

G.F.A. / Site Coverage / U.F.A. Calculations Workflow & Escape Path Checking

Composite Development (Commercial + Residential)

Total GFA: 9,854 sqm

14 AUG 2017

3 Workflows for GFA Calculations

from GBP
Hardcopy

Calculations
Checking

Rebuild
everything

from GBP
CAD Drawings

Calculations
Checking

Use “LINES”
from CAD

from
BIM Model

Calculations in
line with Layout

Avoid Double
Handling / Sync

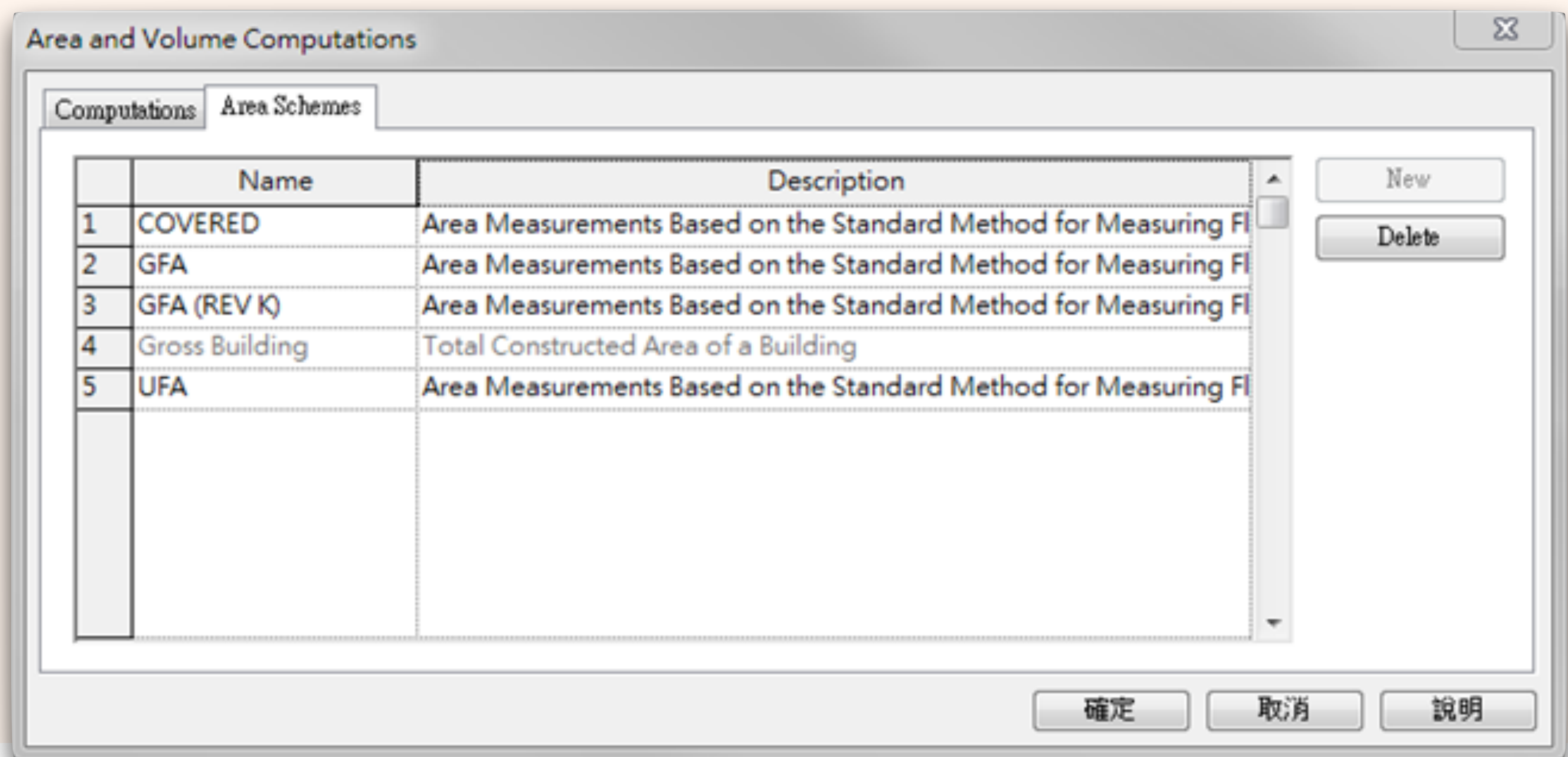
G.F.A. Calculations Workflow in Autodesk® Revit®



G.F.A. Calculations Workflow

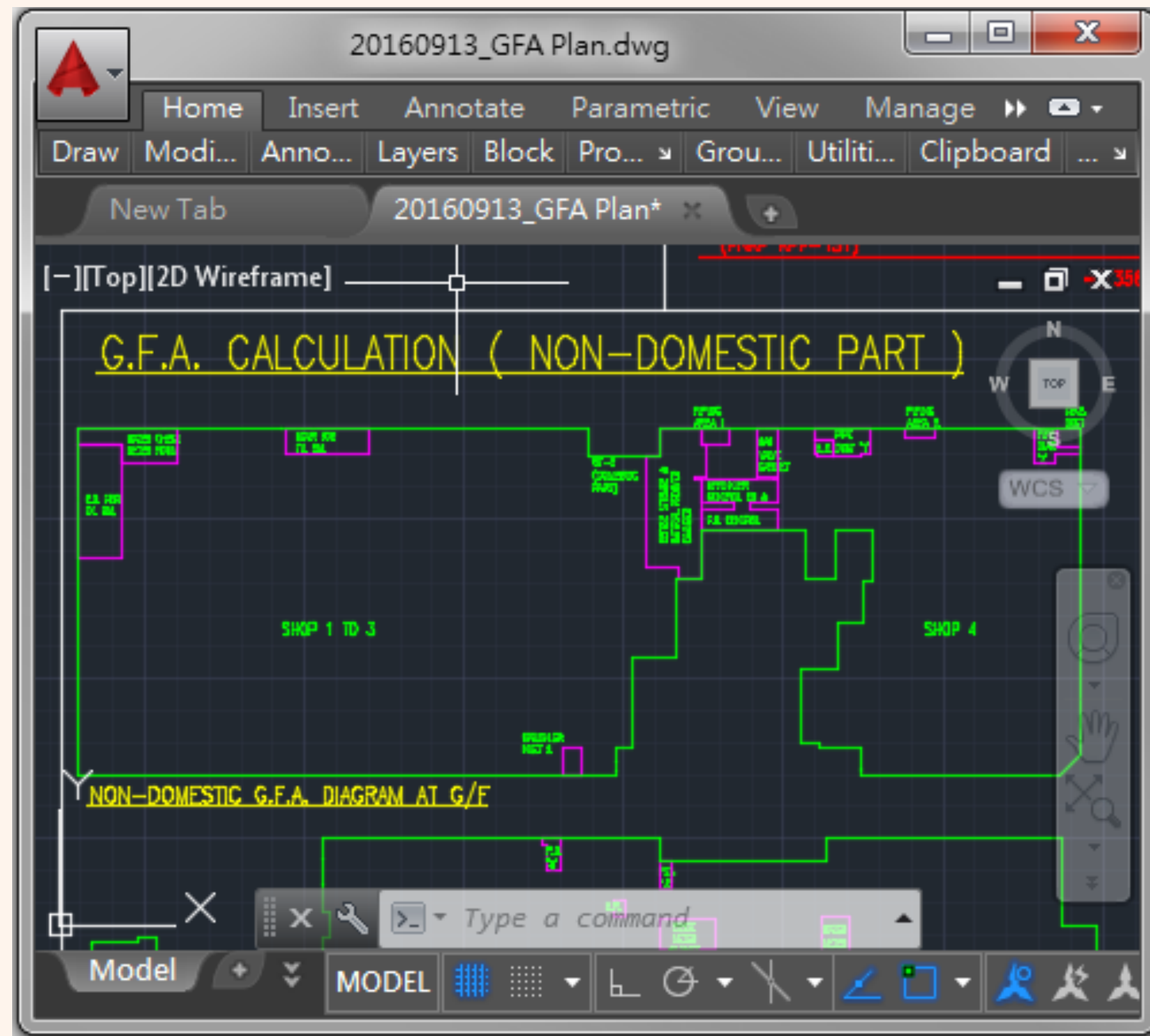
G.F.A. Calculations Workflow

- Create Area Schemes for multiple plans:
 - COVERED, UFA, GFA ==> for Current Model
 - UFA (REV K), GFA (REV K), etc ==> for GBP Revision Set

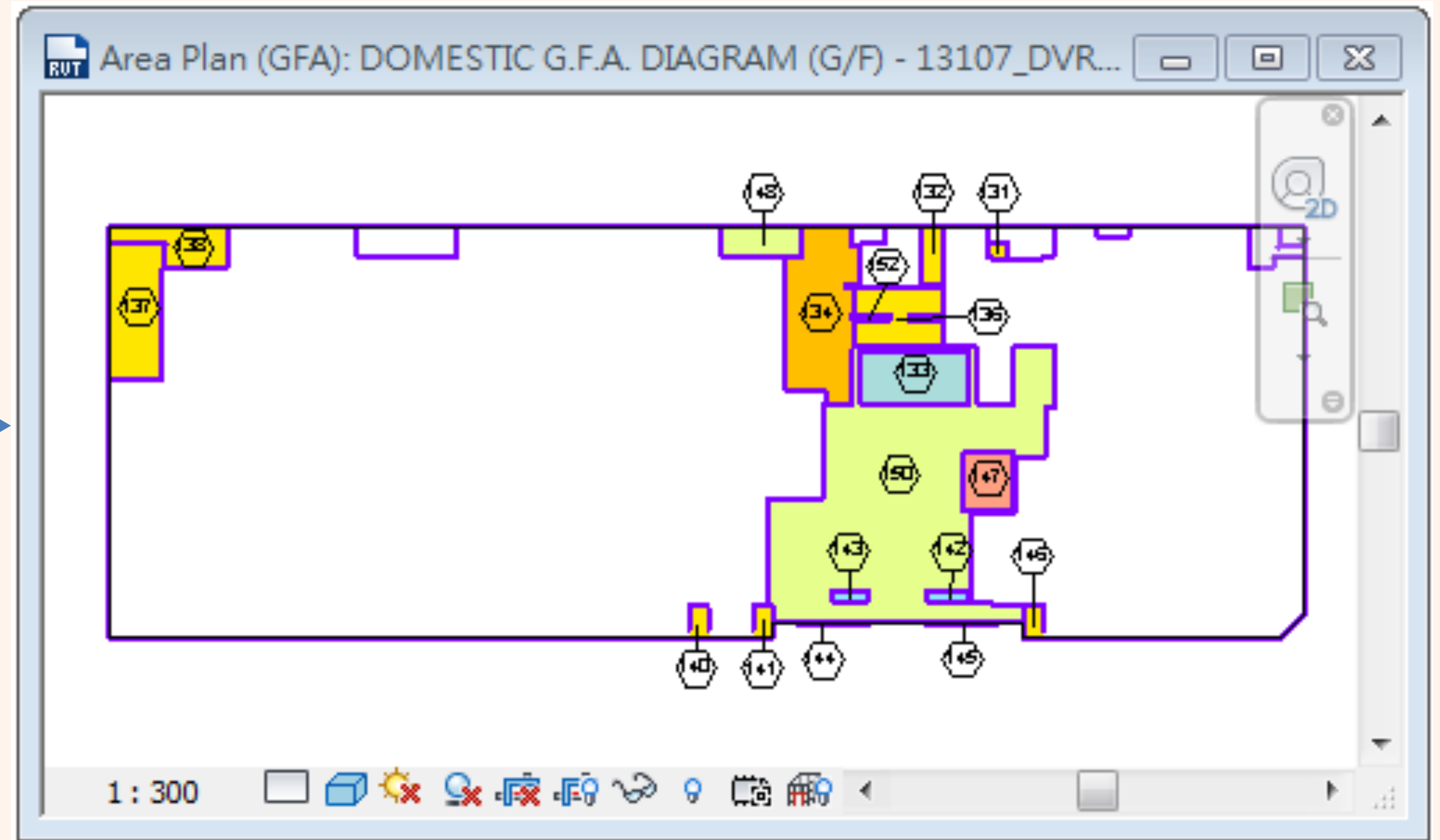


G.F.A. Calculations Workflow (A)

- Convert G.F.A. area boundary from CAD Drawings



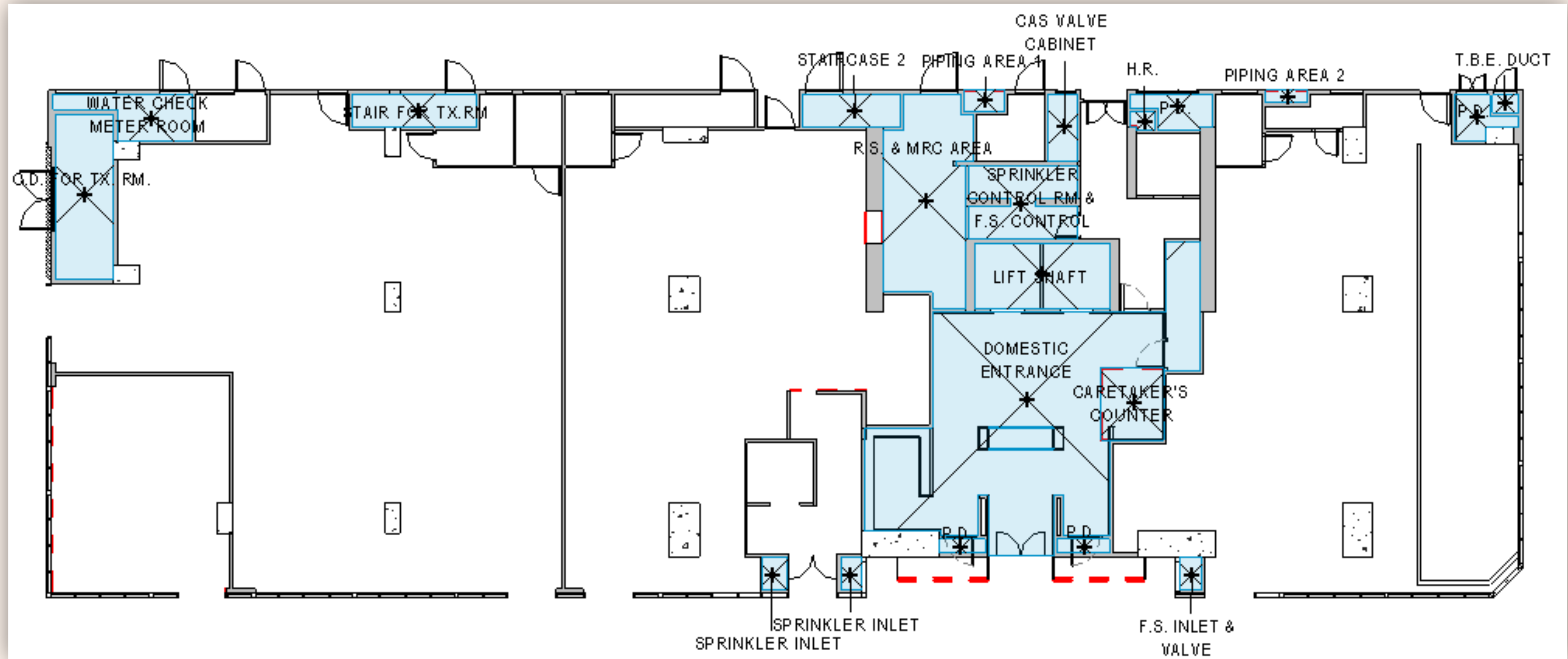
CAD Drawings



Revit

G.F.A. Calculations Workflow (B)

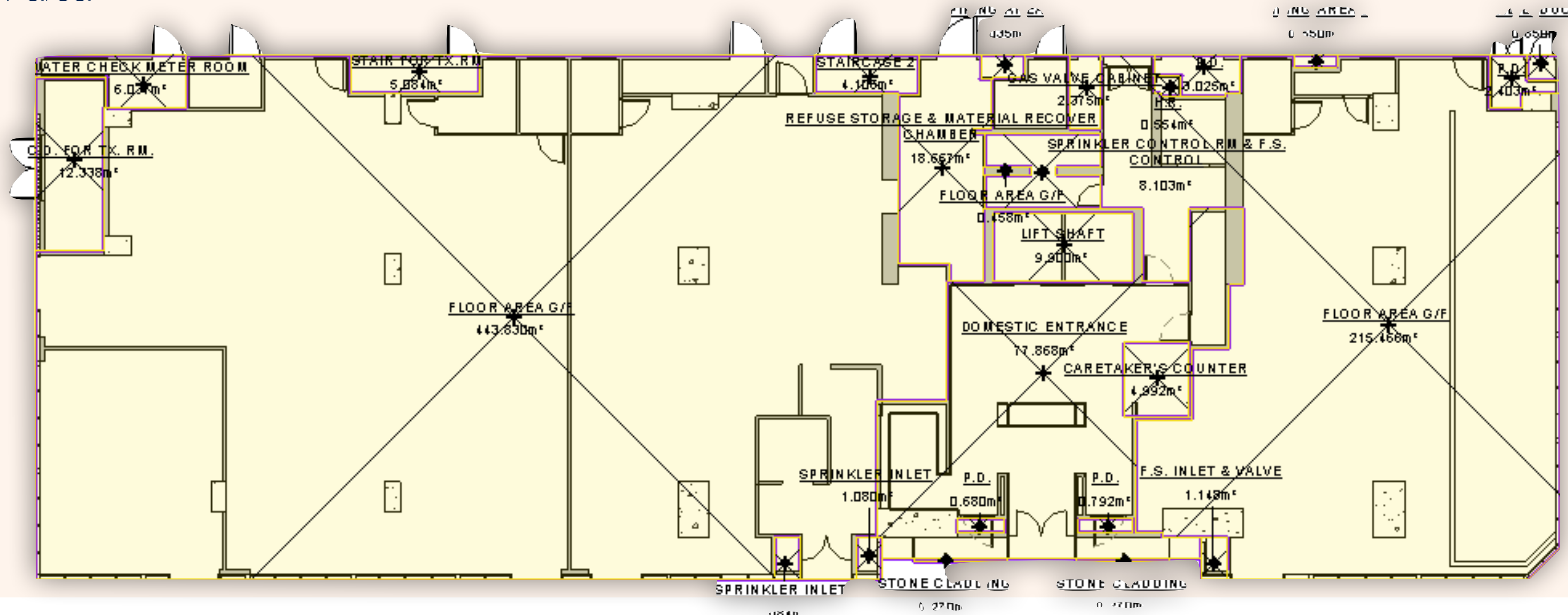
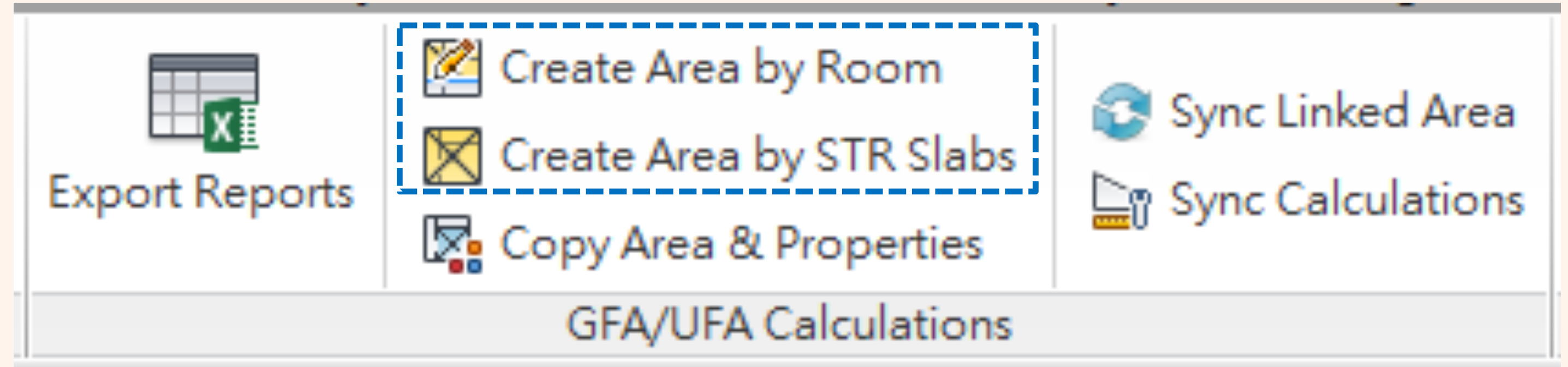
- Define Room for concession calculations



G.F.A. Calculations Workflow

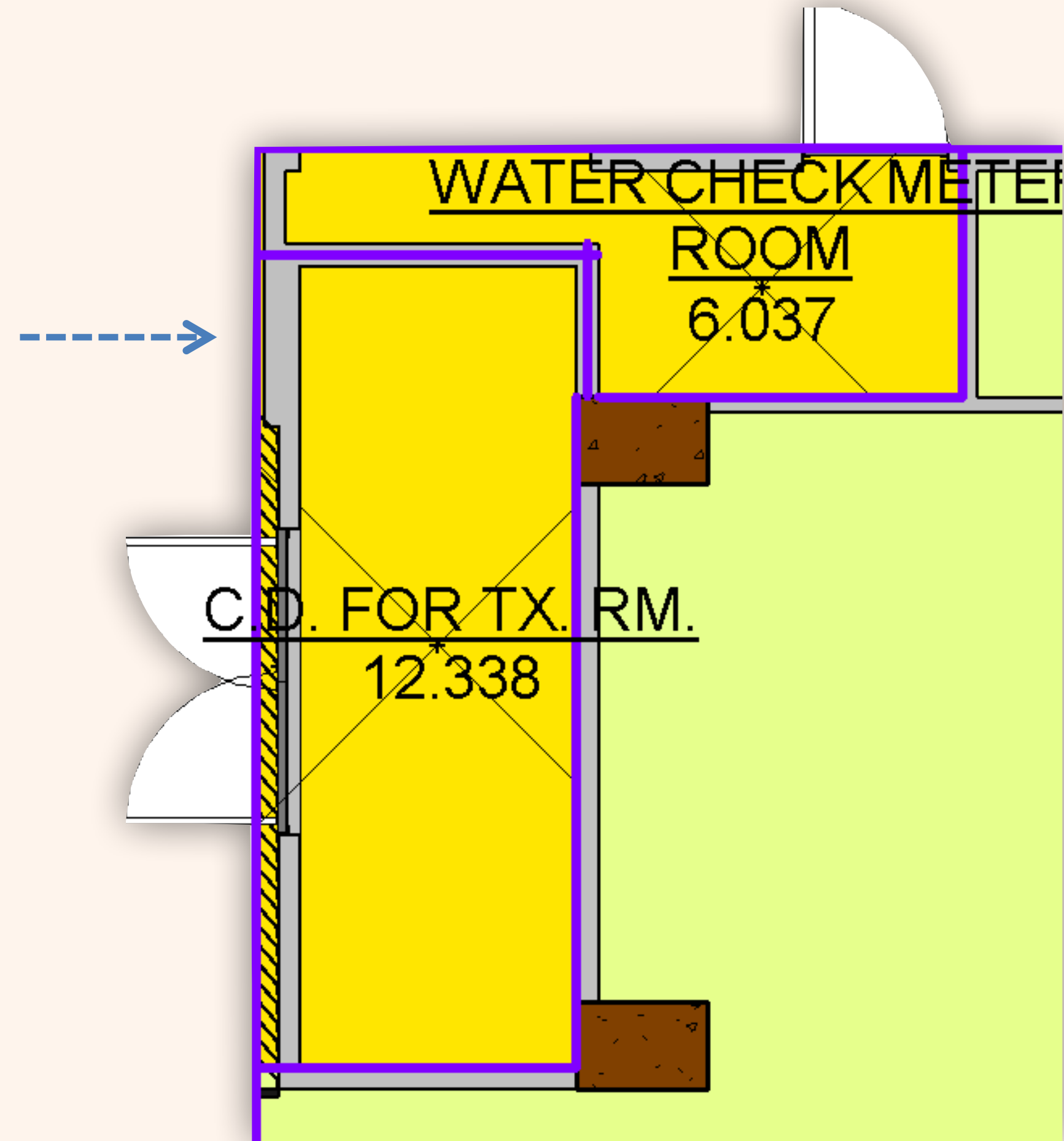
- Create Area

- Create Area by Room
 - for deduct/concession area
- Create Area by STR Slabs
 - for floor area



G.F.A. Calculations Workflow

- Area boundary lines between rooms: **At wall core center**



G.F.A. Calculations Workflow

- Define GFA Factor Type, Number of Storey, Non-Domestic Usage for Area

Areas (1)

Edit Type

Constraints

LevelG/F

Text

Source of Information

RFC No

Dimensions

Area6.037

Perimeter13337.000

Computation Height200.000

Identity Data

WorksetG/F

Number21

NameWATER CHECK METER ROOM

GFA Factor TypeFSI and equipment, meter room, tran...

UFA Factor Type(none)

Image

Comments

Edited by

Other

GFA Factor0.000000

GFA Factor Name2.2 PLANT

No of Storey1

Non-Domestic

UFA Factor Name

Area TypeBuilding Common Area

Area Plan (GFA): G/F - 13107_DVRW_A_Podiu

WATER CHECK METER

6.037m²

CD. FOR TX. RM.

12.338m²

List of GFA Concessions

		Practice Notes	Features subject to compliance with the pre-requisites in para. 6 & 7 of PNAP APP-151	Features Subject to the Overall Cap of 10% in para.4 of PNAP APP-151
Disregarded GFA under Regulation 23(3)(b) of the Building (Planning) Regulations (B(P)R)				
1.	Carpark and loading/unloading area excluding public transport terminus	PNAP APP-2 and APP-111		
2.	Plant rooms and similar services			
2.1	Mandatory feature or essential plant room, area of which is limited by respective PNAP or regulation, such as lift machine room, TBE room, refuse storage chamber, etc. ¹	PNAP APP-35 & APP-84		
2.2	Mandatory feature or essential plant room, areas of which is NOT limited by any PNAP or regulation, such as room occupied solely by FSI and equipment, meter room, transformer room, potable and flushing water tank, etc. ²	PNAP APP-2 and APP-42		
2.3	Non-mandatory or non-essential plant room, such as A/C plant room, AHU room, etc. ³	PNAP APP-2 and APP-42	✓	✓
Disregarded GFA under Regulation 23A(3) of the B(P)R				
3.	Area for picking up and setting down persons departing from or arriving at the hotel by vehicle	PNAP APP-40		
4.	Supporting facilities for a hotel	PNAP APP-40		
Green Features under Joint Practice Notes (JPNs)				
5.	Balcony for residential buildings	JPN1	✓	✓
6.	Wider common corridor and lift lobby	JPN1	✓	✓
7.	Communal sky garden	JPN1 & 2 PNAP APP-122	✓	
8.	Communal podium garden for non-residential buildings	JPN1	✓	
9.	Acoustic fin	JPN1	✓	
10.	Wing wall, wind catcher and funnel	JPN1	✓	
11.	Non-structural prefabricated external wall	JPN2	✓	✓
12.	Utility platform	JPN2	✓	✓
13.	Noise barrier	JPN2	✓	
Amenity Features				
14.	Counter, office, store, guard room and lavatory for watchman and management staff, Owners' Corporation Office	PNAP APP-42	✓	✓
15.	Residential recreational facilities including void, plant room, swimming pool filtration plant room, covered walkway etc serving solely the recreational facilities	PNAP APP-2, APP-42 and APP-104	✓	✓
16.	Covered landscaped and play area	PNAP APP-42	✓	

(PNAP APP- 151)

G.F.A. Calculations Workflow

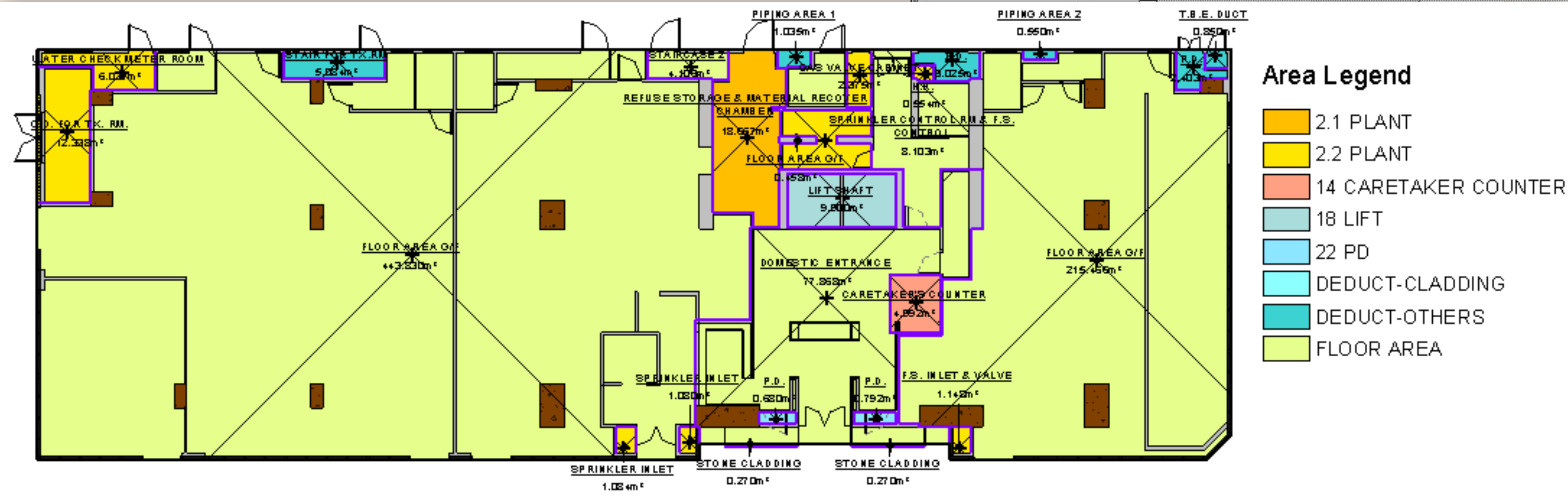
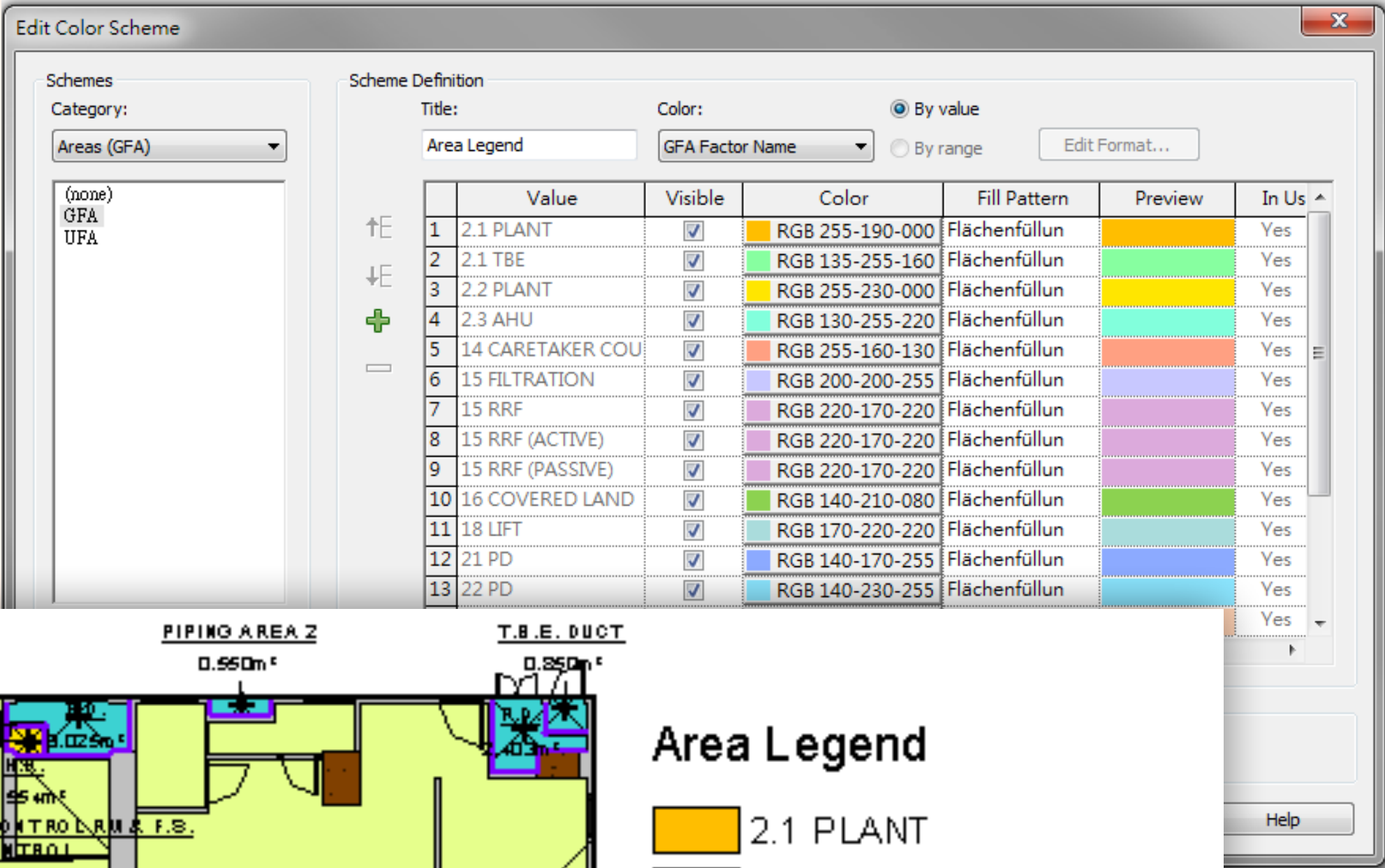
- G.F.A Key Schedule for GFA Concessions Item

Schedule: G.F.A. Key Schedule (GFA Factor Type) - 13107_DVRW_A_Podium nata.rvt

<G.F.A. Key Schedule (GFA Factor Type)>		
A	B	C
GFA Factor Type	GFA Factor	GFA Factor Name
Lift machine room, TBE room, refuse storage chamber, etc	0	2.1 PLANT
TBE	0	2.1 TBE
FSI and equipment, meter room, transformer room, potable and flushing water tank, etc.	0	2.2 PLANT
AHU Room	0	2.3 AHU
Balcony	0.5	5 BAL
Prefabricated Wall	0	11 PRE WALL
Utility platform	0.5	12 UP
Caretaker Counter	0	14 CARETAKER COUNT
Filtration Plant Room	0	15 FILTRATION
Residential recreational facilities	0	15 RRF
Residential recreational facilities (Active)	0	15 RRF (ACTIVE)
Residential recreational facilities (Passive)	0	15 RRF (PASSIVE)
Covered Landscaped	0	16 COVERED LANDSCAP
Larger Lift Shaft	1	18 LIFT
Pipe duct, air duct for mandatory feature or essential plant room	0	21 PD
Pipe duct, air duct for non-mandatory or non-essential plant room	0	22 PD
Plant room, pipe duct, air duct for environmentally friendly system and feature	0	23 PLANT
Staircase, lift shaft and vertical duct solely serving floor accepted as not being accountable for GFA	0	34 STAIRCASE TO PLANT
Cladding	0	DEDUCT-CLADDING
Others Deduct Area	0	DEDUCT-OTHERS
Floor Area	1	FLOOR AREA

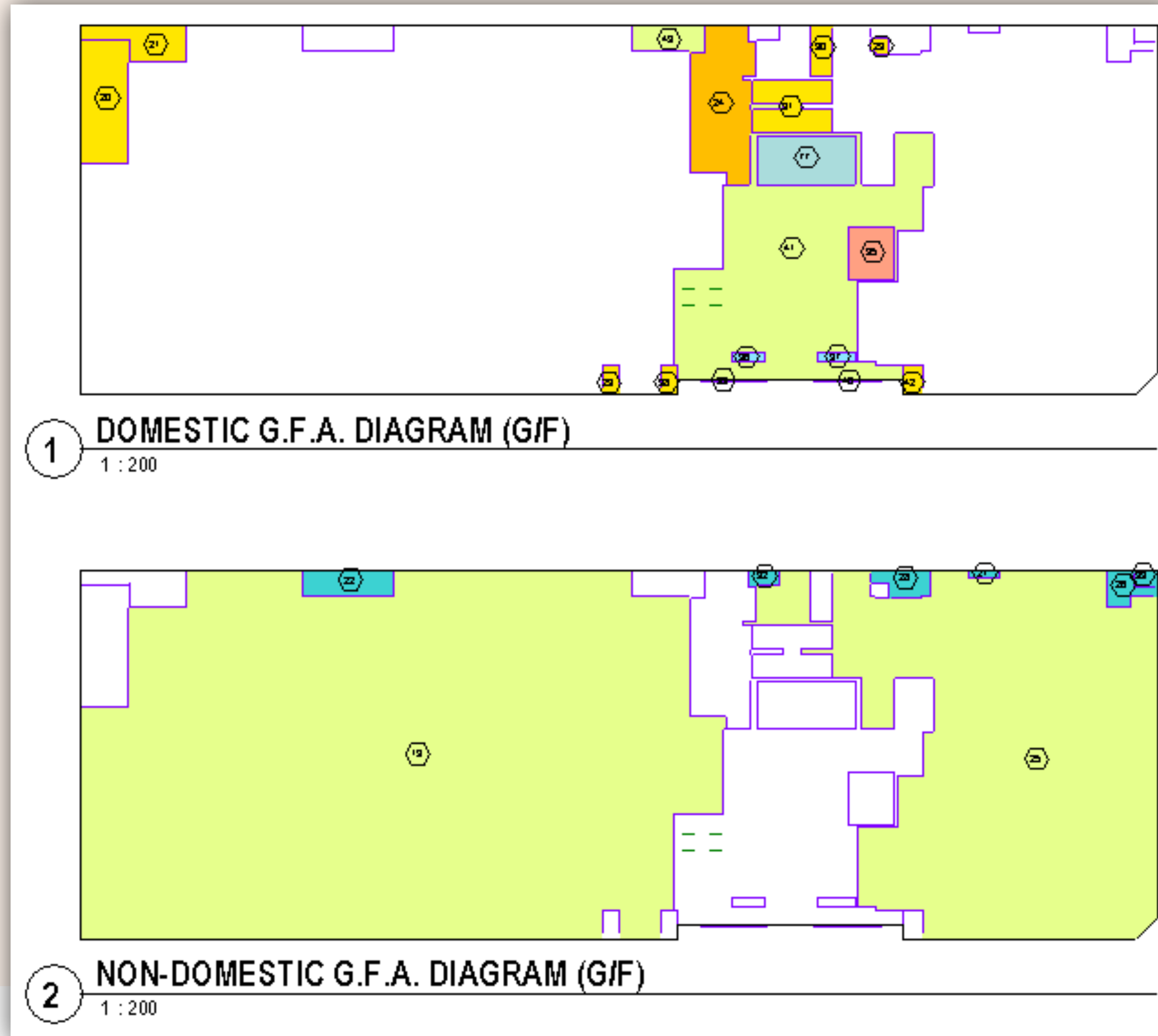
G.F.A. Calculations Workflow

- Apply Area Color Scheme by GFA Factor Name



G.F.A. Calculations Workflow

- Setup plans for Domestic & Non-Domestic Diagram

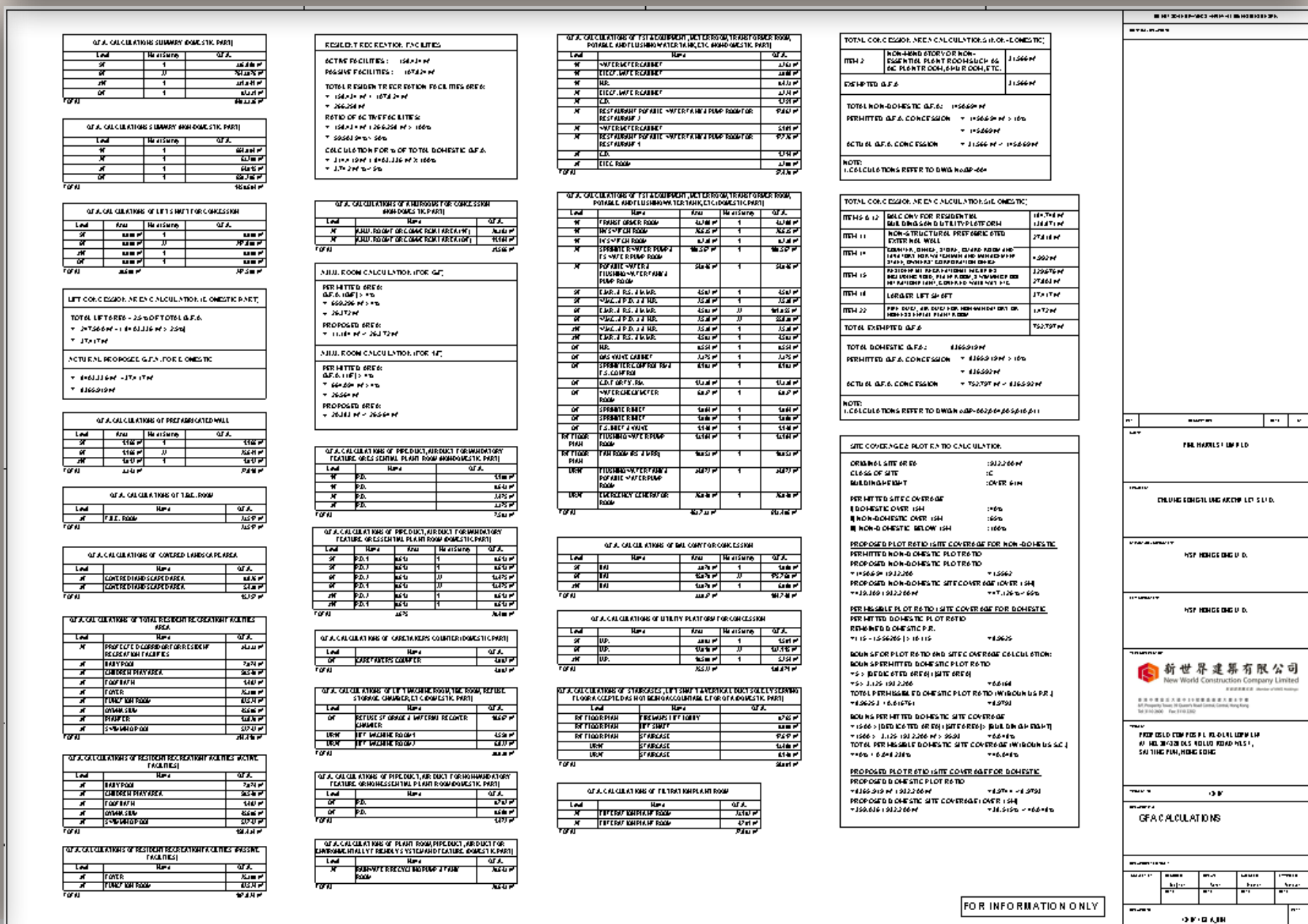
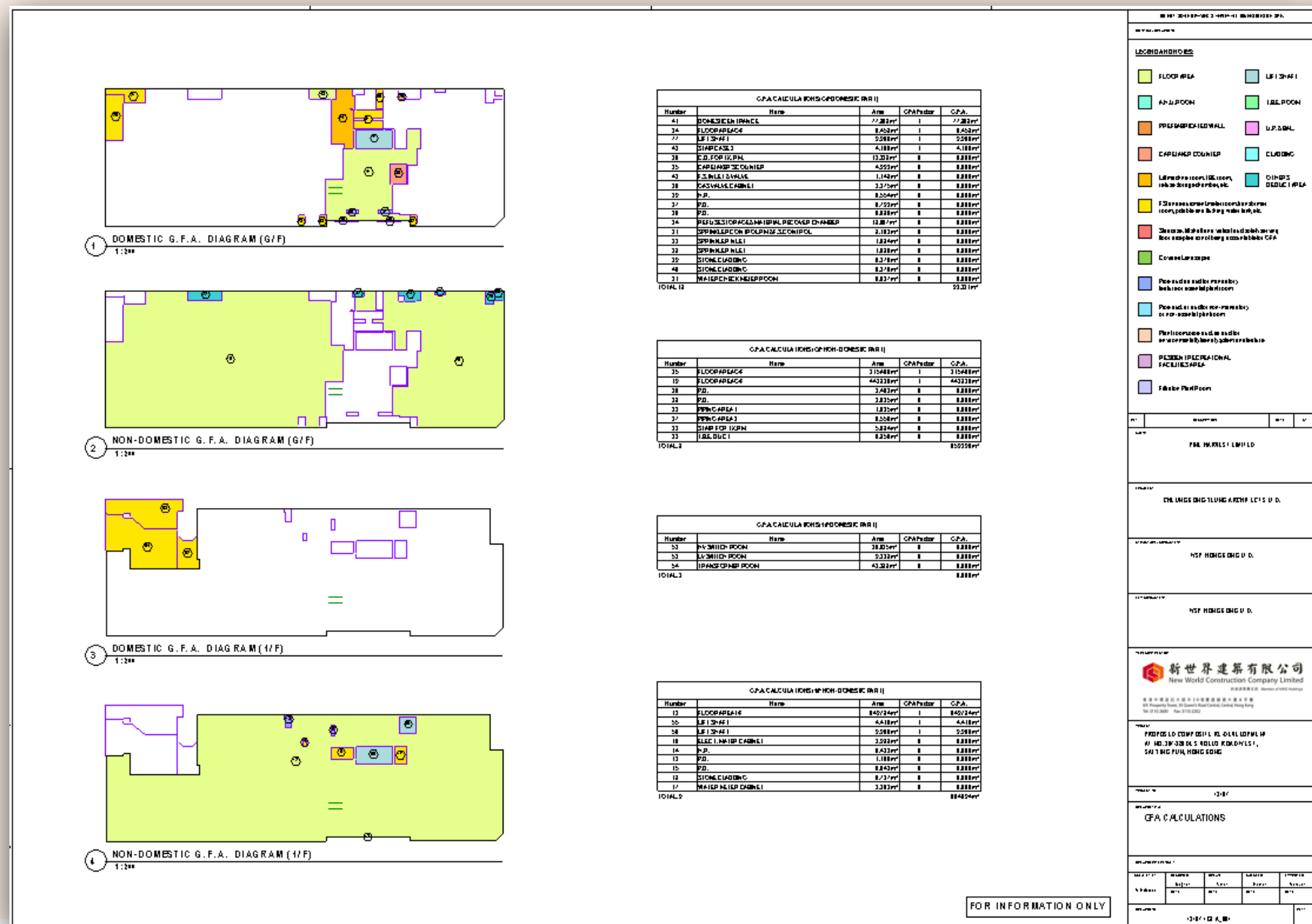


G.F.A. Calculations Workflow

- Setup Schedules

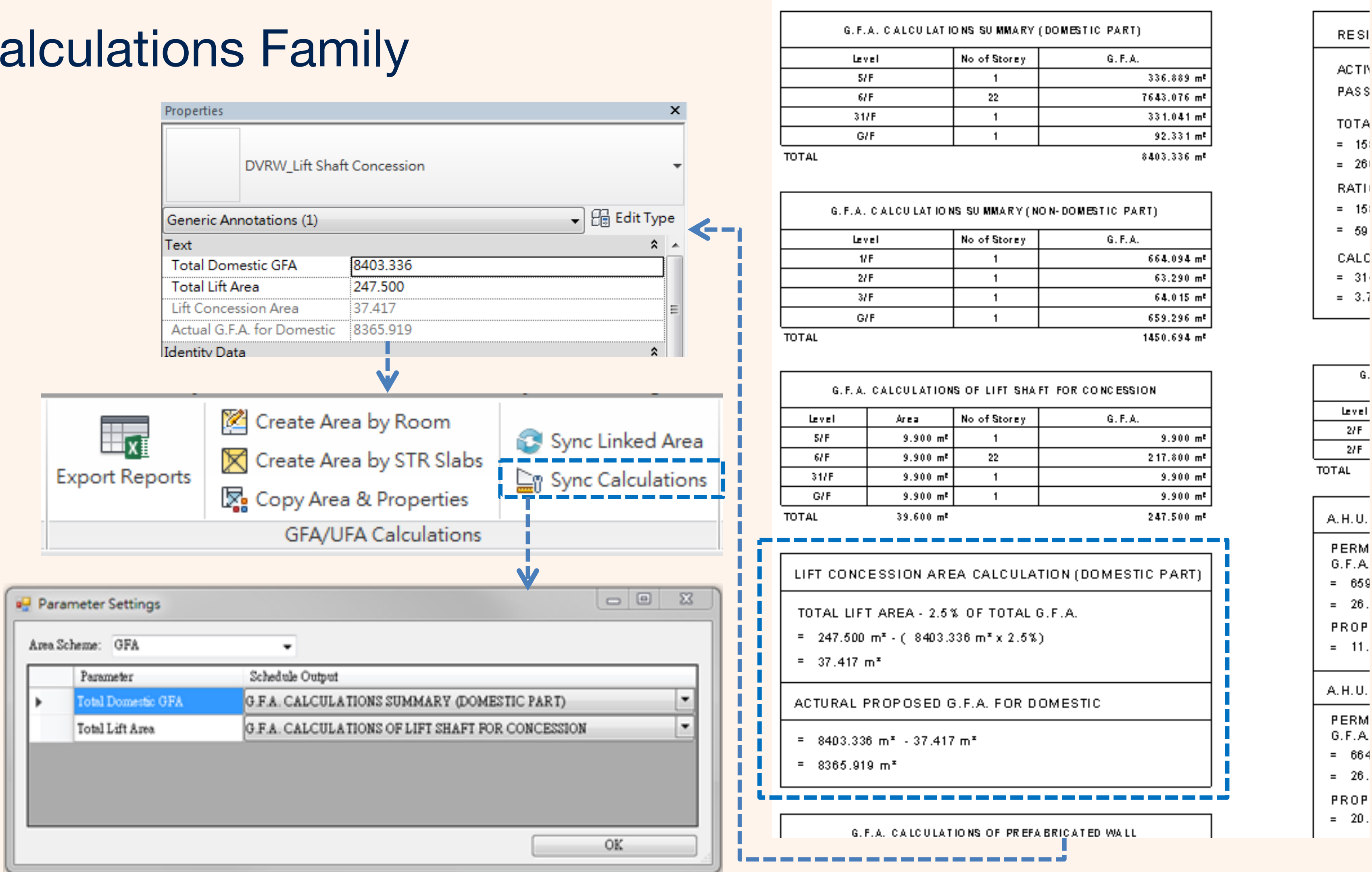
Schedules/Quantities
..... G.F.A. CALCULATIONS (1/F DOMESTIC PART)
..... G.F.A. CALCULATIONS (1/F NON-DOMESTIC PART)
..... G.F.A. CALCULATIONS (2/F DOMESTIC PART)
..... G.F.A. CALCULATIONS (2/F NON-DOMESTIC PART)
..... G.F.A. CALCULATIONS (3/F DOMESTIC PART)
..... G.F.A. CALCULATIONS (3/F NON-DOMESTIC PART)
..... G.F.A. CALCULATIONS (G/F DOMESTIC PART)
..... G.F.A. CALCULATIONS (G/F NON-DOMESTIC PART)
..... G.F.A. CALCULATIONS OF AHU ROOMS FOR CONCESSION (NON-DOMESTIC PART)
..... G.F.A. CALCULATIONS OF BALCONY FOR CONCESSION
..... G.F.A. CALCULATIONS OF CARETAKER'S COUNTER (DOMESTIC PART)
..... G.F.A. CALCULATIONS OF COVERED LANDSCAPE AREA
..... G.F.A. CALCULATIONS OF FILTRATION PLANT ROOM
..... G.F.A. CALCULATIONS OF FSI & EQUIPMENT, METER ROOM, TRANSFORMER ROOM, POTABLE AND FLUSHING WATER TANK, ETC (DOMESTIC PART)
..... G.F.A. CALCULATIONS OF FSI & EQUIPMENT, METER ROOM, TRANSFORMER ROOM, POTABLE AND FLUSHING WATER TANK, ETC (NON-DOMESTIC PART)
..... G.F.A. CALCULATIONS OF LIFT MACHINE ROOM, TBE ROOM, REFUSE STORAGE CHAMBER, ETC (DOMESTIC PART)
..... G.F.A. CALCULATIONS OF LIFT MACHINE ROOM, TBE ROOM, REFUSE STORAGE CHAMBER, ETC (NON-DOMESTIC PART)
..... G.F.A. CALCULATIONS OF LIFT SHAFT FOR CONCESSION
..... G.F.A. CALCULATIONS OF PIPE DUCT, AIR DUCT FOR MANDATORY FEATURE OR ESSENTIAL PLANT ROOM (DOMESTIC PART)
..... G.F.A. CALCULATIONS OF PIPE DUCT, AIR DUCT FOR MANDATORY FEATURE OR ESSENTIAL PLANT ROOM (NON-DOMESTIC PART)
..... G.F.A. CALCULATIONS OF PIPE DUCT, AIR DUCT FOR NON-MANDATORY FEATURE OR NON-ESSENTIAL PLANT ROOM (DOMESTIC PART)
..... G.F.A. CALCULATIONS OF PIPE DUCT, AIR DUCT FOR NON-MANDATORY FEATURE OR NON-ESSENTIAL PLANT ROOM (NON-DOMESTIC PART)
..... G.F.A. CALCULATIONS OF PLANT ROOM, PIPE DUCT, AIR DUCT FOR ENVIRONMENTALLY FRIENDLY SYSTEM AND FEATURE (DOMESTIC PART)
..... G.F.A. CALCULATIONS OF PLANT ROOM, PIPE DUCT, AIR DUCT FOR ENVIRONMENTALLY FRIENDLY SYSTEM AND FEATURE (NON-DOMESTIC PART)
..... G.F.A. CALCULATIONS OF PREFABRICATED WALL
..... G.F.A. CALCULATIONS OF RESIDENT RECREATION FACILITIES (ACTIVE FACILITIES)
..... G.F.A. CALCULATIONS OF RESIDENT RECREATION FACILITIES (PASSIVE FACILITIES)
..... G.F.A. CALCULATIONS OF STAIRCASES, LIFT SHAFT & VERTICAL DUCT SOLELY SERVING FLOOR ACCEPTED AS NOT BEING ACCOUNTABLE FOR GFA (DOMESTIC PART)
..... G.F.A. CALCULATIONS OF STAIRCASES, LIFT SHAFT & VERTICAL DUCT SOLELY SERVING FLOOR ACCEPTED AS NOT BEING ACCOUNTABLE FOR GFA (NON-DOMESTIC PART)
..... G.F.A. CALCULATIONS OF T.B.E. ROOM
..... G.F.A. CALCULATIONS OF TOTAL RESIDENT RECREATION FACILITIES AREA
..... G.F.A. CALCULATIONS OF UTILITY PLATFORM FOR CONCESSION
..... G.F.A. CALCULATIONS SUMMARY (DOMESTIC PART)
..... G.F.A. CALCULATIONS SUMMARY (NON-DOMESTIC PART)

- Setup Sheets



G.F.A. Calculations Workflow

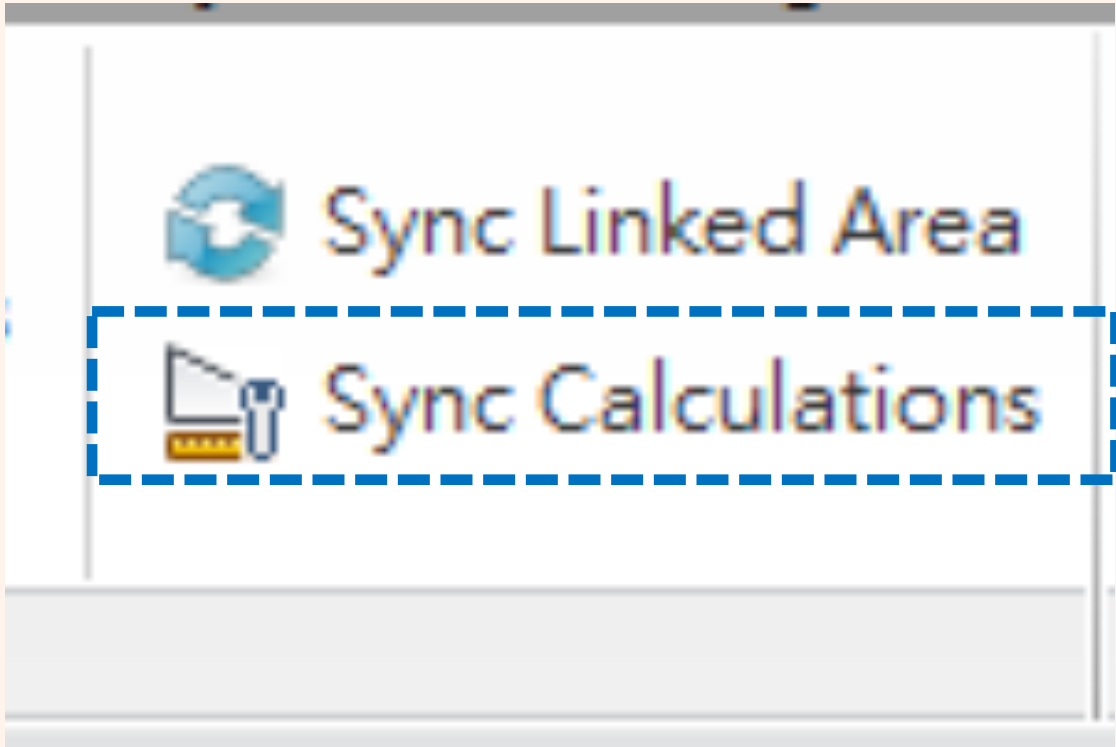
- Update Calculations Family



G.F.A. Calculations Workflow

- NOTE: Update values for annotation families by one click

LIFT CONCESSION AREA CALCULATION (DOMESTIC PART)	
TOTAL LIFT AREA - 2.5% OF TOTAL G.F.A.	
= 247.500 m² - (8403.336 m² x 2.5%)	
= 37.417 m²	
ACTURAL PROPOSED G.F.A. FOR DOMESTIC	
= 8403.336 m² - 37.417 m²	
= 8365.919 m²	



DVRW_Lift Shaft Concession	
Generic Annotations (1) Edit Type	
Text	
Schedule Name	[Total Domestic GFA:G.F.A. CALCULATIONS SUMMARY (DOMESTIC PART)][Total Lift Area:G...
Total Domestic GFA	8403.336
Total Lift Area	247.500
Lift Concession Area	37.417
Actual G.F.A. for Domestic	8365.919



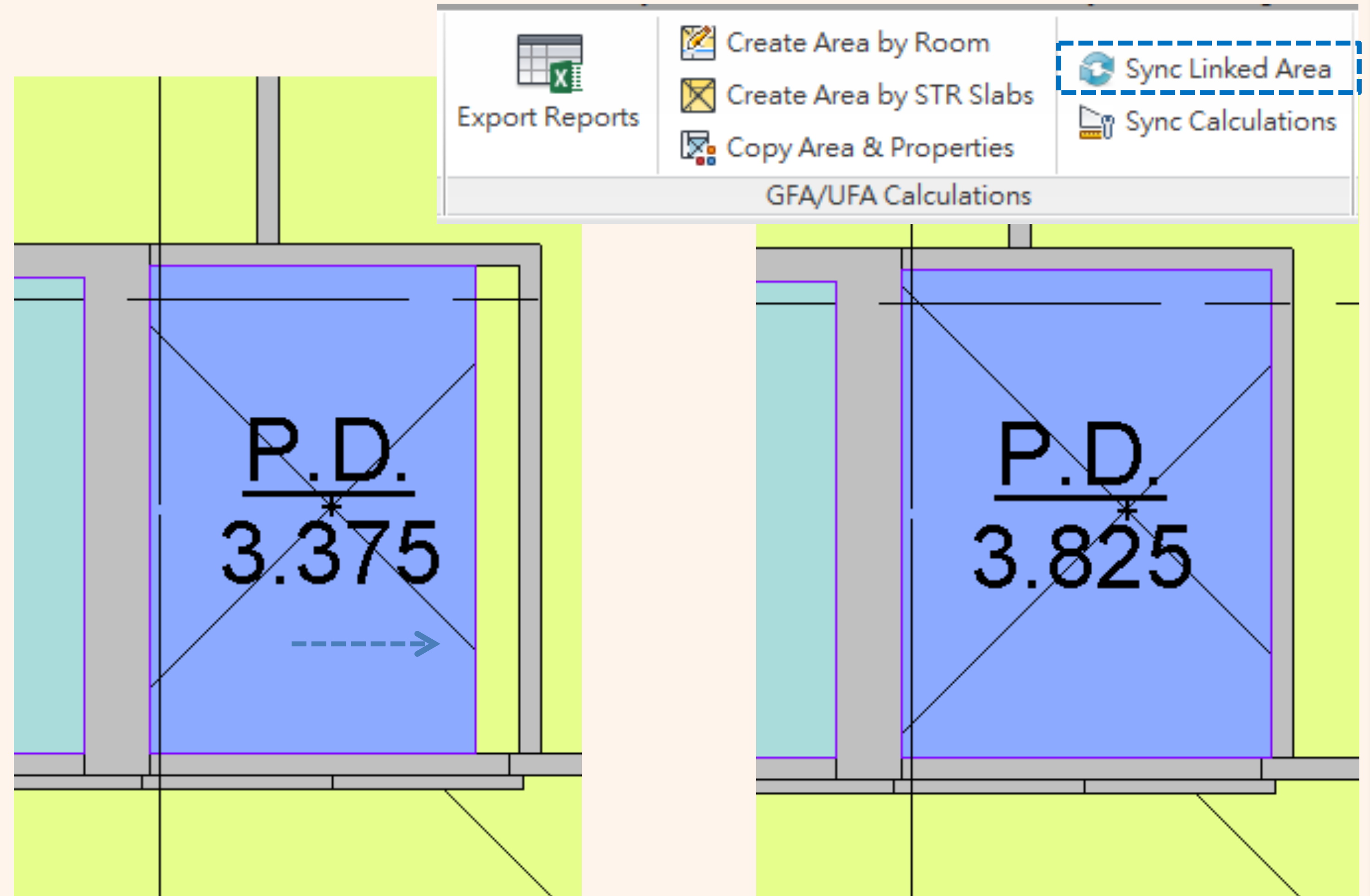
Parameters



Pattern: [Parameter Name:Schedule Name]...

G.F.A. Calculations Workflow

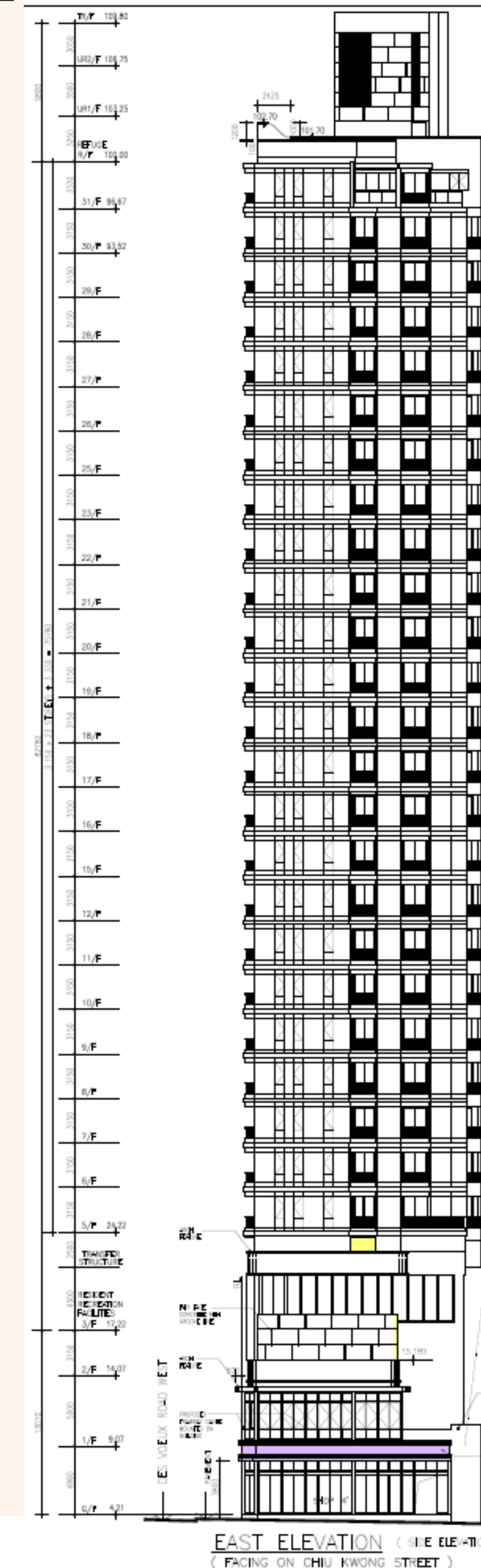
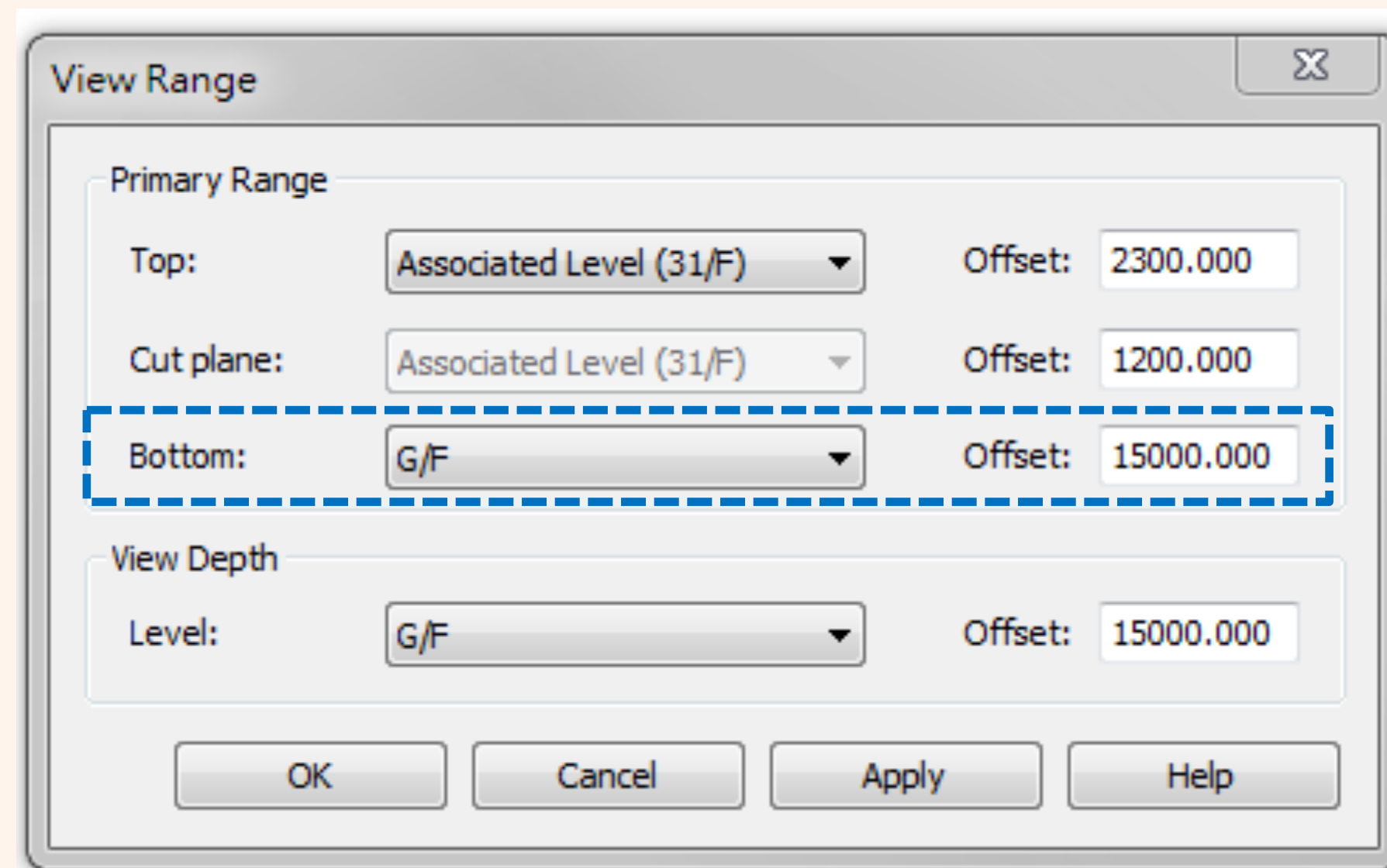
- Reload Area Boundary
 - (Notes: The area should be created using “Create Area by Room Addin)



Site Coverage & Plot Ratio Calculations Workflow

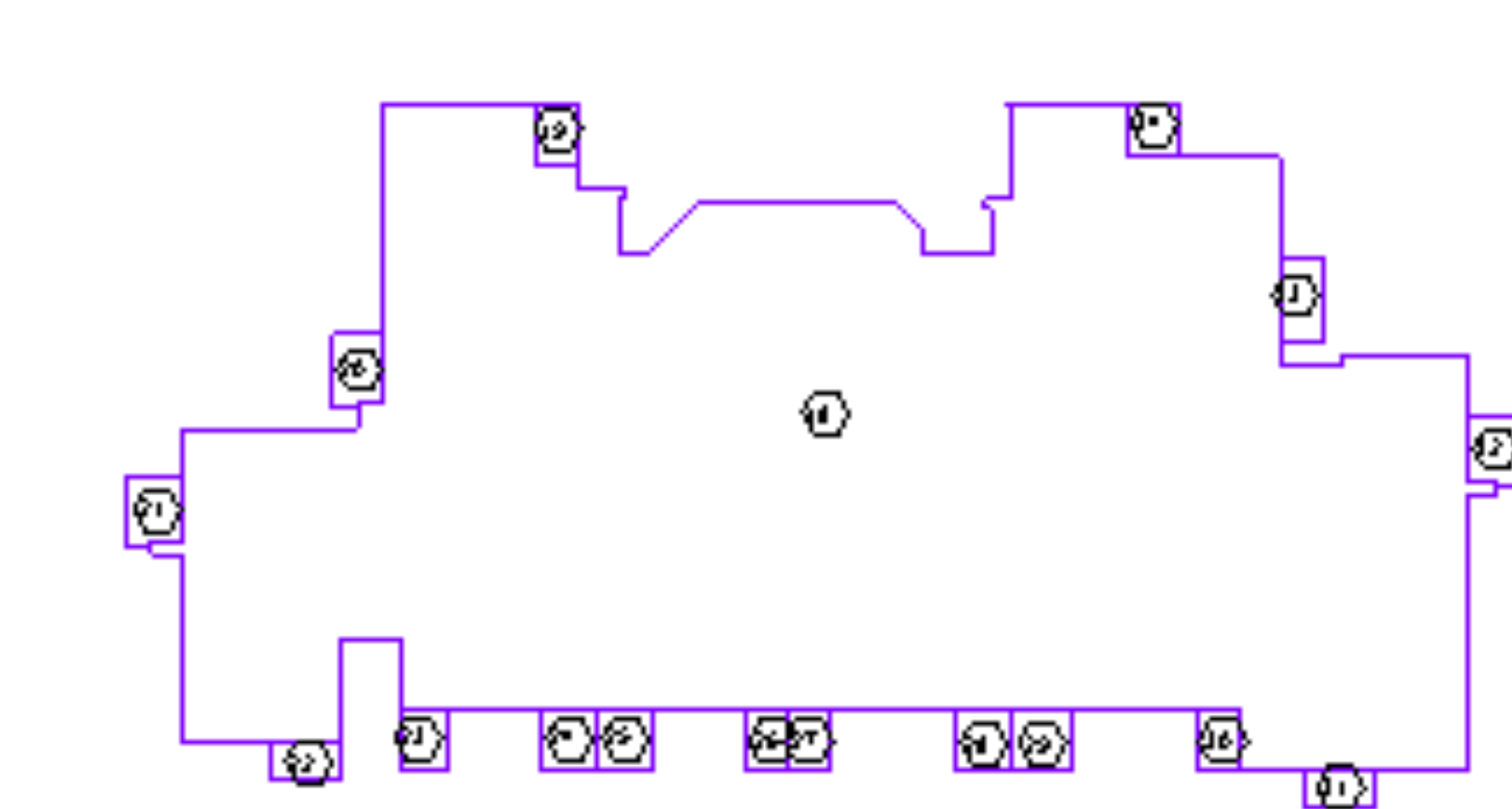
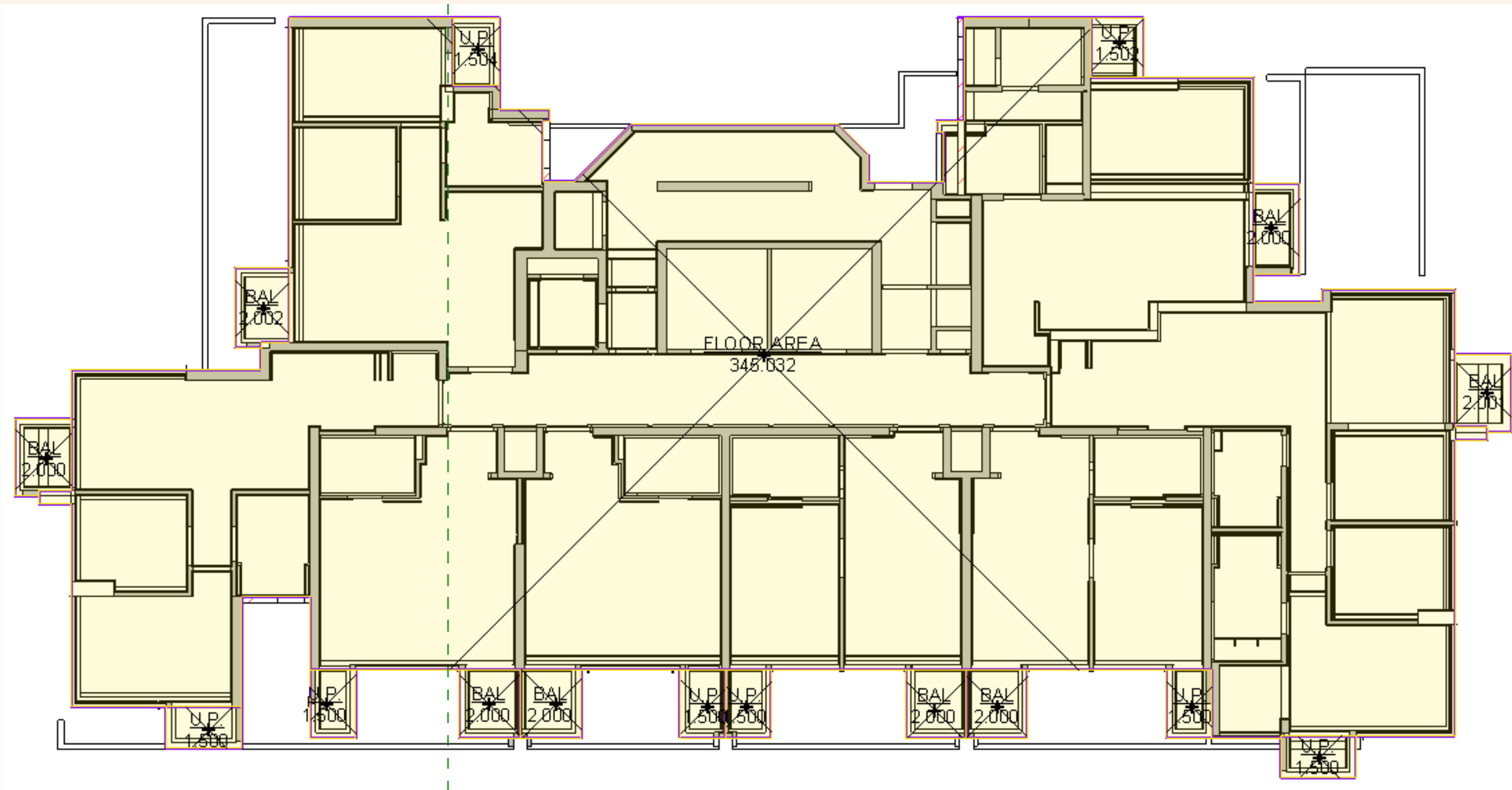
Site Coverage & Plot Ratio Calculations Workflow

- Using the floor plan in the highest level (ie. 31/F)
- Set the bottom offset in “View Range” to the elevation 15m above ground level.



Site Coverage & Plot Ratio Calculations Workflow

- Draw area boundary lines to fully outline the Covered area of the building
- Setup plans & schedules



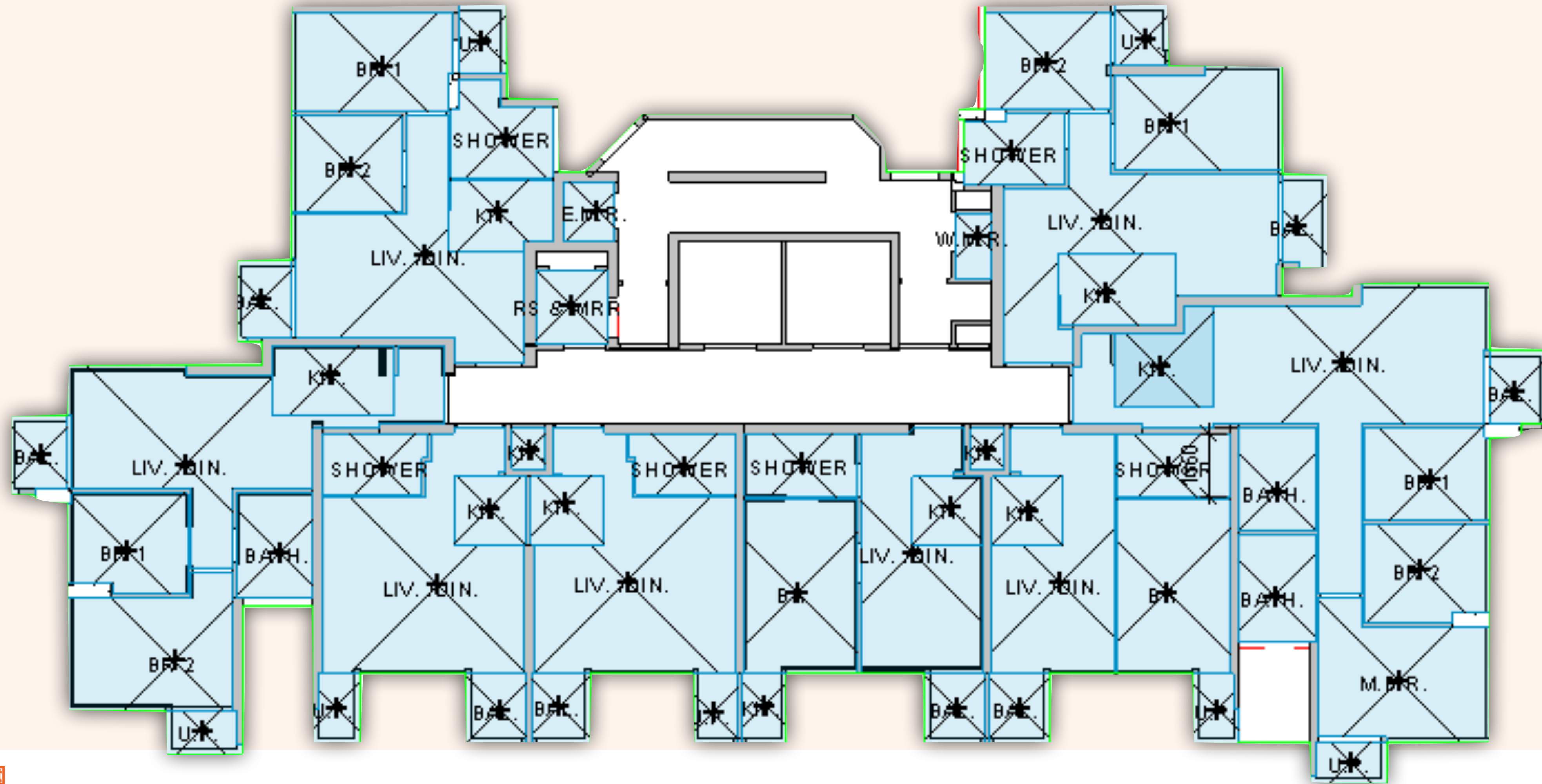
7 DOMESTIC COVERED AREA DIAGRAM
1 : 200

COVERED AREA CALCULATION (DOMESTIC PART)				
Number	Name	Area	GFA Factor	Total Area
1*	FLOOR AREA	348.032 m ²	1	348.032 m ²
2*	BAL	2.002 m ²	* 3	1.001 m ²
21	BAL	2.000 m ²	* 3	1.000 m ²
24	BAL	2.000 m ²	* 3	1.000 m ²
25	BAL	2.000 m ²	* 3	1.000 m ²
26	BAL	2.000 m ²	* 3	1.000 m ²
29	BAL	2.000 m ²	* 3	1.000 m ²
32	BAL	2.001 m ²	* 3	1.000 m ²
33	BAL	2.000 m ²	* 3	1.000 m ²
8	U.P.	15.04 m ²	* 3	*.152 m ²
22	U.P.	15.00 m ²	* 3	*.150 m ²
23	U.P.	15.00 m ²	* 3	*.150 m ²
24	U.P.	15.00 m ²	* 3	*.150 m ²
21	U.P.	15.00 m ²	* 3	*.150 m ²
30	U.P.	15.00 m ²	* 3	*.150 m ²
31	U.P.	15.00 m ²	* 3	*.150 m ²
34	U.P.	15.02 m ²	* 3	*.151 m ²
TOTAL: 11				359.034 m ²

U.F.A Calculations Workflow

U.F.A Calculations Workflow

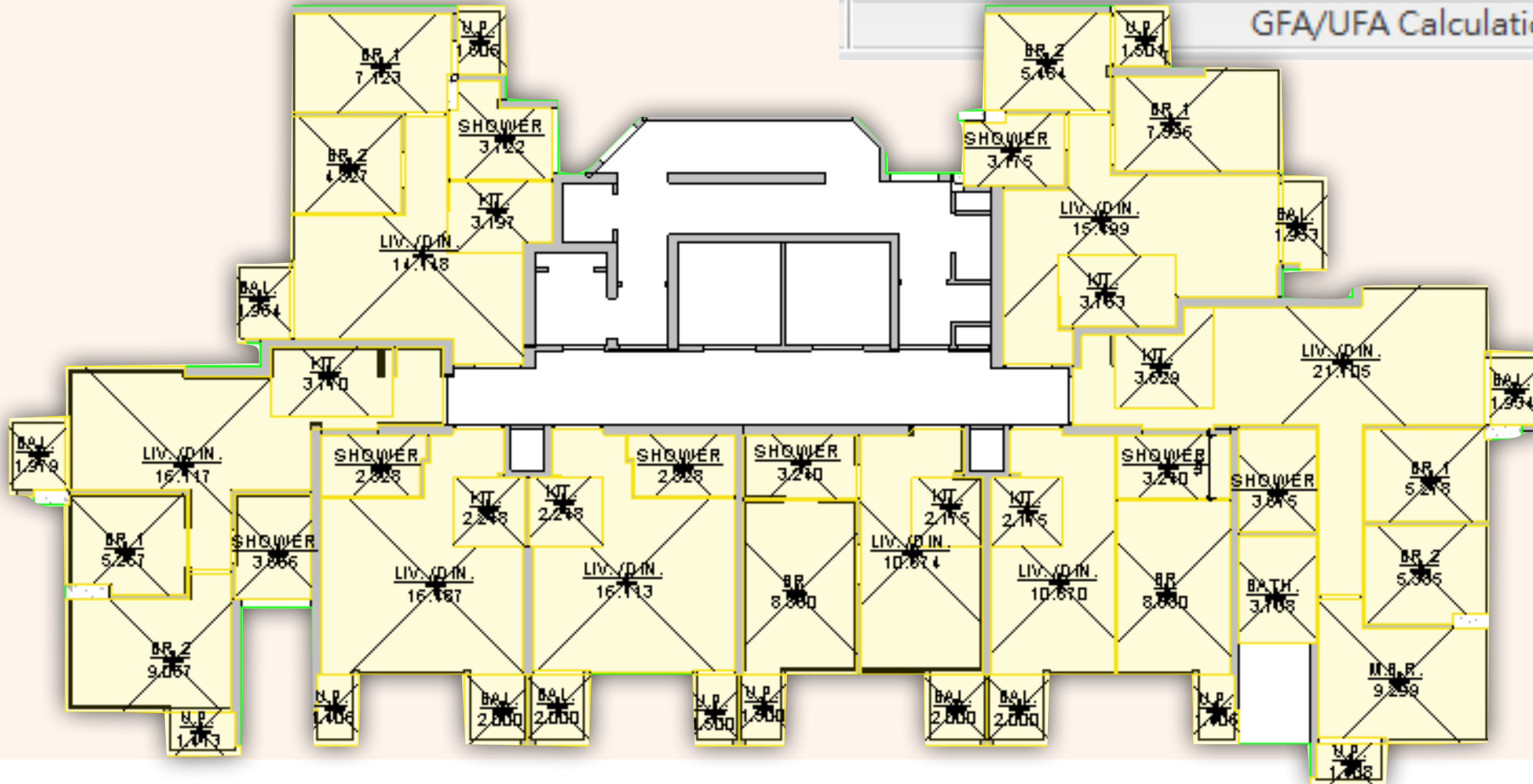
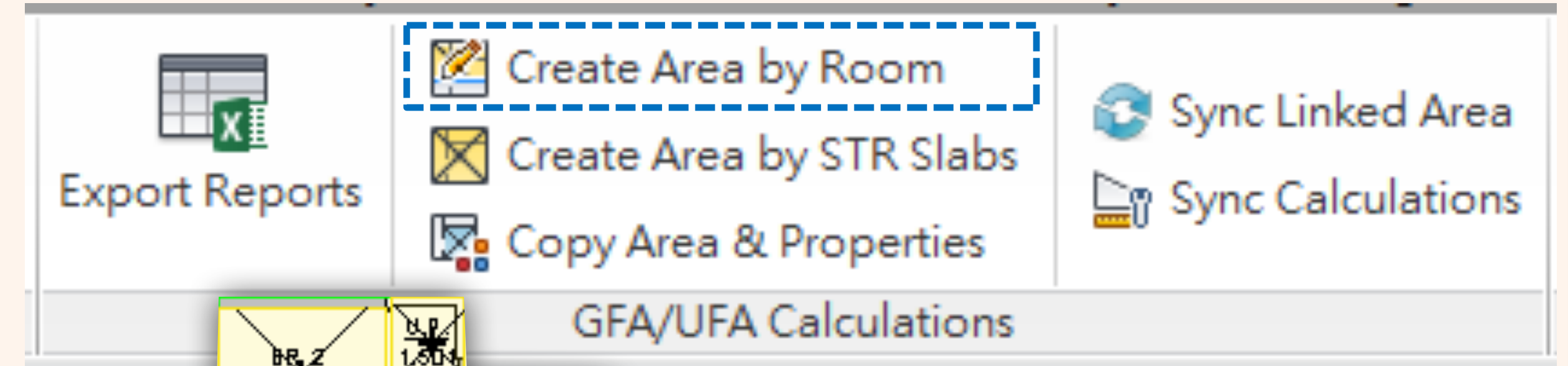
- Define Room for U.F.A.



U.F.A Calculations Workflow

- Create Area

- Create Area by Room for deduct/concession area



U.F.A Calculations Workflow

- Define UFA Factor Type, Number of Storey, Non-Domestic Usage for Area

Areas (1) Edit Type

Constraints

Level6/F

Text

Source of Information

RFC No

Dimensions

Area5.267

Perimeter9394.625

Computation Height0.000

Identity Data

Workset31

Number33

NameBR 1

GFA Factor Type(none)

UFA Factor TypeFLAT G

Image

Comments

Remarks

Edited by

Design OptionMain Model

Other

GFA Factor

GFA Factor Name

No of Storey22

Non-Domestic

UFA Factor NameG

Area TypeBuilding Common Area

Area Plan (UFA): 6/F - 13107_D

BAL. 1.979

LIV. / D 16.14

BR 1 5.267

BR 2 9.067

D. 1.4

U.F.A Calculations Workflow

- Setup Schedules

Schedule: U.F.A. Key Schedule (UFA Factor Type) - 13107_DVRW_Master_GFA.rvt

<U.F.A. Key Schedule (UFA Factor Type)>

A	B	C	D	E	F
UFA Factor Type	UFA Factor Name	SanFit_Factor	SanFit_Ratio_Male	SanFit_Ratio_Femal	SanFit_Ratio_Text
FLAT A	FLAT A	9			
FLAT B	FLAT B	9			
FLAT C	FLAT C	9			
FLAT G	FLAT G	9			
FLAT D	FLAT D	9			
FLAT F	FLAT F	9			
FLAT E	FLAT E	9			
FLAT H	FLAT H	9			
NON-DOMESTIC USAGE	NON-DOMESTIC USAGE				
RS & MRC	RS & MRC	0			
BED ROOM	BR	9			
KITCHEN FOR DOMESTIC	KIT	0			
LIVING/DINING	LIV./DIN.	9			
BATH/SHOWER	BATH	0			
UTILITY PLATFORM	UP	0			
BALCONY	BAL	0			
STORE ROOM	STORE	9			
SHOP	NON-DOMESTIC USAGE	15	1	1	(1:1)
RESTAURANT	NON-DOMESTIC USAGE	1.5	1	1	(1:1)
KITCHEN FOR RESTAURANT	NON-DOMESTIC USAGE	4.5	2	1	(2:1)
RECREATION	NON-DOMESTIC USAGE	3	1	1	(1:1)

Schedules/Quantities

.....	BALCONY CALCULATIONS (5/F)
.....	BALCONY CALCULATIONS (6/F-30/F)
.....	BALCONY CALCULATIONS (31/F)
.....	U.F.A. CALCULATIONS (5/F)
.....	U.F.A. CALCULATIONS (6/F-30/F)
.....	U.F.A. CALCULATIONS (31/F)
.....	U.F.A. Key Schedule (UFA Factor Type)
.....	U.F.S. CALCULATIONS (5/F)
.....	U.F.S. CALCULATIONS (6/F-30/F)
.....	U.F.S. CALCULATIONS (31/F)
.....	U.F.S. CALCULATIONS SUMMARY
.....	UTILITY PLATFORM CALCULATIONS (5/F)
.....	UTILITY PLATFORM CALCULATIONS (6/F-30/F)
.....	UTILITY PLATFORM CALCULATIONS (31/F)

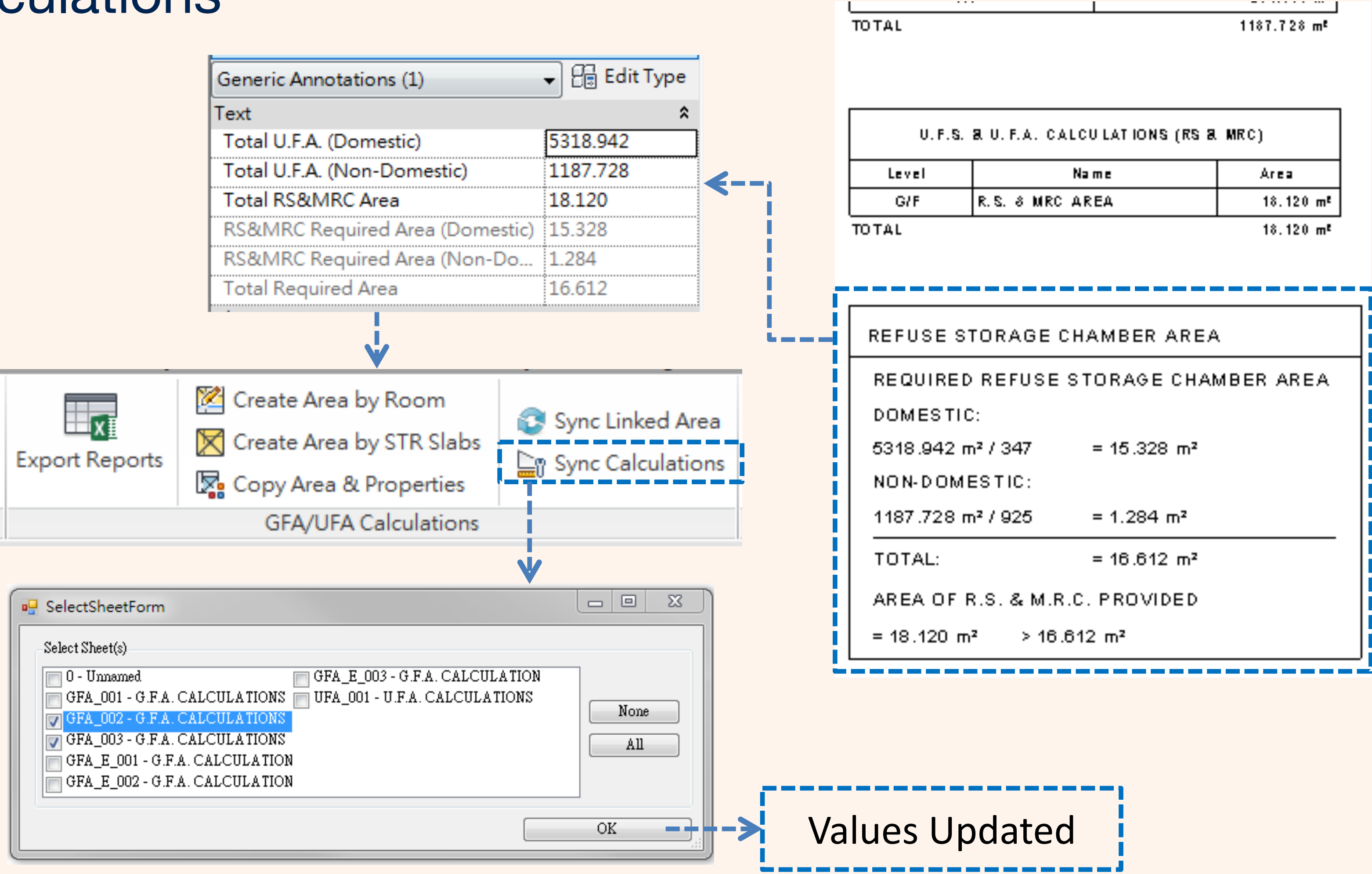
Key Schedule for UFA Factor Type:

- Setup Sheets



U.F.A Calculations Workflow

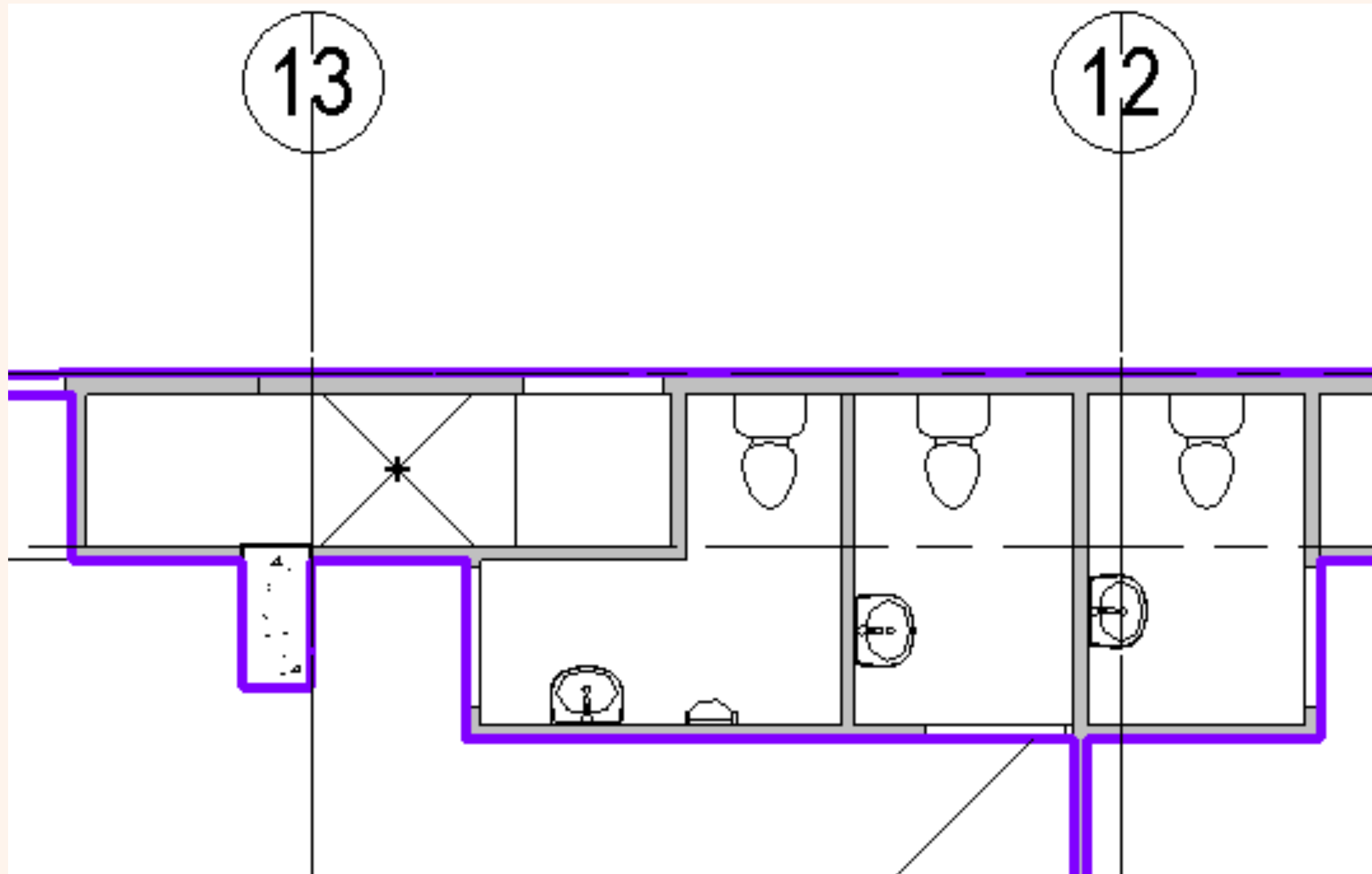
- Update Calculations



Sanitary Fitments Calculations

Sanitary Fitments Calculations

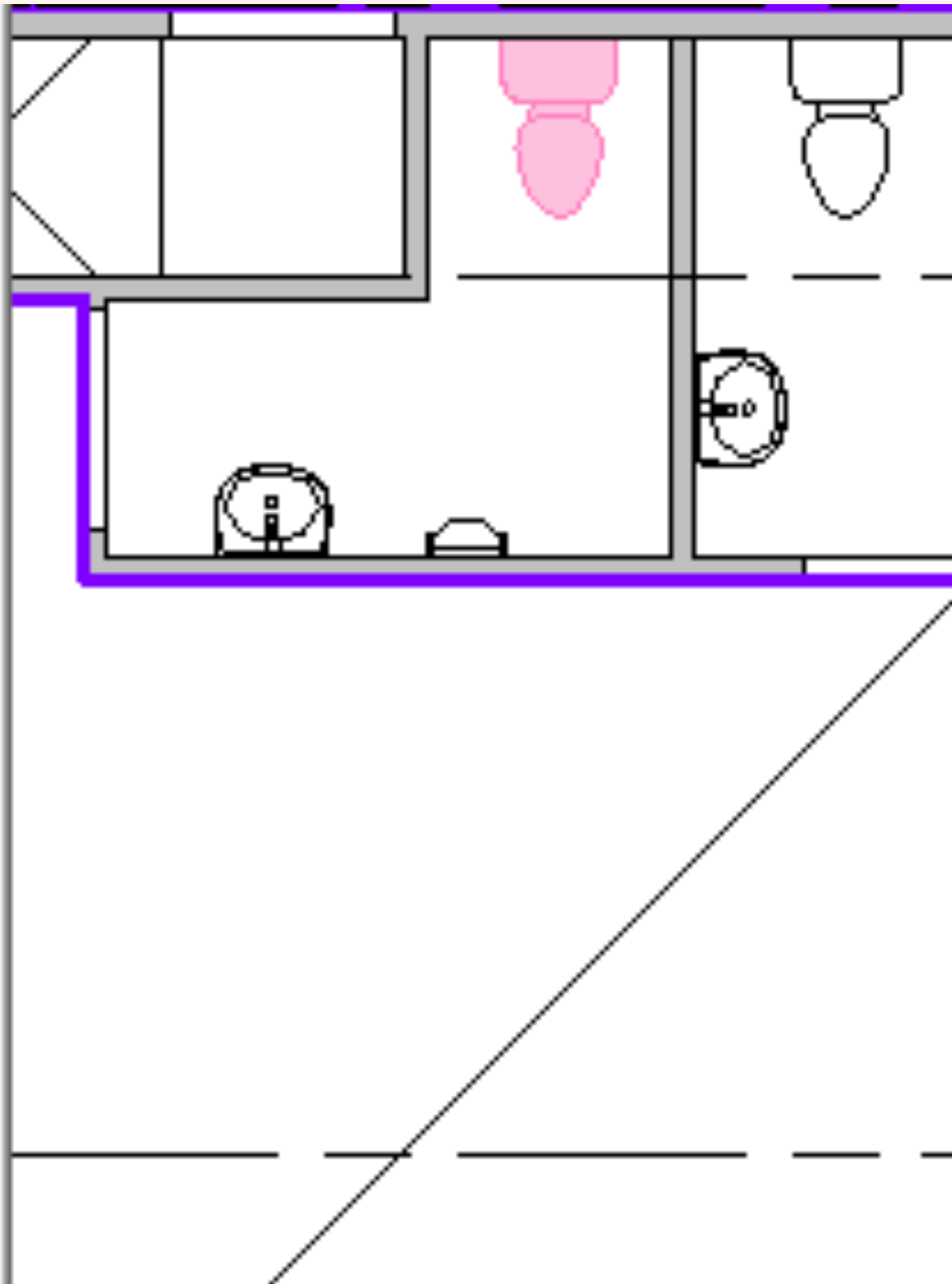
- Place Plumbing Fixture



Sanitary Fitments Calculations

- Define SanFit Gender, SanFit Location for each element

Identity Data		
SanFit Gender	MALE	
SanFit Location	G/F SHOP 2	
Image		
Comments		
Mark	123	
Workset	G/F	
Edited by		
Phasing		
Phase Created	Phase 2	
Phase Demolished	None	
Other		
SanFit Gender Code	1	
SanFit Location Name	G/F SHOP 2	



Sanitary Fitments Calculations

RUT Schedule: Plumbing Fixture Key Schedule (San...

<Plumbing Fixture Key Schedule (SanFit Location)>	
A	B
SanFit Location	SanFit Location Name
1/F RESTAURANT & KITCHEN	1/F RESTAURANT & KITCHEN
3/F RECREATION	3/F RECREATION
G/F SHOP 1	G/F SHOP 1
G/F SHOP 2	G/F SHOP 2
G/F SHOP 3	G/F SHOP 3
G/F SHOP 4	G/F SHOP 4

Key Schedule (SanFit Location)

RUT Schedule: Plumbing Fixture Key ...

<Plumbing Fixture Key Schedule (SanFit Gender)>	
A	B
SanFit Gender	SanFit Gender Code
MALE	1
FEMALE	2
UNISEX	3

Key Schedule (SanFit Gender)

Sanitary Fitments Calculations

- Setup Sheets

SANITARY FITMENTS CALCULATIONS																						
FLOOR	NAME	U.F.S.	FACTOR (% m/PERSON H)	TOTAL NO. OF PERSON PER ROOM		RATIO	NO OF PERSON PER TYPE		WATER CLOSET				BATH				BATH/SHOWER		URINAL		UNI-SEX	
							M	F	REQ'D (M)	REQ'D (F)	PROV'D (M)	PROV'D (F)	REQ'D (M)	REQ'D (F)	PROV'D (M)	PROV'D (F)	REQ'D	PROV'D	REQ'D	PROV'D	REQ'D	PROV'D
GF	SHOP 1	22.313 m²	5	3		(1:0)	2	2	1	1	1	1	1	1	1	1			1	1		
GF	SHOP 2	22.314 m²	5	4		(1:0)	1	1	1	1	1	1	1	1	1	1			1	1		
GF	SHOP 3	22.312 m²	5	3		(1:0)	5	5	1	1	1	1	1	1	1	1			1	1		
GF	SHOP 4	22.312 m²	5	2		(1:0)	4	4	1	1	1	1	1	1	1	1			1	1		
1F	KITCHEN 1	22.515 m²	4.5	1	11	(2:0)	2	2	2	2	4	2	2	2	2	1	1	1	1			
1F	KITCHEN 2	22.214 m²	4.5	3																		
1F	RESTAURANT 1	22.121 m²	1.5	21	24	(1:0)	2	2	2	2	4	2	2	2	2	1	1	1	1			
1F	RESTAURANT 2	21.241 m²	1.5	21																		
2F	GYM	22.434 m²	3	1	31	(1:0)	4	4	1	2	1	1	1	1	1	1	1	1	1	1	3	
2F	CHILDREN PLAY AREA	22.544 m²	3	11																		
2F	FOYER	22.311 m²	3	3																		
2F	FUNCTION ROOM	22.524 m²	3	21																		
2F	SWIMMING POOL	22.142 m²	3	1																		
2F	BABY POOL	22.15 m²	3	3																		
3F	FLAT A	22.111 m²	3	4	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1		
3F	FLAT B	22.111 m²	3	4	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1		
3F	FLAT C	22.151 m²	3	3	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1		
3F	FLAT D	22.151 m²	3	3	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1		
3F	FLAT E	22.111 m²	3	2	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1		
3F	FLAT F	22.111 m²	3	2	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1		
3F	FLAT G	22.111 m²	3	4	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1		
3F	FLAT H	22.211 m²	3	3	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1		
31F	FLAT A	22.114 m²	3	1	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1		
31F	FLAT C	22.114 m²	3	3	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1		
31F	FLAT D	22.253 m²	3	3	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1		
31F	FLAT E	22.113 m²	3	3	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1		
31F	FLAT F	22.113 m²	3	3	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1		
31F	FLAT G	22.142 m²	3	4	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1		
31F	FLAT H	22.543 m²	3	4	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1		

Time Estimation (1 Tower)

Project:
Proposed Composite Development
Total G.F.A. 9854 m²

Order	Item	Time
1	G.F.A. (from CAD drawing) Diagrams	1 DAY
2	G.F.A. (from CAD drawing) Calculations	1 DAY
3	G.F.A. Diagrams + Calculations	1 DAY
4	U.F.A. Plans + Calculations	1 DAY
5	Covered Area Diagrams + Calculations	0.5 DAY
6	Sanitary Fitment Calculations	1 DAY

Export Reports

Export Schedule Reports

- Export all area schedules and calculations to an excel format


Export Reports

 Create Area by Room

 Create Area by STR Sla

 Copy Area & Properties

GFA/UFA Calculation

Area Scheme Selector

COVERED

GFA

GFA (REV K)

GIA

Gross Building

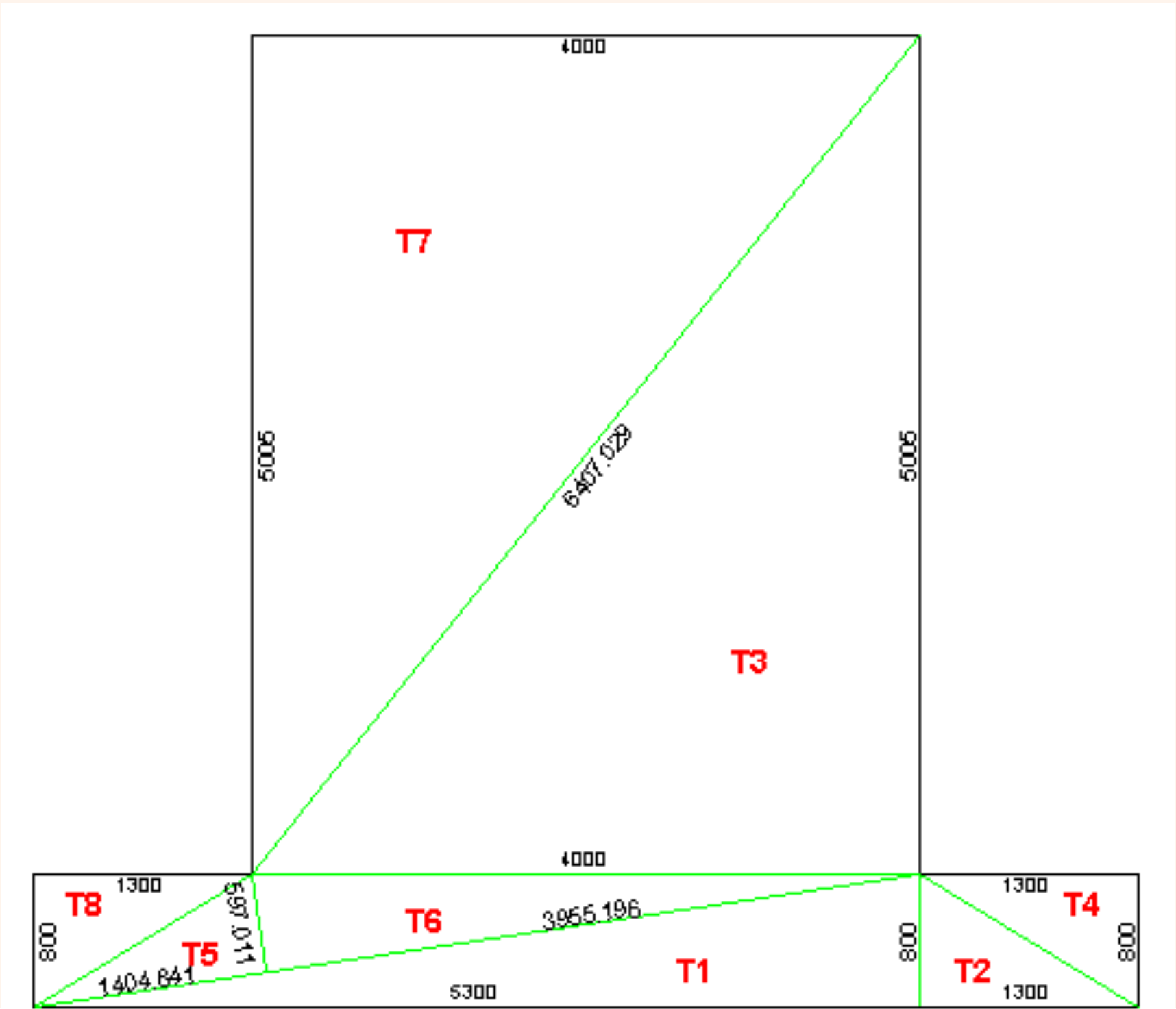
UFA

OK

	A	B	C	D	E	F	G
1	G.F.A CALCULATIONS (31/F DOMESTIC PART)						
2	Number	Name	Area	Factor	G.F.A.		
3	27	FLOOR AF	308.897 m ²	1	308.897 m ²		
4	49	LIFT SHA	9.900 m ²	1	9.900 m ²		
5	32	BAL	2.002 m ²	0.5	1.001 m ²		
6	45	BAL	1.979 m ²	0.5	0.989 m ²		
7	42	BAL	2.000 m ²	0.5	1.000 m ²		
8	41	BAL	2.000 m ²	0.5	1.000 m ²		
9	38	BAL	2.000 m ²	0.5	1.000 m ²		
10	37	BAL	2.000 m ²	0.5	1.000 m ²		
11	34	BAL	2.000 m ²	0.5	1.000 m ²		
12	44	U.P.	1.502 m ²	0.5	0.751 m ²		
13	43	U.P.	1.500 m ²	0.5	0.750 m ²		
14	40	U.P.	1.500 m ²	0.5	0.750 m ²		
15	39	U.P.	1.500 m ²	0.5	0.750 m ²		
16	36	U.P.	1.500 m ²	0.5	0.750 m ²		
17	35	U.P.	1.502 m ²	0.5	0.751 m ²		
18	33	U.P.	1.506 m ²	0.5	0.753 m ²		
19	28	E.M.R. & F	4.593 m ²	0	0.000 m ²		
20	31	P.D. 1	0.613 m ²	0	0.000 m ²		
21	30	P.D. 2	0.613 m ²	0	0.000 m ²		
22	46	PREFABR	10.581 m ²	0	0.000 m ²		
23	47	PREFABR	10.206 m ²	0	0.000 m ²		
24	48	PREFABR	10.225 m ²	0	0.000 m ²		
25	29	W.M.C. &	2.538 m ²	0	0.000 m ²		
26	TOTAL: 23				331.041 m ²		
27							
28							
29	G.F.A CALCULATIONS (5/F DOMESTIC PART)						
30	Number	Name	Area	Factor	G.F.A.		
31	1	FLOOR AF	323.498 m ²	1	323.498 m ²		
32	51	LIFT SHA	9.900 m ²	1	9.900 m ²		
33	3	BAL	2.000 m ²	0.5	1.000 m ²		
34	2	BAL	1.979 m ²	0.5	0.989 m ²		

Export Area Reports

- Generate a detailed report that describes the calculations for the areas

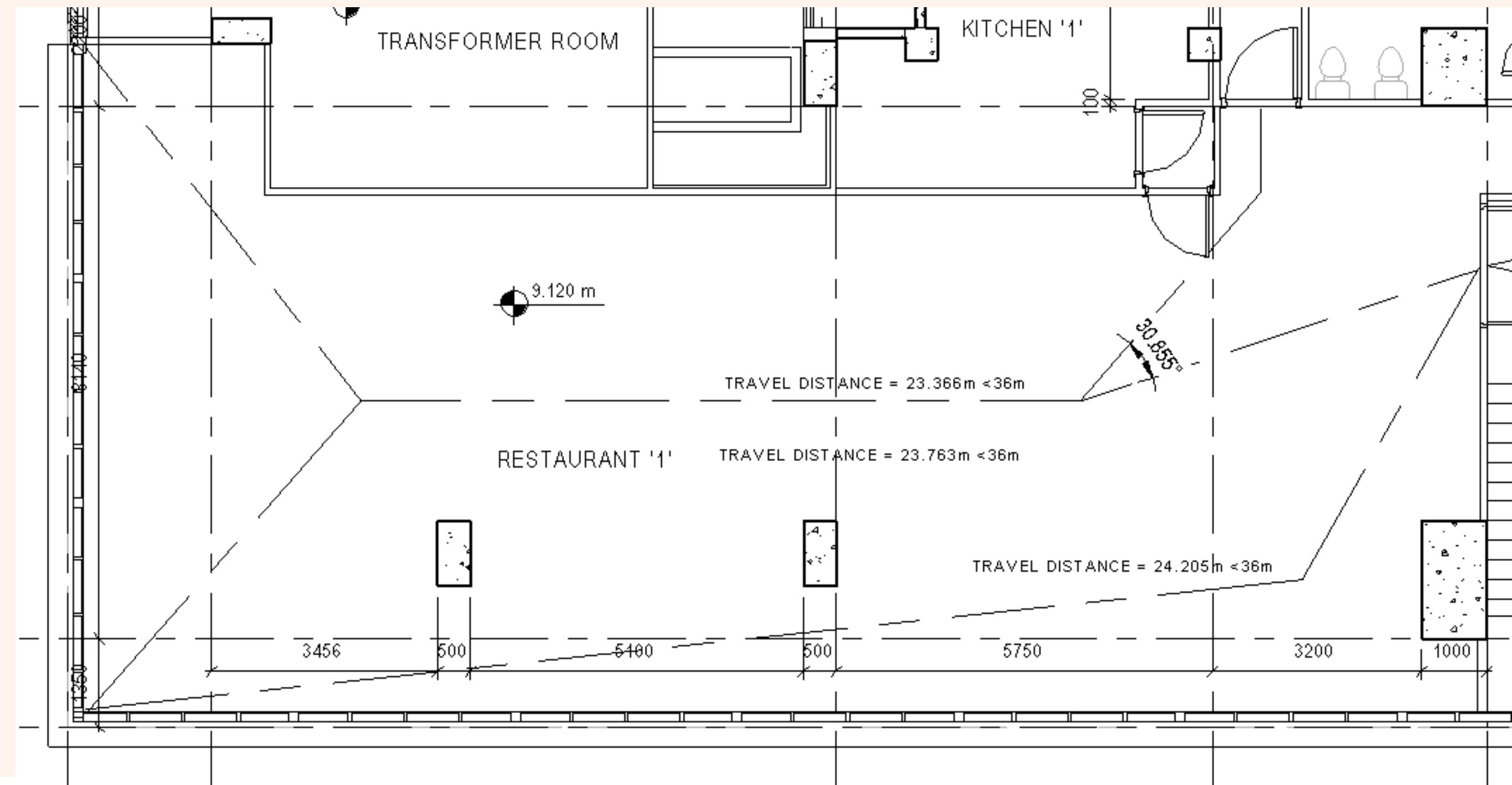
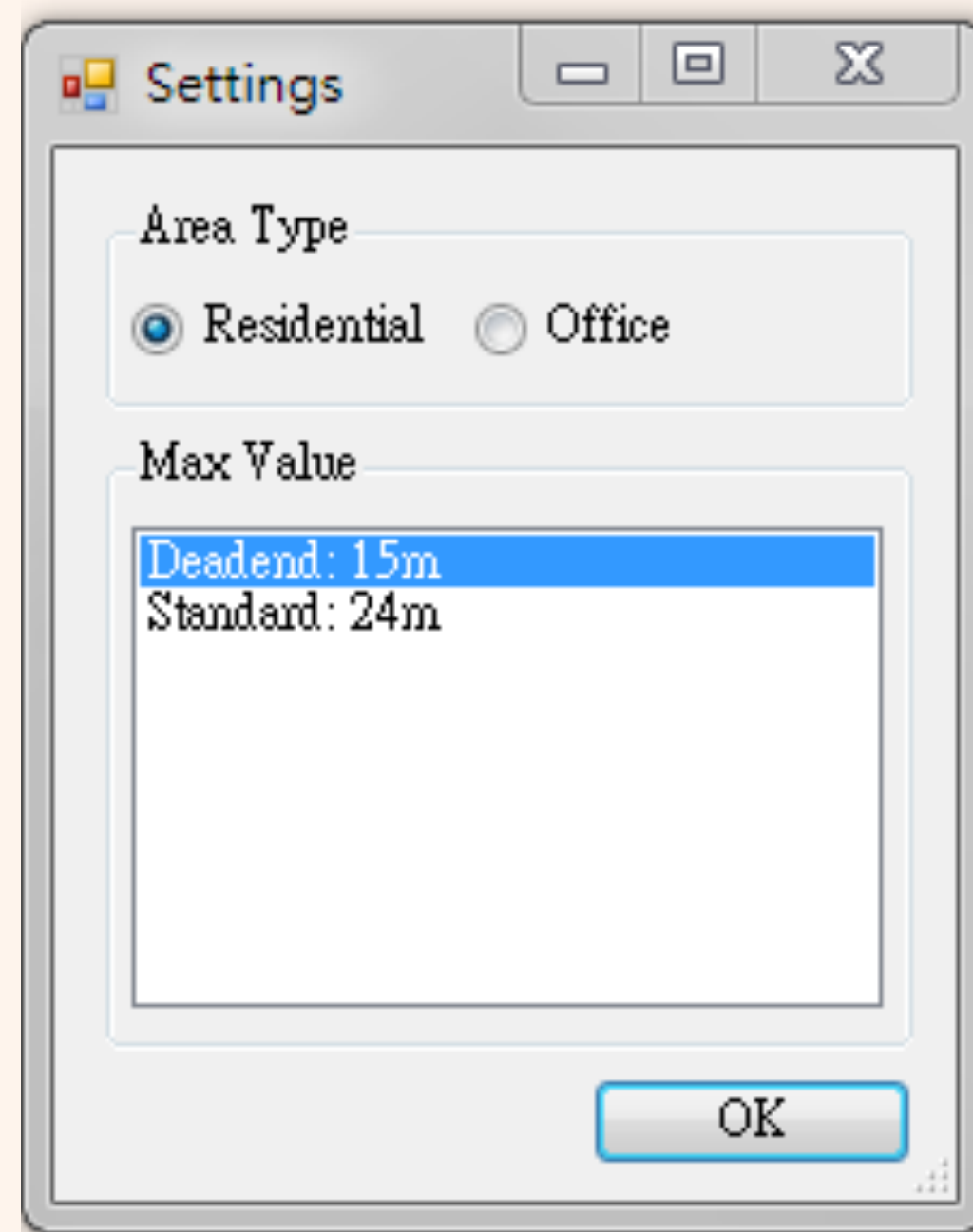
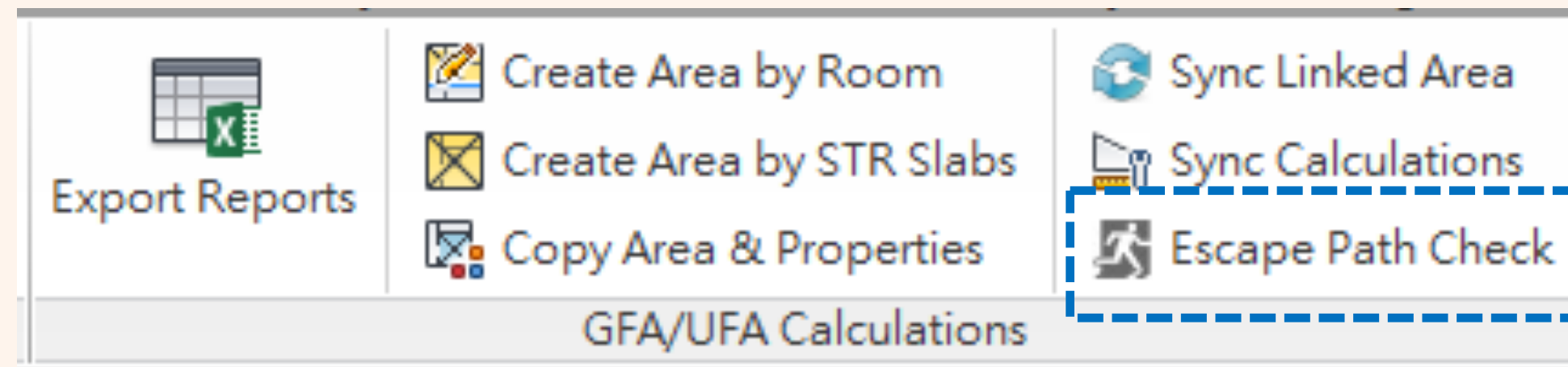


#	Calculation	Area
Triangles		
1	$\frac{1}{2} * 800 * 5300$	2.120
2	$\frac{1}{2} * 800 * 1300$	0.520
3	$\frac{1}{2} * 5005 * 4000$	10.010
4	$\frac{1}{2} * 1300 * 800$	0.520
5	$\frac{1}{2} * 597.011 * 1404.841$	0.419
6	$\frac{1}{2} * 597.011 * 3955.196$	1.181
7	$\frac{1}{2} * 5005 * 4000$	10.010
8	$\frac{1}{2} * 800 * 1300$	0.520
Gross area is 25.300.		

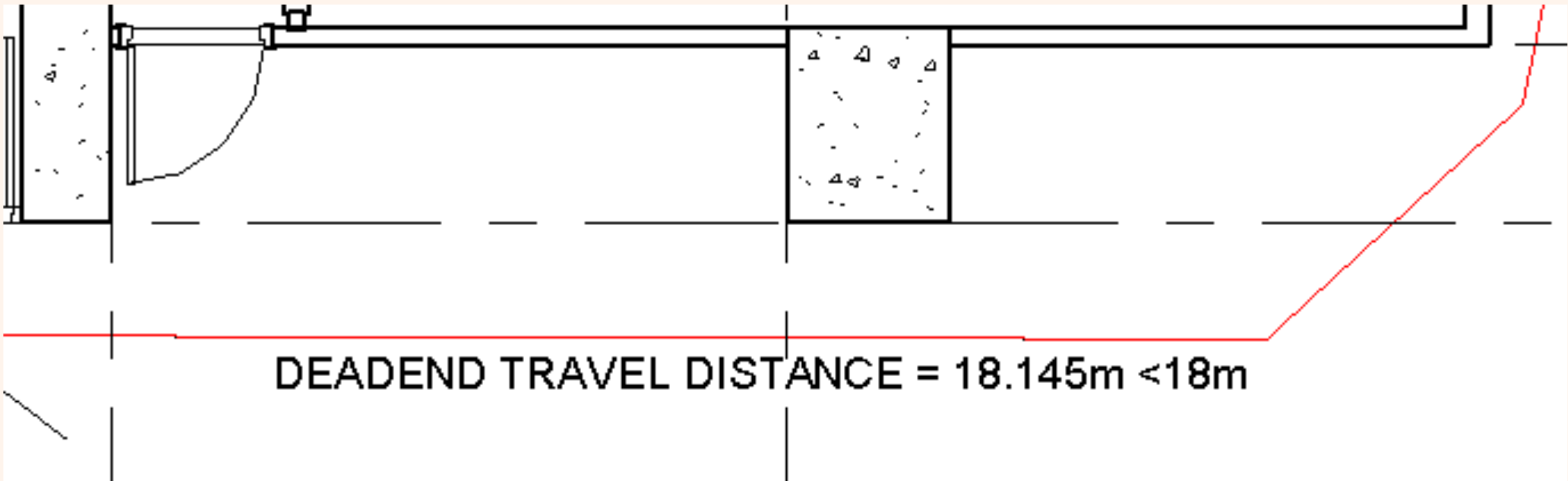
Escape Path Checking

Escape Path Checking

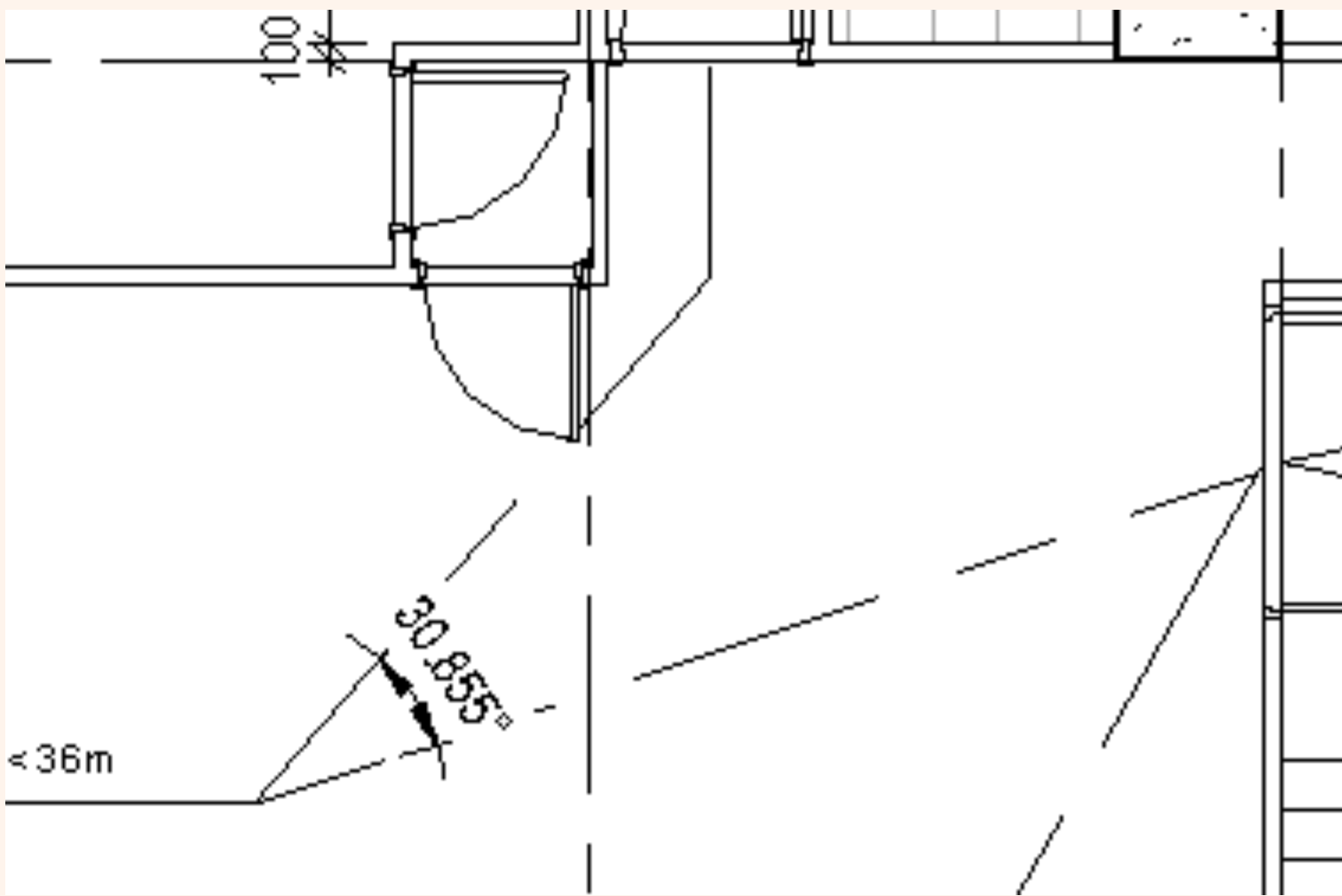
- Define Area Type and Maximum value of travel distance



Escape Path Checking



Line turns Red if travel distance exceed requirement



Angle checking between two exit routes

Provision of Exit Doors & Exit Routes Calculations

- Define “MOE_Factor” in U.F.A. Key Schedule

<U.F.A. Key Schedule (UFA Factor Type)>						
A	B	C	D	E	F	G
UFA Factor Type	UFA Factor Name	SanFit_Factor	SanFit_Ratio_Male	SanFit_Ratio_Femal	SanFit_Ratio_Text	MOE_Factor
SHOP	NON-DOMESTIC USAGE	15	1	1	(1:1)	3
RESTAURANT	NON-DOMESTIC USAGE	1.5	1	1	(1:1)	1
KITCHEN FOR RESTAURANT	NON-DOMESTIC USAGE	4.5	2	1	(2:1)	4.5
RECREATION	NON-DOMESTIC USAGE	3	1	1	(1:1)	3

Provision of Exit Doors & Exit Routes Calculations

PROVISION OF EXIT DOORS & EXIT ROUTES FROM ROOM OR STOREY															
FLOOR	NAME	U.F.A	FACTOR (s.m./PERSON)	TOTAL NO. OF PERSON PER ROOM	CAPACITY OF ROOM OR STOREY	MIN. NO. OF EXIT DOORS OR EXIT ROUTES		MIN. TOTAL WIDTH IN mm				MIN. WIDTH IN mm OF EACH			
						REQ'D	PROV'D	EXIT DOOR		EXIT ROUTE		EXIT DOOR		EXIT ROUTE	
								REQ'D	PROV'D	REQ'D	PROV'D	REQ'D	PROV'D	REQ'D	PROV'D
1/F	KITCHEN 1	32.595 m ²	4.5	8	390	2	3	3000	3150	3000	3150	1050	ST-1 = 1050, ST-2 = 1050, ST-3 = 1050	1050	ST-1 = 1050, ST-2 = 1050, ST-3 = 1050
1/F	RESTAURANT 1	180.021 m ²	1	181											
1/F	KITCHEN 2	38.274 m ²	4.5	9											
1/F	RESTAURANT 2	191.241 m ²	1	192											
3/F	GYM	45.696 m ²	3	16	91	2	2	1750	1750	2100	2100	850	875	1050	1050
3/F	CHILDREN PLAY AREA	50.540 m ²	3	17											
3/F	FOYER	25.300 m ²	3	9											
3/F	FUNCTION ROOM	82.524 m ²	3	28											
3/F	SWIMMING POOL	52.742 m ²	3	18											
3/F	BABY POOL	7.975 m ²	3	3											
5/F-30/F	FLAT A	28.579 m ²	9	4	30	1	2	0	1500	0	2100	750	750	1050	1050
5/F-30/F	FLAT B	41.666 m ²	9	7											
5/F-30/F	FLAT C	19.750 m ²	9	3											
5/F-30/F	FLAT D	19.750 m ²	9	3											
5/F-30/F	FLAT E	16.488 m ²	9	2											
5/F-30/F	FLAT F	16.487 m ²	9	2											
5/F-30/F	FLAT G	30.452 m ²	9	5											
5/F-30/F	FLAT H	26.267 m ²	9	4											
31/F	FLAT A	60.253 m ²	9	9	28	1	2	0	1500	0	2100	750	750	1050	1050
31/F	FLAT C	19.750 m ²	9	3											
31/F	FLAT D	19.754 m ²	9	3											
31/F	FLAT E	16.113 m ²	9	2											
31/F	FLAT F	16.487 m ²	9	2											
31/F	FLAT G	30.452 m ²	9	5											
31/F	FLAT H	26.098 m ²	9	4											

Thank you