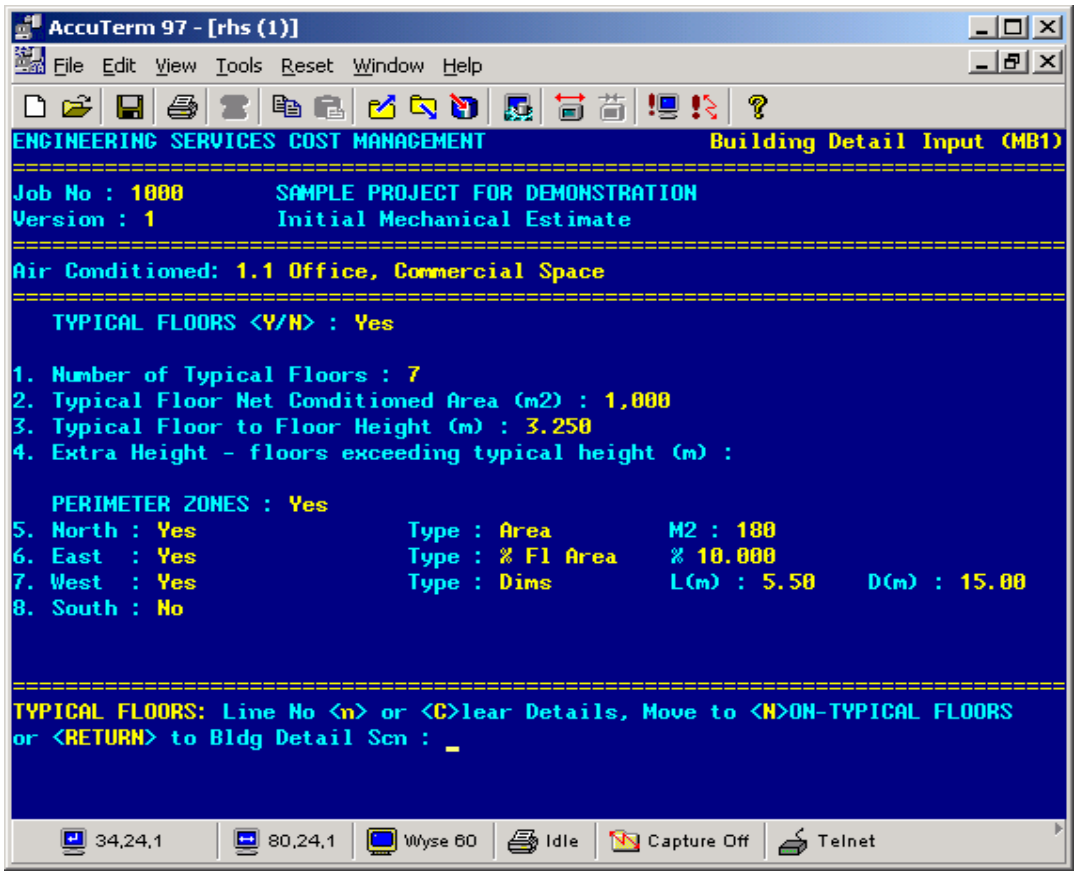


- This screen allows the user to select different components of the building design and define them.
- Definition includes quantifying of different spaces, as well as definition of typical, non-typical, areas, heights, etc.

Building Services

ESCM Mechanical Services

Building Detail: Office, Commercial Space – Typical Floors

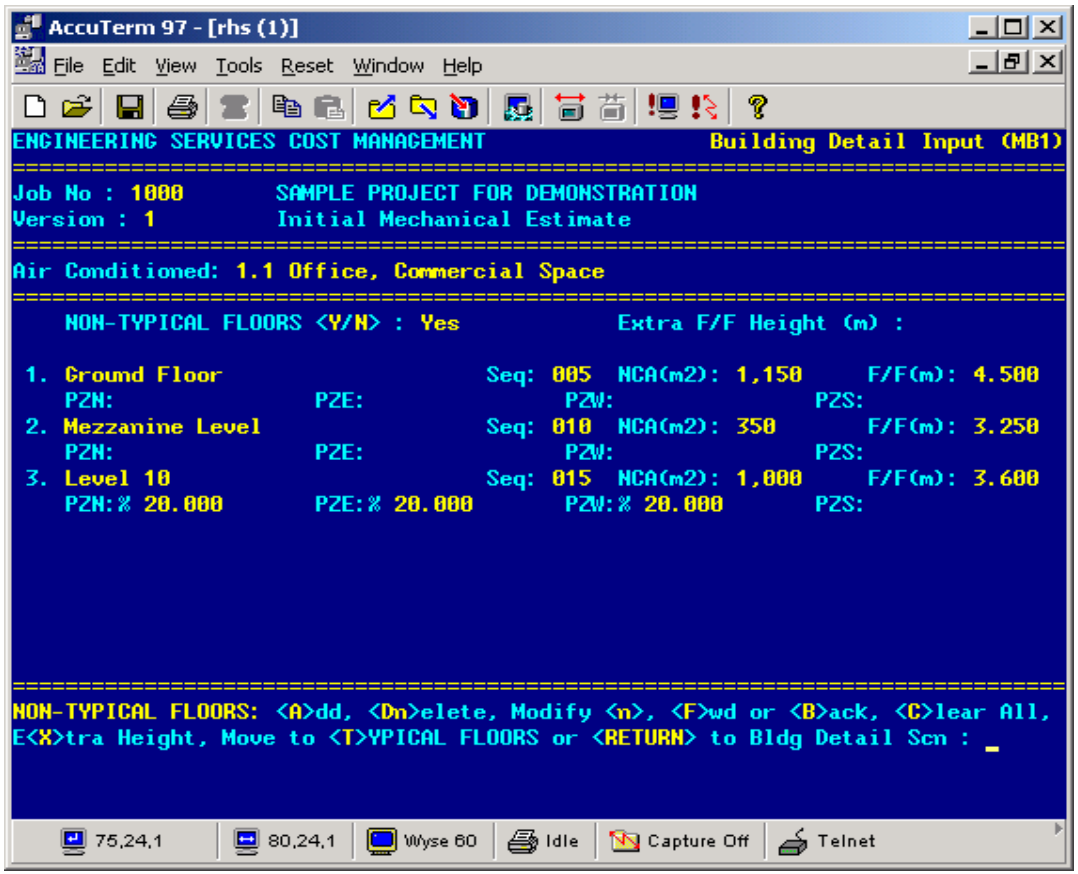


- Typical Floor Definitions include quantity, area, floor to floor height and the definition of perimeter zones as required.
- Perimeter Zones can be defined by area, by dimensions or by percentage of floor area. Reference to Library data is also allowed.

Building Services

ESCM Mechanical Services

Building Detail: Office, Commercial Space – Non-Typical Floors

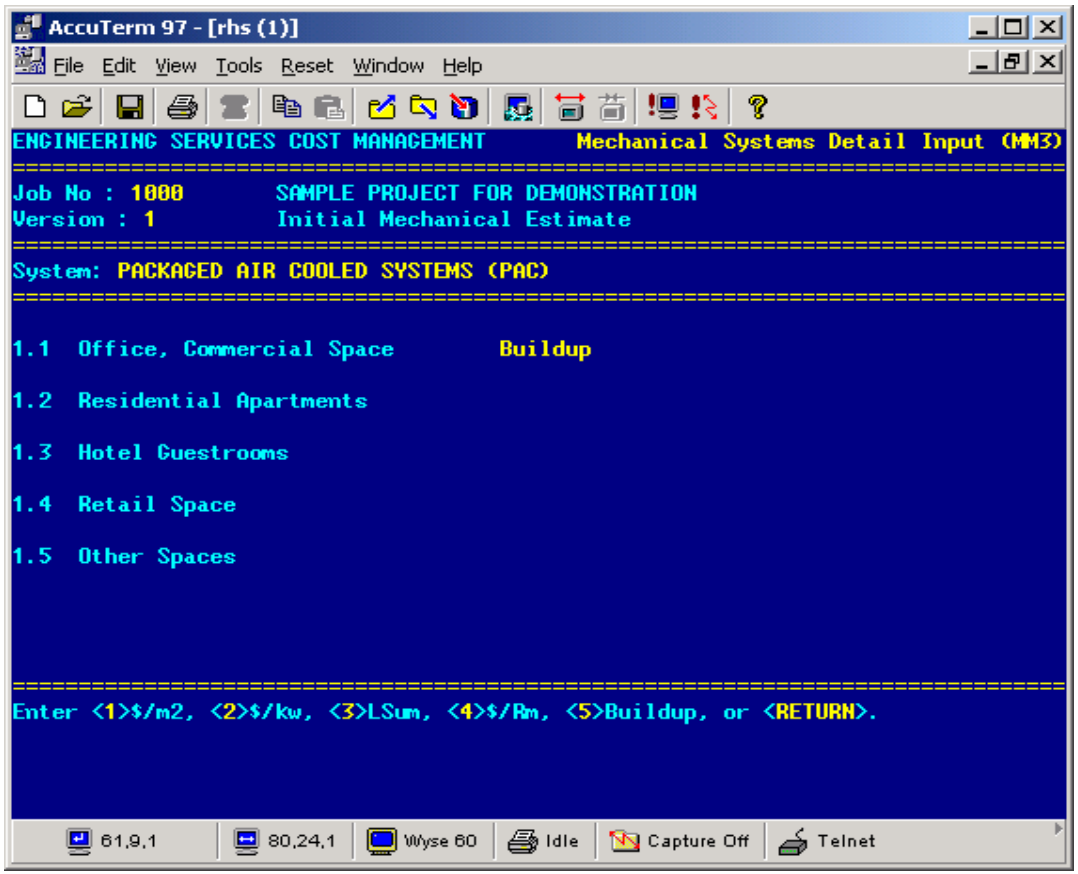


- As many Non-typical Floor spaces as required can be defined.
- Definitions include a description, sequence, area, floor to floor height and perimeter zones as required.
- Perimeter Zones can be defined all as for Typical Floors.

Building Services

ESCM Mechanical Services

Mechanical System Detail: Method of Calculation



Within each allocated AC System and for each AC Area at the top level e.g. 1.1 Office, Commercial Space, the user may select one of 5 ways to calculate the Mechanical System Detail.

(1) $/m2

(2) $/kw

(3) Lump Sum

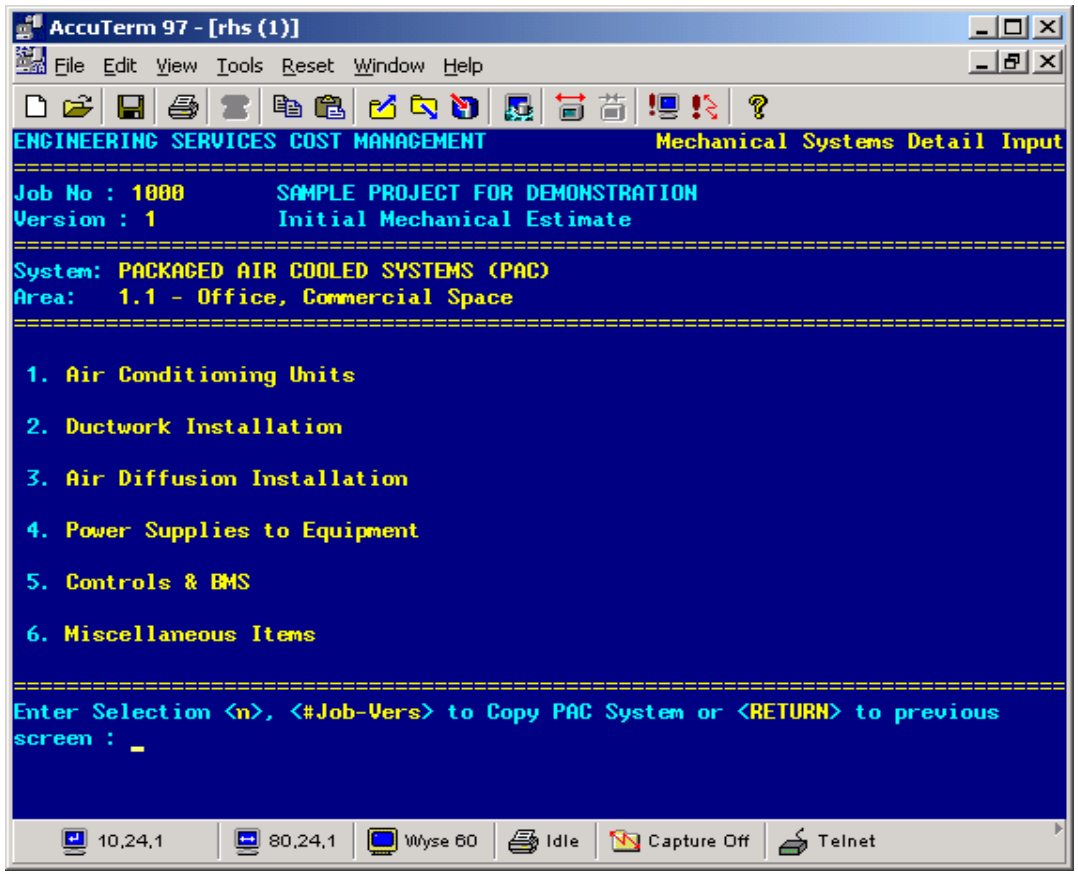
(4) $/Room, where appropriate

(5) Buildup

Building Services

ESCM Mechanical Services

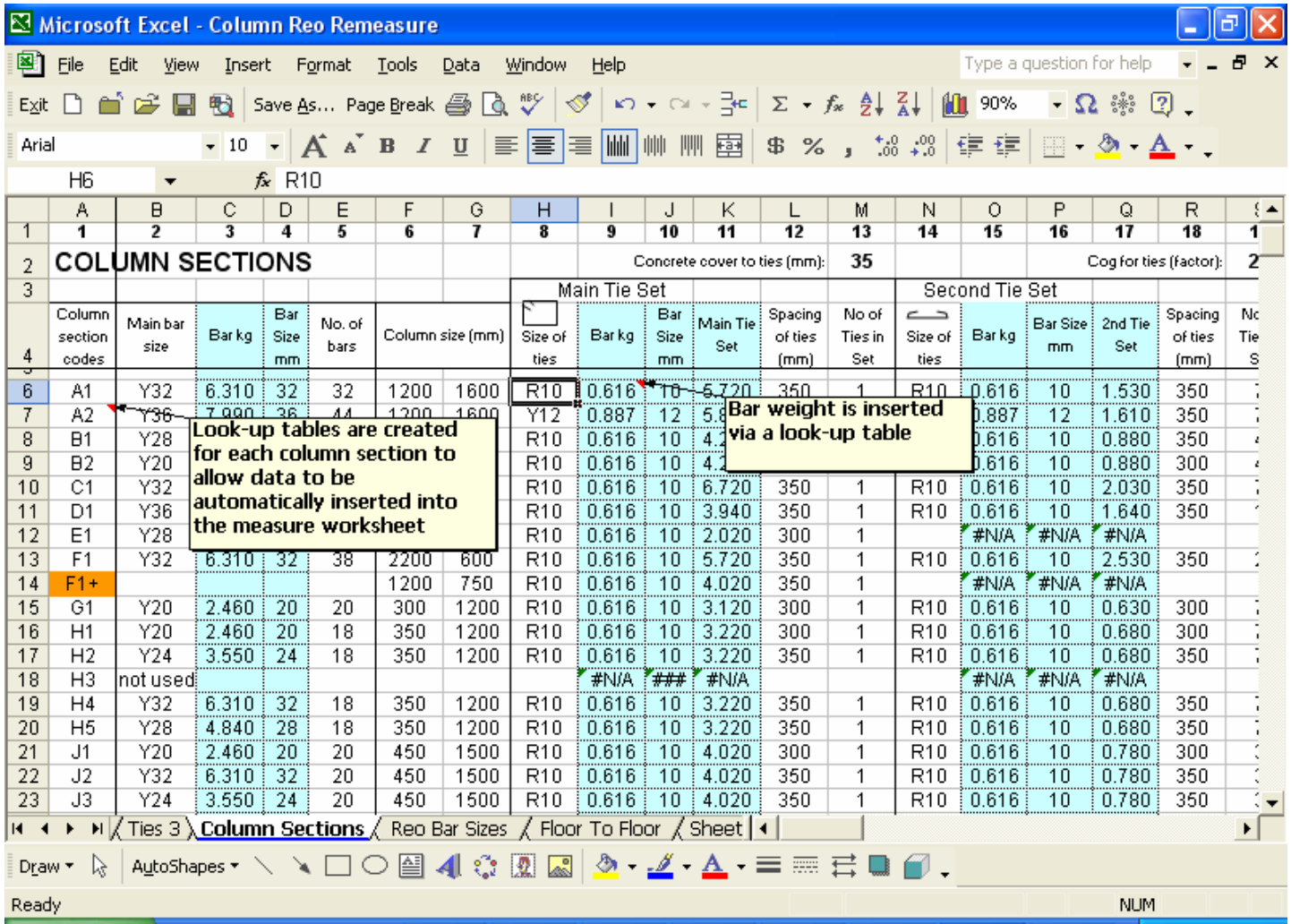
Mechanical System Detail: AC System - Buildup (PAC)



- A menu is presented that allows you to detail the different components of the system.
- Depending on the type of system selected, a different range of menu options appears.
- At this point you may copy other PAC system details for all components.

Working Drawing

Schedules



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2	COLUMN SECTIONS									Concrete cover to ties (mm):			35				Cog for ties (factor):	
3								Main Tie Set						Second Tie Set				
4	Column section codes	Main bar size	Bar kg	Bar Size mm	No. of bars	Column size (mm)		Size of ties	Bar kg	Bar Size mm	Main Tie Set	Spacing of ties (mm)	No of Ties in Set	Size of ties	Bar kg	Bar Size mm	2nd Tie Set	Spacing of ties (mm)
6	A1	Y32	6.310	32	32	1200	1600	R10	0.616	10	6.720	350	1	R10	0.616	10	1.530	350
7	A2	Y36	7.990	36	44	1200	1600	Y12	0.887	12	5.8				0.887	12	1.610	350
8	B1	Y28						R10	0.616	10	4.2				0.616	10	0.880	350
9	B2	Y20						R10	0.616	10	4.2				0.616	10	0.880	300
10	C1	Y32						R10	0.616	10	6.720	350	1	R10	0.616	10	2.030	350
11	D1	Y36						R10	0.616	10	3.940	350	1	R10	0.616	10	1.640	350
12	E1	Y28						R10	0.616	10	2.020	300	1		#N/A	#N/A	#N/A	
13	F1	Y32	6.310	32	38	2200	600	R10	0.616	10	5.720	350	1	R10	0.616	10	2.530	350
14	F1+					1200	750	R10	0.616	10	4.020	350	1		#N/A	#N/A	#N/A	
15	G1	Y20	2.460	20	20	300	1200	R10	0.616	10	3.120	300	1	R10	0.616	10	0.630	300
16	H1	Y20	2.460	20	18	350	1200	R10	0.616	10	3.220	300	1	R10	0.616	10	0.680	300
17	H2	Y24	3.550	24	18	350	1200	R10	0.616	10	3.220	350	1	R10	0.616	10	0.680	350
18	H3	not used							#N/A	###	#N/A				#N/A	#N/A	#N/A	
19	H4	Y32	6.310	32	18	350	1200	R10	0.616	10	3.220	350	1	R10	0.616	10	0.680	350
20	H5	Y28	4.840	28	18	350	1200	R10	0.616	10	3.220	350	1	R10	0.616	10	0.680	350
21	J1	Y20	2.460	20	20	450	1500	R10	0.616	10	4.020	300	1	R10	0.616	10	0.780	300
22	J2	Y32	6.310	32	20	450	1500	R10	0.616	10	4.020	350	1	R10	0.616	10	0.780	350
23	J3	Y24	3.550	24	20	450	1500	R10	0.616	10	4.020	350	1	R10	0.616	10	0.780	350

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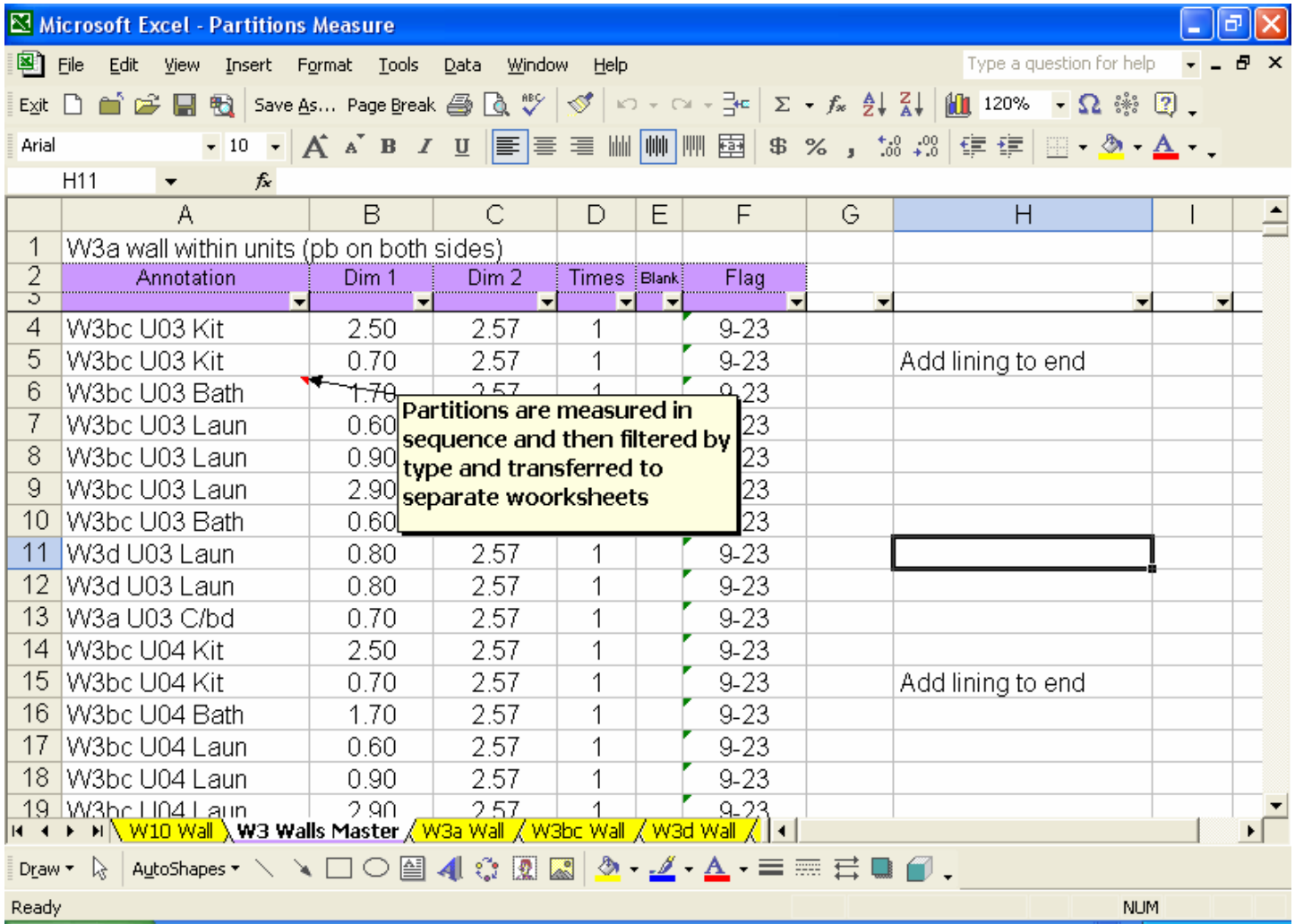
Working Drawing

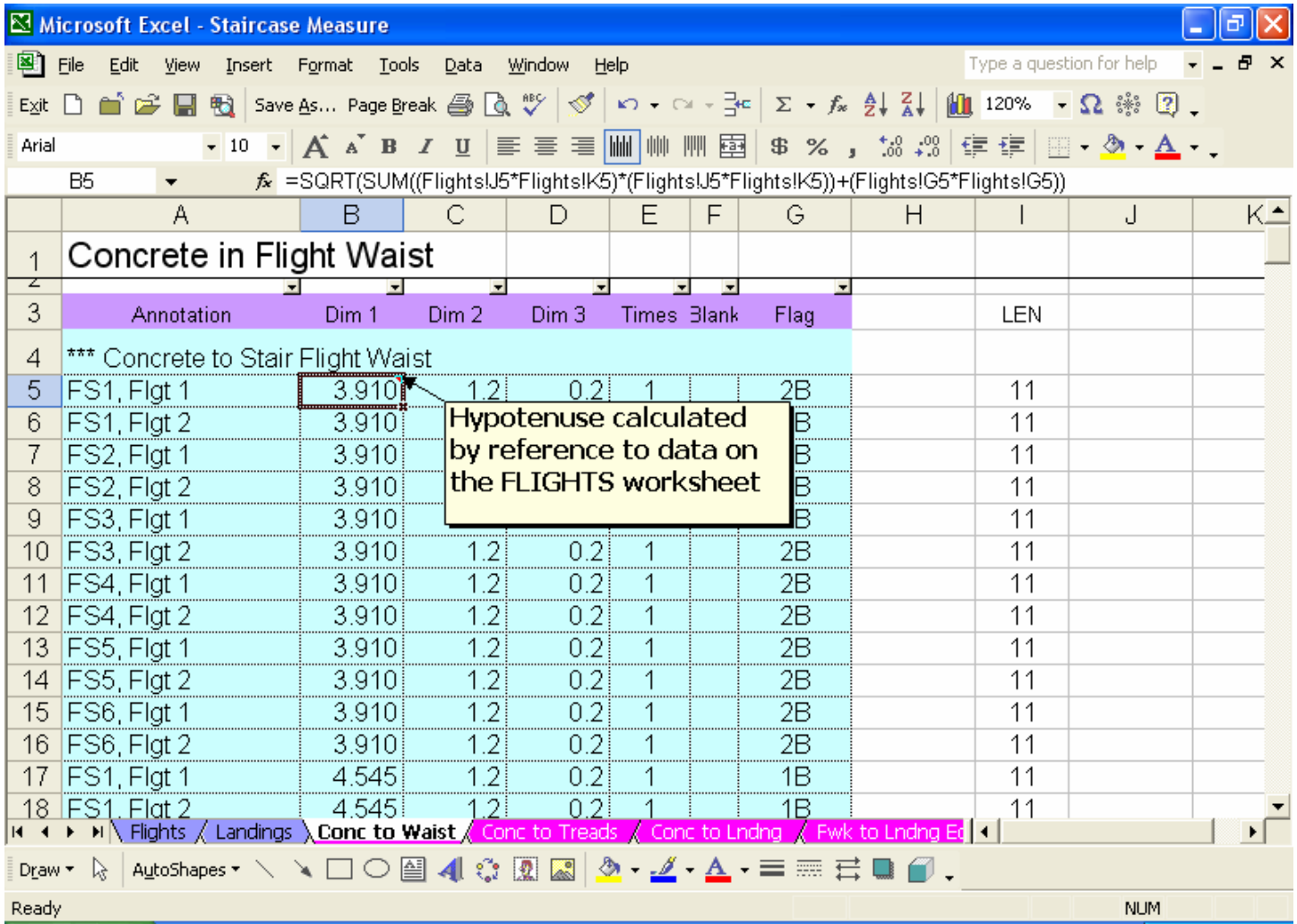
Schedules (continued)



	A	B	C	D	E	F	G	H	I
1	W3a wall within units (pb on both sides)								
2	Annotation	Dim 1	Dim 2	Times	Blank	Flag			
4	W3bc U03 Kit	2.50	2.57	1		9-23			
5	W3bc U03 Kit	0.70	2.57	1		9-23		Add lining to end	
6	W3bc U03 Bath	1.70	2.57	1		9-23			
7	W3bc U03 Laun	0.60	2.57	1		9-23			
8	W3bc U03 Laun	0.90	2.57	1		9-23			
9	W3bc U03 Laun	2.90	2.57	1		9-23			
10	W3bc U03 Bath	0.60	2.57	1		9-23			
11	W3d U03 Laun	0.80	2.57	1		9-23			
12	W3d U03 Laun	0.80	2.57	1		9-23			
13	W3a U03 C/bd	0.70	2.57	1		9-23			
14	W3bc U04 Kit	2.50	2.57	1		9-23			
15	W3bc U04 Kit	0.70	2.57	1		9-23		Add lining to end	
16	W3bc U04 Bath	1.70	2.57	1		9-23			
17	W3bc U04 Laun	0.60	2.57	1		9-23			
18	W3bc U04 Laun	0.90	2.57	1		9-23			
19	W3bc U04 Laun	2.90	2.57	1		9-23			

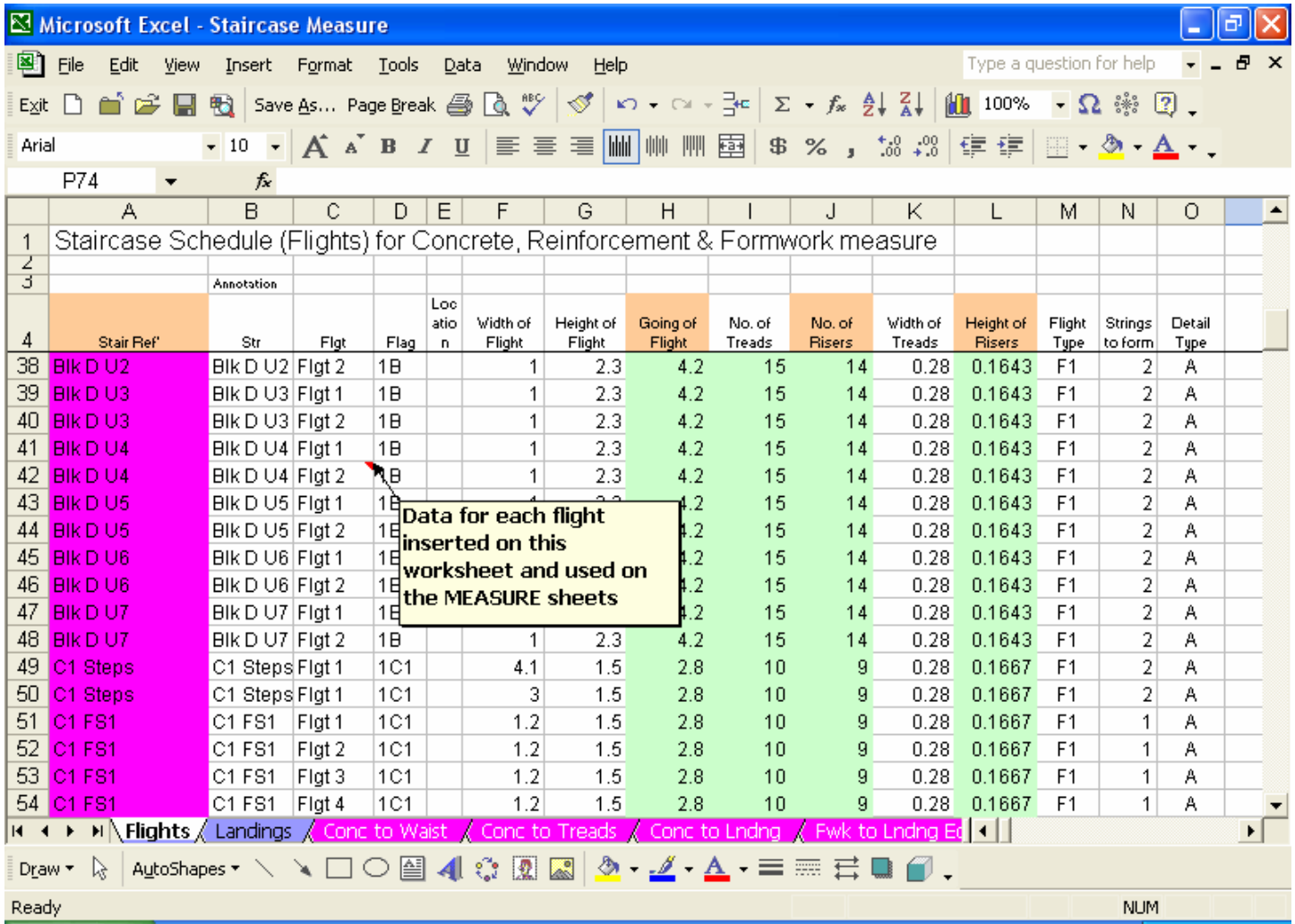
Working Drawing

Schedules (continued)



Working Drawing

Schedules (continued)



Staircase Schedule (Flights) for Concrete, Reinforcement & Formwork measure

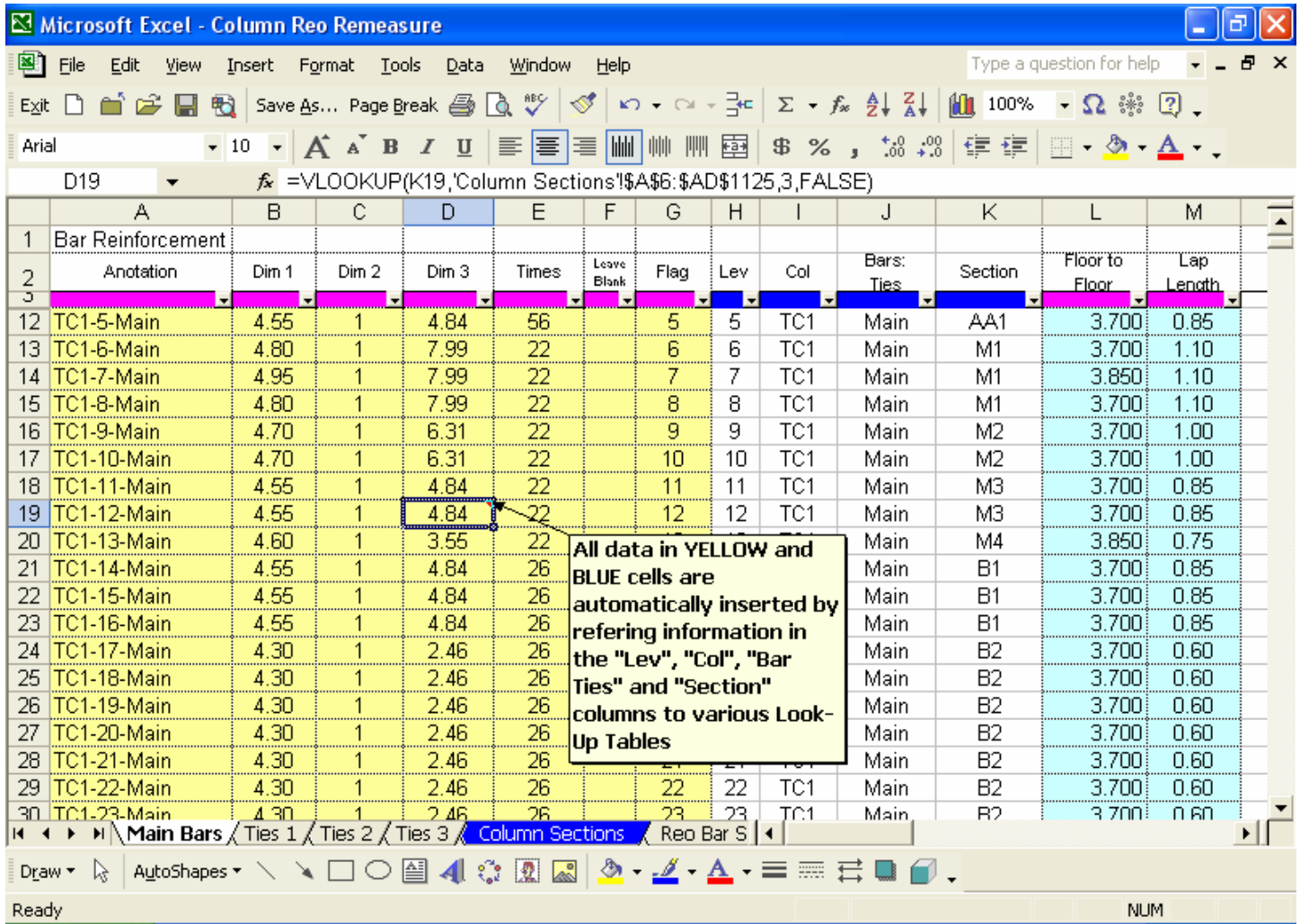
	Stair Ref'	Annotation Str	Flgt	Flag	Location	Width of Flight	Height of Flight	Going of Flight	No. of Treads	No. of Risers	Width of Treads	Height of Risers	Flight Type	Strings to form	Detail Type
38	Blk D U2	Blk D U2	Flgt 2	1B		1	2.3	4.2	15	14	0.28	0.1643	F1	2	A
39	Blk D U3	Blk D U3	Flgt 1	1B		1	2.3	4.2	15	14	0.28	0.1643	F1	2	A
40	Blk D U3	Blk D U3	Flgt 2	1B		1	2.3	4.2	15	14	0.28	0.1643	F1	2	A
41	Blk D U4	Blk D U4	Flgt 1	1B		1	2.3	4.2	15	14	0.28	0.1643	F1	2	A
42	Blk D U4	Blk D U4	Flgt 2	1B		1	2.3	4.2	15	14	0.28	0.1643	F1	2	A
43	Blk D U5	Blk D U5	Flgt 1	1B				4.2	15	14	0.28	0.1643	F1	2	A
44	Blk D U5	Blk D U5	Flgt 2	1B				4.2	15	14	0.28	0.1643	F1	2	A
45	Blk D U6	Blk D U6	Flgt 1	1B				4.2	15	14	0.28	0.1643	F1	2	A
46	Blk D U6	Blk D U6	Flgt 2	1B				4.2	15	14	0.28	0.1643	F1	2	A
47	Blk D U7	Blk D U7	Flgt 1	1B				4.2	15	14	0.28	0.1643	F1	2	A
48	Blk D U7	Blk D U7	Flgt 2	1B		1	2.3	4.2	15	14	0.28	0.1643	F1	2	A
49	C1 Steps	C1 Steps	Flgt 1	1C1		4.1	1.5	2.8	10	9	0.28	0.1667	F1	2	A
50	C1 Steps	C1 Steps	Flgt 1	1C1		3	1.5	2.8	10	9	0.28	0.1667	F1	2	A
51	C1 FS1	C1 FS1	Flgt 1	1C1		1.2	1.5	2.8	10	9	0.28	0.1667	F1	1	A
52	C1 FS1	C1 FS1	Flgt 2	1C1		1.2	1.5	2.8	10	9	0.28	0.1667	F1	1	A
53	C1 FS1	C1 FS1	Flgt 3	1C1		1.2	1.5	2.8	10	9	0.28	0.1667	F1	1	A
54	C1 FS1	C1 FS1	Flgt 4	1C1		1.2	1.5	2.8	10	9	0.28	0.1667	F1	1	A

Flights | Landings | Conc to Waist | Conc to Treads | Conc to Lndng | Fwk to Lndng Ec

Ready

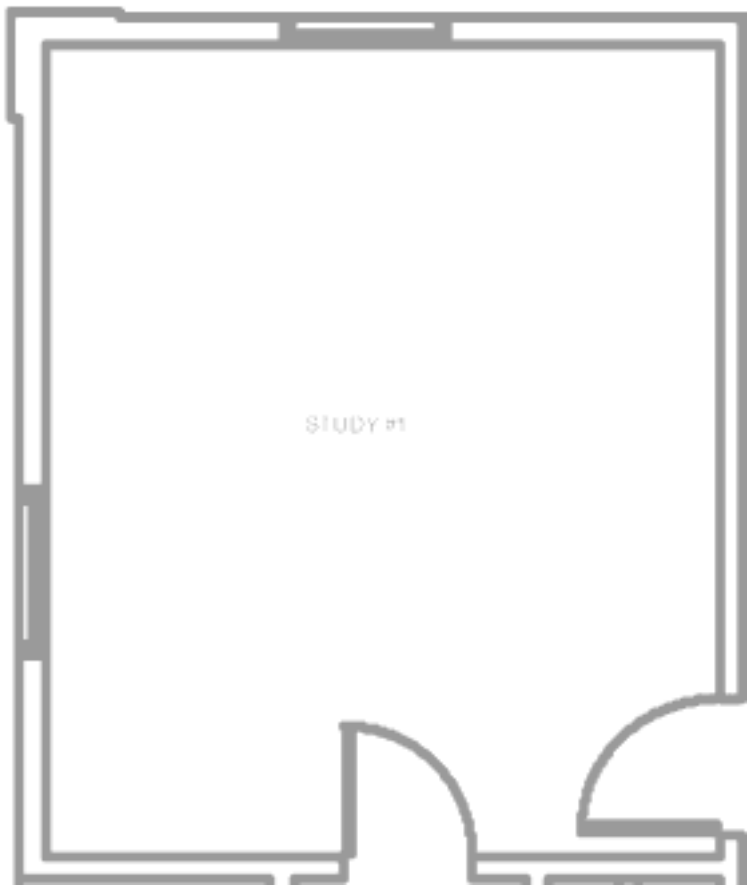
Working Drawing

Schedules (continued)



	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Bar Reinforcement												
2	Anotation	Dim 1	Dim 2	Dim 3	Times	Leave Blank	Flag	Lev	Col	Bars: Ties	Section	Floor to Floor	Lap Length
12	TC1-5-Main	4.55	1	4.84	56		5	5	TC1	Main	AA1	3.700	0.85
13	TC1-6-Main	4.80	1	7.99	22		6	6	TC1	Main	M1	3.700	1.10
14	TC1-7-Main	4.95	1	7.99	22		7	7	TC1	Main	M1	3.850	1.10
15	TC1-8-Main	4.80	1	7.99	22		8	8	TC1	Main	M1	3.700	1.10
16	TC1-9-Main	4.70	1	6.31	22		9	9	TC1	Main	M2	3.700	1.00
17	TC1-10-Main	4.70	1	6.31	22		10	10	TC1	Main	M2	3.700	1.00
18	TC1-11-Main	4.55	1	4.84	22		11	11	TC1	Main	M3	3.700	0.85
19	TC1-12-Main	4.55	1	4.84	22		12	12	TC1	Main	M3	3.700	0.85
20	TC1-13-Main	4.60	1	3.55	22					Main	M4	3.850	0.75
21	TC1-14-Main	4.55	1	4.84	26					Main	B1	3.700	0.85
22	TC1-15-Main	4.55	1	4.84	26					Main	B1	3.700	0.85
23	TC1-16-Main	4.55	1	4.84	26					Main	B1	3.700	0.85
24	TC1-17-Main	4.30	1	2.46	26					Main	B2	3.700	0.60
25	TC1-18-Main	4.30	1	2.46	26					Main	B2	3.700	0.60
26	TC1-19-Main	4.30	1	2.46	26					Main	B2	3.700	0.60
27	TC1-20-Main	4.30	1	2.46	26					Main	B2	3.700	0.60
28	TC1-21-Main	4.30	1	2.46	26					Main	B2	3.700	0.60
29	TC1-22-Main	4.30	1	2.46	26		22	22	TC1	Main	B2	3.700	0.60
30	TC1-23-Main	4.30	1	2.46	26		23	23	TC1	Main	B2	3.700	0.60

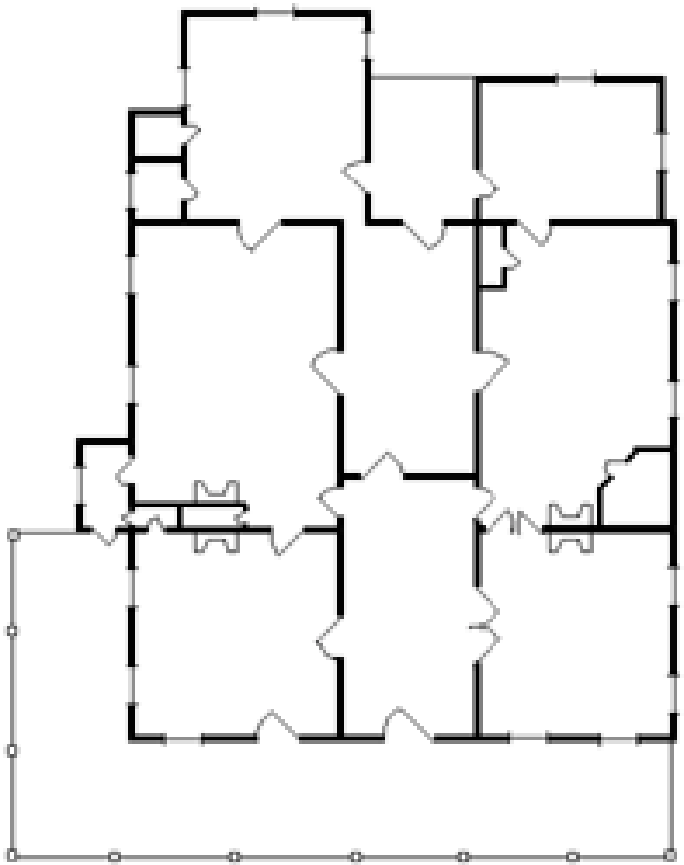
Master Quantities



Room measurement

- WF
- FF
- CF
- Skirting
- Cornice

Master Quantities



Room measurement

- WF
- FF
- CF
- Skirting
- Cornice

Rules of Measurement

Similar to International Standards

Building elements

The sum of all such areas at all building floor levels, including basements (except unexcavated portions), floored roof spaces and attics, garages, penthouses, enclosed porches and attached enclosed covered ways alongside buildings, equipment rooms, lift shafts, vertical ducts, staircases and any other fully enclosed spaces and usable areas of the building, computed by measuring from the normal inside face of exterior walls but ignoring any projections such as plinths, columns, piers and the like which project from the normal inside face of exterior walls.

It shall not include open courts, lightwells, connecting or isolated covered ways and net open areas or upper portions of rooms, lobbies, halls, interstitial spaces and the like which extend through the storey being computed.

Area

The sum of all such areas at all building floor levels, including roofed balconies, open verandahs, porches and porticos, attached open covered ways alongside buildings, undercrofts and usable space under buildings, unenclosed access galleries (including ground floor) and any other trafficable covered areas of the building which are not totally enclosed by full height walls, computed by measuring the area between the enclosing walls or balustrade (i.e. from the inside face of the U.C.A. excluding the wall or balustrade thickness).

When the covering element (i.e. roof or upper floor) is supported by columns, is cantilevered or is suspended, or any combination of these, the measurements shall be taken to the edge of the paving or to the edge of the cover, whichever is the lesser. U.C.A. shall not include eaves, overhangs, sun shading, awnings and the like where these do not relate to the clearly definded trafficable areas, nor shall it include connecting or isolated covered ways.

Need to Understand

Better Research Parametric Estimating System

- Hospitals
- Schools
- Industrial
- Office Fitouts

Rider Hunt

Automated Quantities

Better analysis tools

- Flexible
  - As per Billy Connelly Business Plan
  - Want it now
  - Has to be flexible
  - All change tomorrow
- Input by more team members
- Architect and Designers own the documentation
  - Other users - ownership of interactive components

Rider Hunt

Big Picture

- Improve documentation quality
- Improve coordination of documentation
- Improve (cost) rate storage and retrieval
- Improve predictability of future rates in mobile marketplace