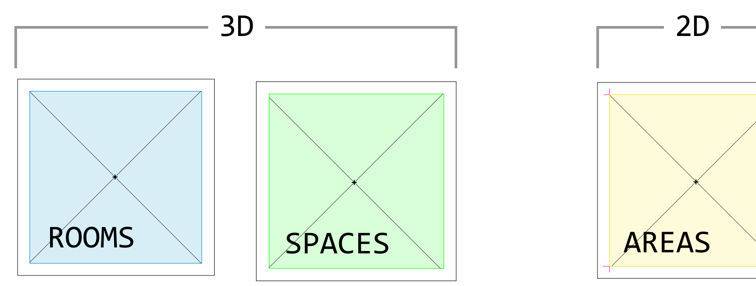
CODE PLANS USING AREAS

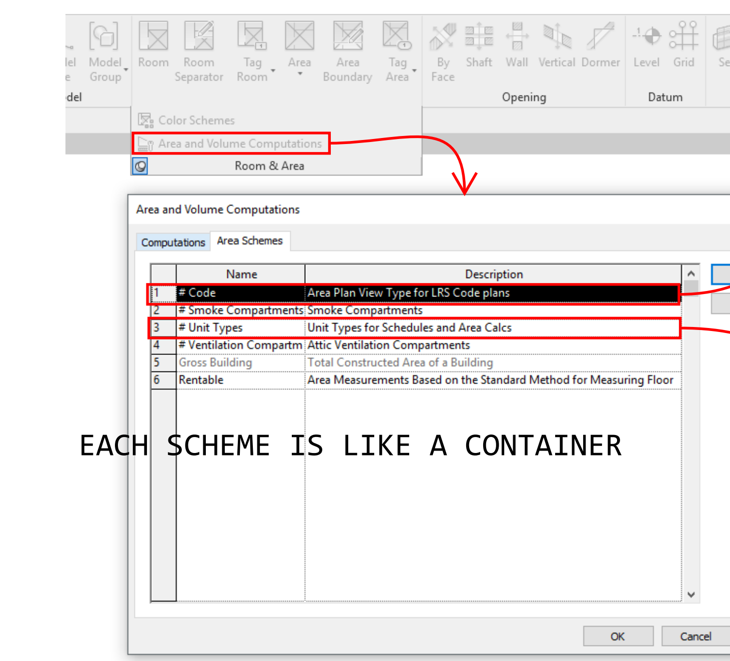
BENEFITS OF USING AREAS VS ROOMS

1. Area boundaries are more flexible. This allows for better control over the area calculations.
2. Using Area plans for Code calculation puts the control in the hand of the Code reviewer.
3. Area plans could be used to combine multiple rooms based on their Code group type.
4. Multiple Areas could be drawn inside one larger area (e.g. egress paths inside a large assembly area)
5. Is consistent with using Area plans for other area calculations (e.g. Unit type, Smoke Compartments, Ventilation Compartments, ...)

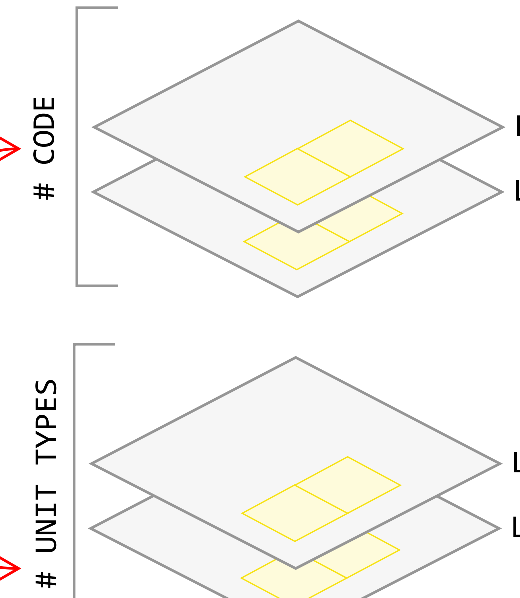
SPATIAL ELEMENTS IN REVIT



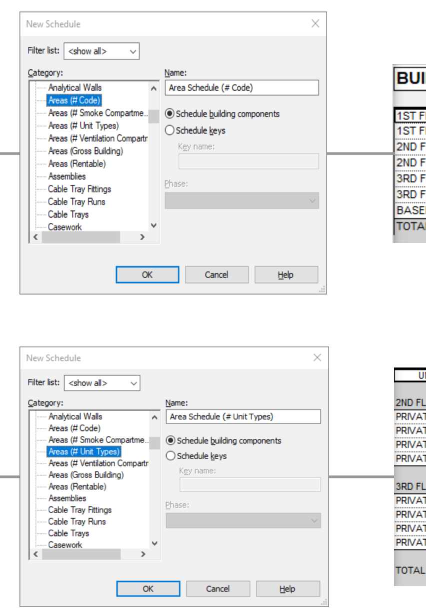
AREAS HAVE SCHEMES



EACH SCHEME IS LIKE A CONTAINER



MULTIPLE FLOOR PLANS CAN BE IN EACH SCHEME. EACH FLOOR PLAN CONTAINS A WORKSPACE FOR AREA ELEMENTS



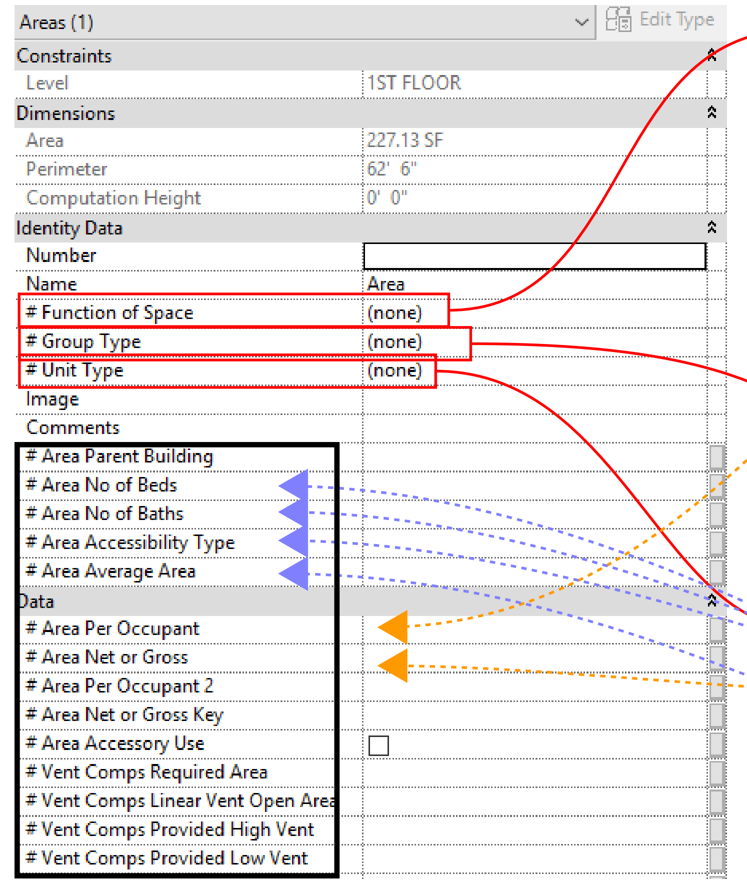
BUILDING AREAS

A	B
1ST FLOOR	16,750 SF
1ST FLOOR - EXTERIOR COVERED AREAS	2,050 SF
2ND FLOOR	17,100 SF
2ND FLOOR - EXTERIOR DECKS	500 SF
3RD FLOOR	17,100 SF
3RD FLOOR - EXTERIOR DECKS	200 SF
BASEMENT	9,300 SF
TOTAL BUIDLING AREA:	62,950 SF

UNIT TYPE NAME	COUNT	AVERAGE AREA	# OF BEDS	ACCESSIBILITY CLASS
2ND FLOOR SKILLED NURSING				
PRIVATE TYPE A	8	350 SF	8	ANSI ACCESSIBLE UNIT
PRIVATE TYPE B	5	360 SF	5	ANSI ACCESSIBLE UNIT
PRIVATE TYPE C	4	360 SF	4	ANSI ACCESSIBLE UNIT
PRIVATE TYPE D	4	360 SF	4	ANSI ACCESSIBLE UNIT
	21		21	
3RD FLOOR SKILLED NURSING				
PRIVATE TYPE A	8	350 SF	8	ANSI ACCESSIBLE UNIT
PRIVATE TYPE B	5	360 SF	5	ANSI ACCESSIBLE UNIT
PRIVATE TYPE C	4	360 SF	4	ANSI ACCESSIBLE UNIT
PRIVATE TYPE D	4	360 SF	4	ANSI ACCESSIBLE UNIT
	21		21	
TOTAL UNIT & BED COUNT: 42			42	

SCHEME DATA IS SCHEDULED INDEPENDENTLY

1 SETTING AREA PROPERTIES



CUSTOM PROJECT PARAMETERS FOR AREA ELEMENTS

USE KEY SCHEDULES TO SET STYLES

(VALUES FOR MULTIPLE PROPERTIES)

KEY NAME	AREA PER OCCUPANT (SF)	ARE TYPE (NET/GROSS)
Accessory storage areas, mechanical equipment room	300.00 SF	Gross
Agricultural building	300.00 SF	Gross
Aircraft hangars	500.00 SF	Gross
Airport terminal (Baggage claim)	20.00 SF	Gross
Airport terminal (Baggage handling)	300.00 SF	Gross
Airport terminal (Concourse)	100.00 SF	Gross
Airport terminal (Waiting areas)	15.00 SF	Gross
Assembly (Exhibit Gallery and Museum)	30.00 SF	Net
Assembly (Gaming floors, keno, slots, etc.)	11.00 SF	Gross
Assembly with fixed seats (See Section 1004.4)	0.00 SF	
Assembly without fixed seats (Concentrated (chairs only-not fixed)	7.00 SF	Net
Assembly without fixed seats (Standing space)	5.00 SF	Net
Assembly without fixed seats (Unconcentrated (tables and chairs)	15.00 SF	Net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7.00 SF	Net
Business areas	100.00 SF	Gross
Courtrooms-other than fixed seating areas	40.00 SF	Net
Day care	35.00 SF	Net
Dormitories	50.00 SF	Gross
Educational (Classroom area)	20.00 SF	Net
Educational (Shops and other vocational room areas)	50.00 SF	Net
Exercise rooms	50.00 SF	Gross
Group H-5 Fabrication and manufacturing areas	200.00 SF	Gross
Industrial Areas	100.00 SF	Gross
Institutional areas (Inpatient treatment areas)	240.00 SF	Gross
Institutional areas (Outpatient areas)	100.00 SF	Gross
Institutional areas (Sleeping areas)	120.00 SF	Gross
Kitchens, commercial	200.00 SF	Gross
Library (Reading rooms)	50.00 SF	Net
Library (Stack area)	100.00 SF	Gross
Mall buildings-covered and open (See Section 1004.8.2)		
Mercantile (Areas on other floors)	60.00 SF	Gross
Mercantile (Basement and grade floor areas)	30.00 SF	Gross
Mercantile (Storage, stock, shipping areas)	300.00 SF	Gross
Parking garages	200.00 SF	Gross
Residential	200.00 SF	Gross
Skating rinks, swimming pools (Decks)	15.00 SF	Gross
Skating rinks, swimming pools (Rink and pool)	50.00 SF	Gross
Stages and platforms	15.00 SF	Net
Warehouses	500.00 SF	Gross

A
KEY NAME
A-2
A-3
A-4
A-5
B
E
F-1
F-2
H-1
H-2
H-3
H-4
H-5
I-1
I-2
I-3
I-4
M
R-1
R-2
R-3
R-4
S-1
S-2
U

UNIT TYPE KEY	TYPE NAME	UNIT AVERAGE AREA	UNIT # OF BEDS	UNIT # OF BATHS	ACCESSIBILITY TYPE
UNIT TYPE KEY	UNIT TYPE NAME	0.00 SF	0	0	ANSI ACCESSIBLE UNIT

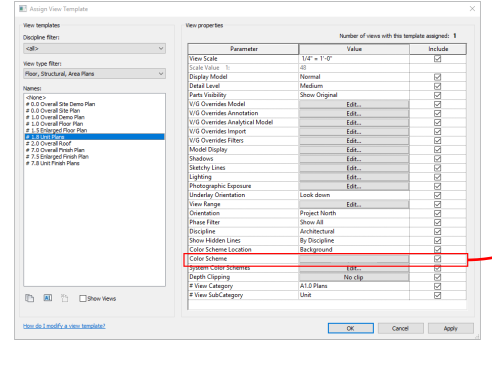
OCCUPANT LOAD SCHEDULE - 1ST FLOOR

A	B	C	D	E	F	G
AREA NAME	MEASURED AR	OCCUPANCY GR	AREA FUNCTION	NET or GR	OCCUPANT LO	CALCULATED OC
MULTI-PURPOSE ROOM	970 SF	A-3	ASSEMBLY WITHOUT FIXED SEATS (UNCONCENTRATED (TABLES AND CHAIRS)	GROSS	20 SF	49
PRAYER / MEDITATION	330 SF	A-3	ASSEMBLY WITHOUT FIXED SEATS (UNCONCENTRATED (TABLES AND CHAIRS)	GROSS	20 SF	17
CHAPLAIN	170 SF	B	BUSINESS AREAS	GROSS	100 SF	2
SALON	380 SF	I-2	BUSINESS AREAS	GROSS	100 SF	4
REHAB DIR.	140 SF	B	BUSINESS AREAS	GROSS	100 SF	2
REHAB TECHNICIANS	380 SF	B	BUSINESS AREAS	GROSS	100 SF	4
REHAB CENTER	1890 SF	I-2	EXERCISE ROOMS	GROSS	50 SF	39
ADMISSIONS	270 SF	B	BUSINESS AREAS	GROSS	100 SF	3
SOCIAL SERVICES OFFICE	210 SF	B	BUSINESS AREAS	GROSS	100 SF	3
MEDICAL RECORDS	350 SF	B	BUSINESS AREAS	GROSS	100 SF	4
MEDICAL RECORDS DIR.	210 SF	B	BUSINESS AREAS	GROSS	100 SF	3
CONF. ROOM	350 SF	A-3	ASSEMBLY WITHOUT FIXED SEATS (UNCONCENTRATED (TABLES AND CHAIRS)	GROSS	20 SF	26
NUTRITION CARE MANAGER	130 SF	B	BUSINESS AREAS	GROSS	100 SF	2
CNA CLASSROOM	400 SF	A-3	EDUCATIONAL (CLASSROOM AREA)	NET	20 SF	21
CNA CLASSROOM	390 SF	A-3	EDUCATIONAL (CLASSROOM AREA)	NET	20 SF	20
RISK MGMT. COORD.	170 SF	B	BUSINESS AREAS	GROSS	100 SF	2
DNS	200 SF	B	BUSINESS AREAS	GROSS	100 SF	3
CONF. ROOM	180 SF	A-3	ASSEMBLY WITHOUT FIXED SEATS (UNCONCENTRATED (TABLES AND CHAIRS)	GROSS	20 SF	14
CONSULTS	130 SF	B	BUSINESS AREAS	GROSS	100 SF	2
TOILET	90 SF	B	BUSINESS AREAS	GROSS	100 SF	1
CNA OFFICE	130 SF	B	BUSINESS AREAS	GROSS	100 SF	2
TOILET	100 SF	B	BUSINESS AREAS	GROSS	100 SF	1
TOILET	60 SF	I-2	BUSINESS AREAS	GROSS	100 SF	1
TOILET	60 SF	I-2	BUSINESS AREAS	GROSS	100 SF	1
RECEPTION	160 SF	B	BUSINESS AREAS	GROSS	100 SF	2
MAINT. OFFICE	250 SF	B	BUSINESS AREAS	GROSS	100 SF	4
ADMIN INTAKE	170 SF	B	BUSINESS AREAS	GROSS	100 SF	2
ADMIN	210 SF	B	BUSINESS AREAS	GROSS	100 SF	3
STAFFING COORD.	170 SF	B	BUSINESS AREAS	GROSS	100 SF	2
MDS COORD.	170 SF	B	BUSINESS AREAS	GROSS	100 SF	2
TOTAL OCCUPANT LOAD						241

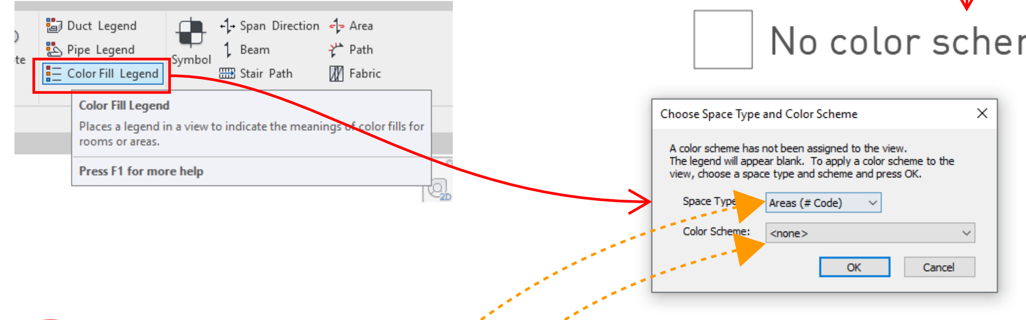
SELECTED PROPERTIES FROM AREAS WITHIN EACH SCOPE WILL BE SCHEDULED. THIS EXAMPLE SHOWS AN OCCUPANT LOAD SCHEDULE

2 COLORING AREAS

COLOR SCHEME SHOULD BE SET IN VIEW TEMPLATE SO ALL VIEWS OF THAT TYPE ARE COLORE CORRECTLY

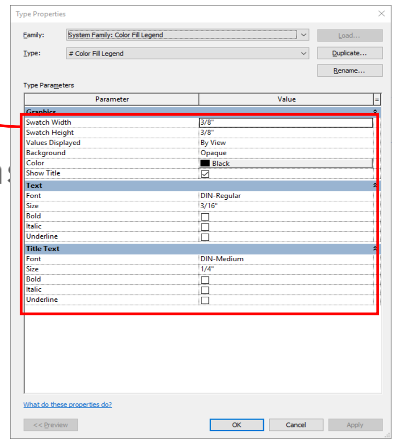


USE COLOR FILL LEGEND TO PLACE A COLOR LEGEND ON VIEW



LEGEN SYMBOL SIZE CAN BE SET FROM LEGEND TYPE PROPERTIES

No color scheme a

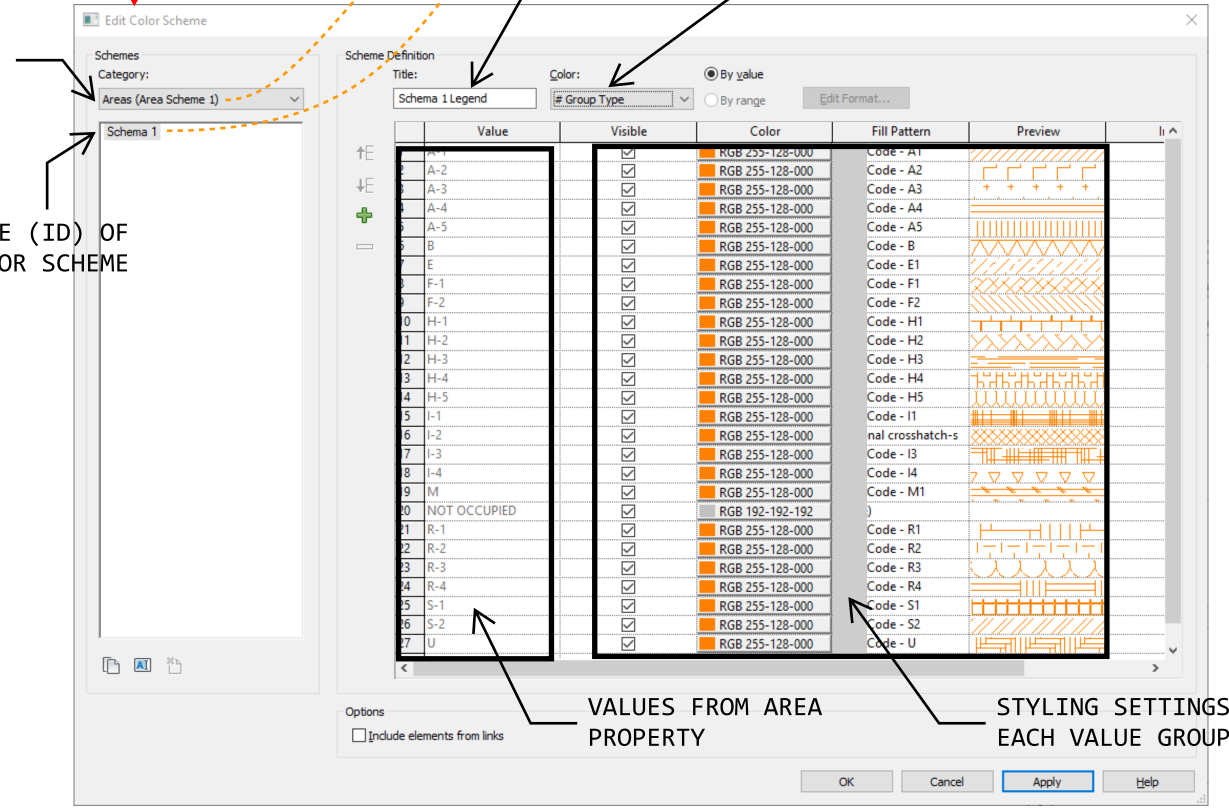


TITLE OF COLOR SCHEME FOR LEGEND

AREA PROPERTY TO READ VALUES FROM

AREA SCHEME

NAME (ID) OF COLOR SCHEME



VALUES FROM AREA PROPERTY

STYLING SETTINGS FOR EACH VALUE GROUP

3 VISUALIZING/SCHEDULING CODE DATA

OCCUPANT LOADS

Open the OCCUPANT LOAD control view and copy the load and area values from calculated columns to the tag columns.

This is to allow showing the loads on area tags. The area tag can not read from the calculated value so a secondary tag parameter has been created for the tag to read from. The data duplication required a manual step here.

OCCUPANT LOAD SCHEDULE - LEVEL 02

AREA PER OCCUPANT — OCCUPANT LOAD — # OF MEANS OF EGRESS REQUIRED

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
NUMBER	AREA NAME	MEASURED A	OCCUPANCY G	AREA FUNCTION	NET or GROSS	OCCUPANT LOAD	AREA PER OCCUPANT	Area Occupant Check	CALCULATED OCC	Calculated Round	CALCULATED OCCUPAN	Number of Occupants Check	# Area Max Occup	MOER
	COMMON CORE	13410 SF	B	Business areas	Gross	100 SF	100 SF	Yes	135	135	135	Yes	49	2
	STORAGE	1586 SF	S-1	Accessory storage areas, mechanical equipment room	Gross	300 SF	300 SF	Yes	6	6	6	Yes	49	2
	MAKER SPACE	6112 SF	B	Educational (Shops and other vocational room areas)	Net	50 SF	50 SF	Yes	123	123	123	Yes		
	CLASSROOM	1921 SF	B	Educational (Classroom area)	Net	20 SF	20 SF	Yes	97	97	97	Yes	49	2
	STORAGE	225 SF	B	Accessory storage areas, mechanical equipment room	Gross	300 SF	300 SF	Yes	1	1	1	Yes		
	STORAGE	224 SF	B	Accessory storage areas, mechanical equipment room	Gross	300 SF	300 SF	Yes	1	1	1	Yes		
	STORAGE	110 SF	S-1	Accessory storage areas, mechanical equipment room	Gross	300 SF	300 SF	Yes	1	1	1	Yes	29	1
	CLASSROOM	978 SF	B	Educational (Classroom area)	Net	20 SF	20 SF	Yes	49	49	49	Yes	29	1
	SUPPORT	192 SF	S-1	Accessory storage areas, mechanical equipment room	Gross	300 SF	300 SF	Yes	1	1	1	Yes		
	CLASSROOM	1013 SF	B	Educational (Classroom area)	Net	20 SF	20 SF	Yes	51	51	51	Yes	29	1
	MECHANICAL	1038 SF	(none)	Accessory storage areas, mechanical equipment room	Gross	300 SF	300 SF	Yes	4	4	4	Yes		
	ASSEMBLY	3454 SF	(none)	Assembly without fixed seats (Concentrated (chairs only-not fixed)	Net	7 SF	7 SF	Yes	494	494	494	Yes		
	FOOD STAGING	315 SF	B	Business areas	Gross	100 SF	100 SF	Yes	4	4	4	Yes		
	MAKER SPACE	1812 SF	B	Educational (Shops and other vocational room areas)	Net	50 SF	50 SF	Yes	37	37	37	Yes		
	FIRE RISER	84 SF	B	Accessory storage areas, mechanical equipment room	Gross	300 SF	300 SF	Yes	1	1	1	Yes		
TOTAL OCCUPANT LOAD									1005	1005	1005			

MAKE SURE AREA FUNCTIONS ARE SET CORRECTLY.

MANUALLY TYPE IN THE VALUE FROM THE CALCULATED COLUMN. THIS VALUE IS TIED TO THE AREA TAGS

MANUALLY TYPE IN THE VALUE FROM THE CALCULATED COLUMN. THIS VALUE IS TIED TO THE AREA TAGS

MAX OCCUPANT LOAD FROM KEY SCHEDULE. MOER2 COLUMN SHOWS THE REQUIRED NO. OF EXITS PER CALCULATED OCCUPANT LOAD.

OCCUPANT LOAD SCHEDULE - <level>

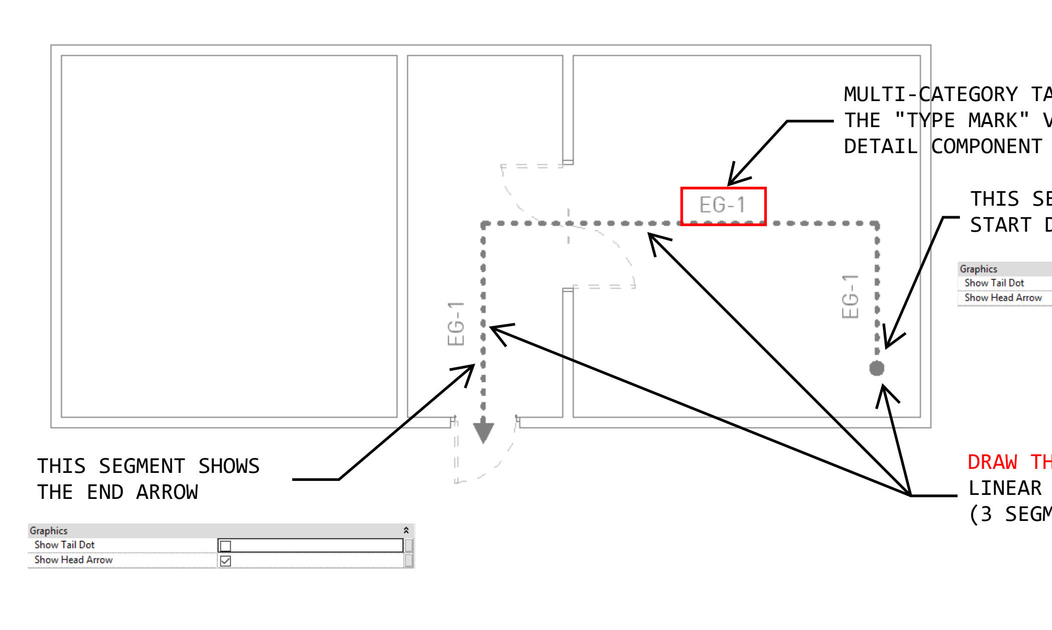
AREA NAME	MEASURED AREA	OCCUPANCY GROUP	AREA FUNCTION	NET or GROSS	OCCUPANT LOAD FACTOR	AREA PER OCCUPANT (SF)	CALCULATED OCCUPANT LOAD

SIMPLIFIED OCCUPANT LOAD DATA IS SHOW IN SCHEDULES ON THE CODE SHEETS

EGRESS PATHS AND DISTANCES

Use Linear Detail Component families to draw egress paths.
Create a unique type on the detail component for each consecutive egress path. This helps automatically calculating the distances.

The schedule combines the lengths for all the egress paths.



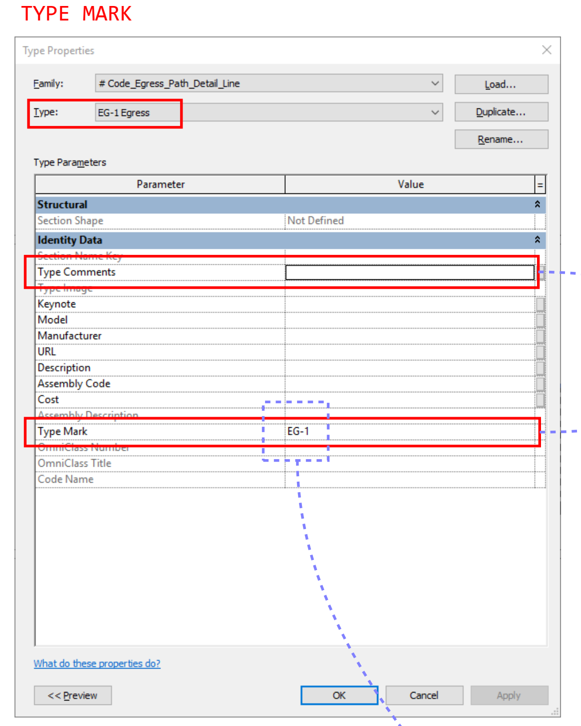
THIS SEGMENT SHOWS THE END ARROW

MULTI-CATEGORY TAG SHOWING THE "TYPE MARK" VALUE OF DETAIL COMPONENT

THIS SEGMENT SHOWS THE START DOT

DRAW THE EGRESS PATH LINEAR DETAIL COMPONENT (3 SEGMENTS)

CREATE A TYPE FOR EACH EGRESS PATH AND GIVE IT A UNIQUE TYPE MARK



SCHEDULE TOTALS ALL THE SEGMENT LENGTHS

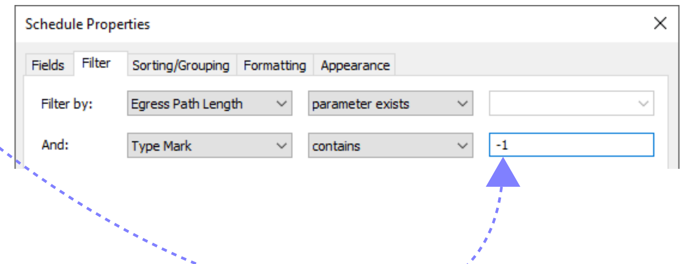
EGRESS TRAVEL DISTANCE LEGEND - <level>

A	B	C
MARK	TRAVEL DIST	MIN REQUIREMENTS
EG-1	36'	75' MAX - COMMON PATH OF EGRESS TRAVEL - PER TABLE 1014.3

ADD CODE NOTES ON MAX ALLOWABLE EGRESS DISTANCE AND CODE SECTION

EGRESS TRAVEL DISTANCE LEGEND IS FILTERING THE EGRESS DETAIL COMPONENTS BY THEIR "TYPE MARK" VALUE.
ADD AN INDENTIFIER TO THE TYPE MARK SO YOU CAN FILTER THE EGRESS PATHS BY LEVEL. FOR EXAMPLE "-1" IS USED BELOW TO FILTER EGRESS PATHS BY LEVEL (ASSUMING EACH LEVEL HAS ONLY ONE EGRESS PATH). 2ND FLOOR EGRESS PATH WOULD BE "EG-2"

IF YOU HAVE MULTIPLE EGRESS PATHS ON EACH LEVEL, THE TYPE MARK COULD BE "EG-1-1ST", "EG-2-1ST" FOR 1ST FLOOR AND "EG-1-2ND", ... FOR 2ND.

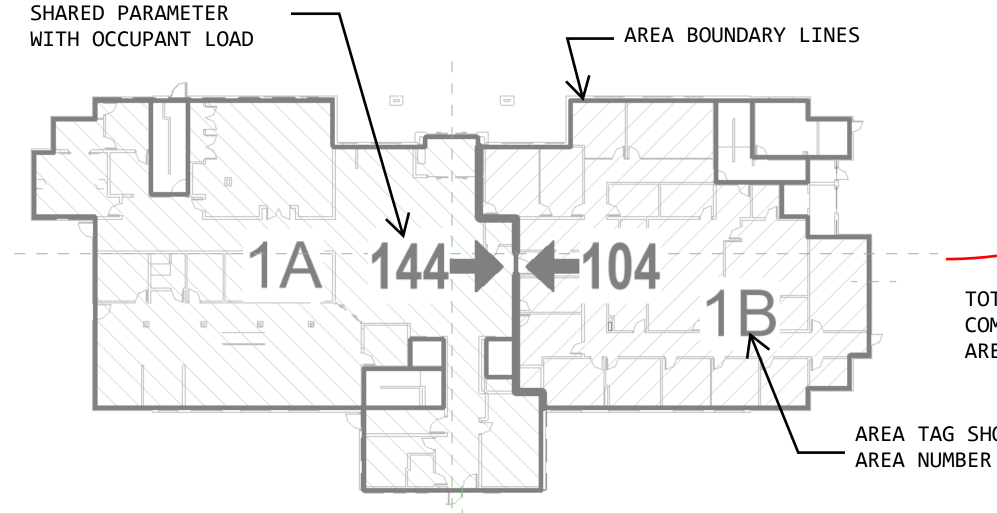


SMOKE COMPARTMENTS

Create Area Plans with a custom scheme for smoke compartments. Draw the smoke compartment boundaries on the Area plan using Area separation lines and create Area elements for each smoke compartment.

AREA TAG READING SHARED PARAMETER WITH OCCUPANT LOAD

AREA BOUNDARY LINES



TOTAL COMPARTMENT AREA

AREA TAG SHOWING AREA NUMBER

SHARED PARAMETER WIH OCCUPANT LOAD DATA

SMOKE COMPARTMENTS SCHEDULE 1ST FLOOR

NO	AREA	OCCU. LOAD	REQUIRED AND ACTUAL REFUGE AREA
1A	8,700 SF	144	104 x 6 SF = 624 SF ACTUAL = 1,450 SF OK
1B	6,000 SF	104	144 x 6 SF = 864 SF ACTUAL = 900 SF OK

COMMENTS

SMOKE COMPARTMENT AREA AND OCCUPANT LOAD DATA IS SHOWN ON THE SCHEDULE ON CODE SHEET