

**FOH WASHROOM**  
 01# CEILING EXHAUST FAN  
 100 CFM

**FOH & BOH AREA**  
 01# TFA UNIT  
 (4.0TR) & 800 CFM  
 25Ø DRAIN PIPE (ID)

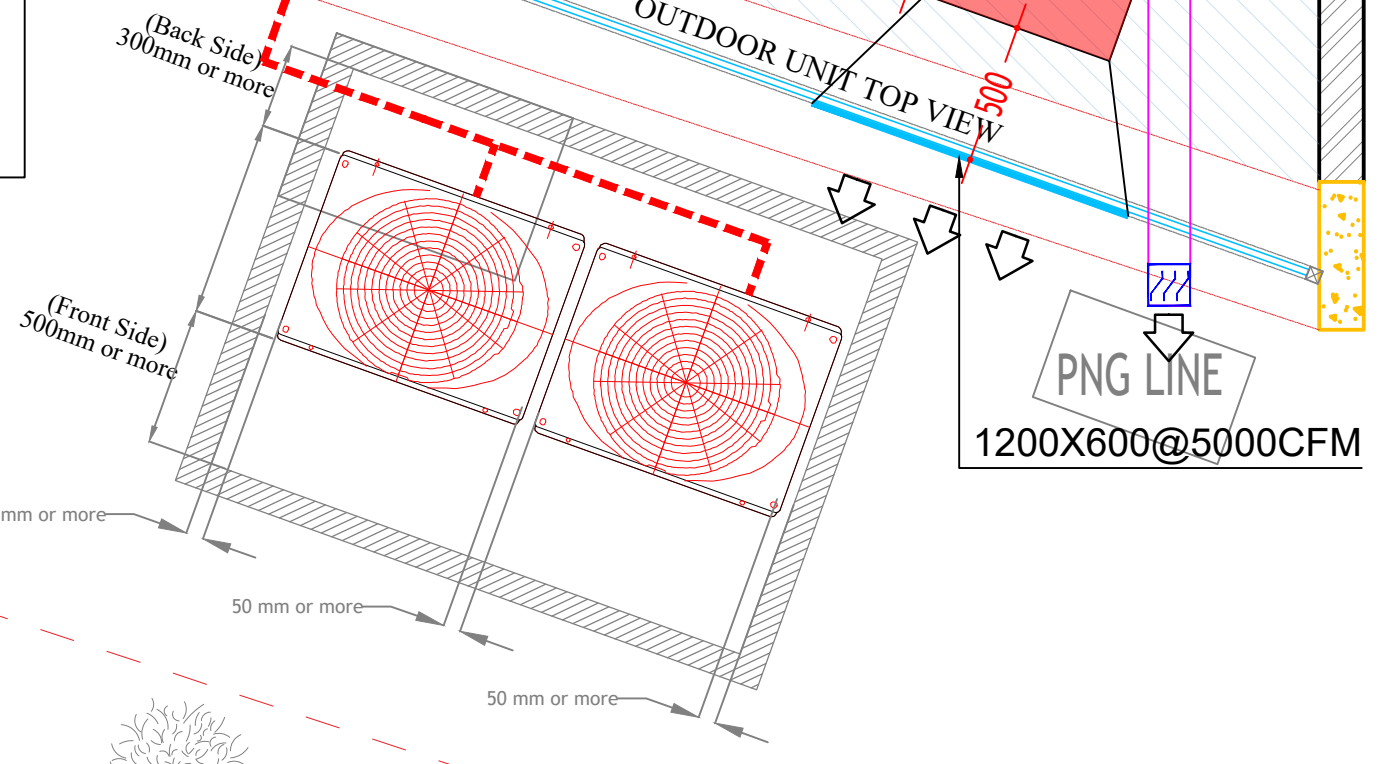
**FOH AREA**  
 04# 4-WAY CASSETTE  
 (2.6TR) & 865 CFM EACH  
 SIZE=840(D)x840(W)x298(H)  
 25Ø DRAIN PIPE (ID)

**BOH AREA**  
 01# 4-WAY CASSETTE  
 (1.6TR) & 812 CFM EACH  
 SIZE=840(D)x840(W)x298(H)  
 25Ø DRAIN PIPE (ID)

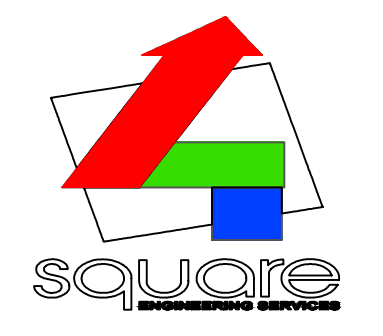
**FOH AREA**  
 02# HI WALL UNIT  
 (1.6TR) & 530 CFM EACH  
 25Ø DRAIN PIPE (ID)

24(12+12) HP VRV OUTDOOR UNIT  
 FOR GROUND FLOOR  
 REF PIPE DIA - 34.9/15.9  
 12HP SIZE-765(D)x1240(W)x1657(H)

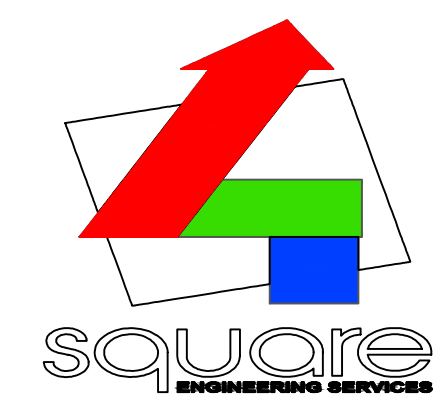
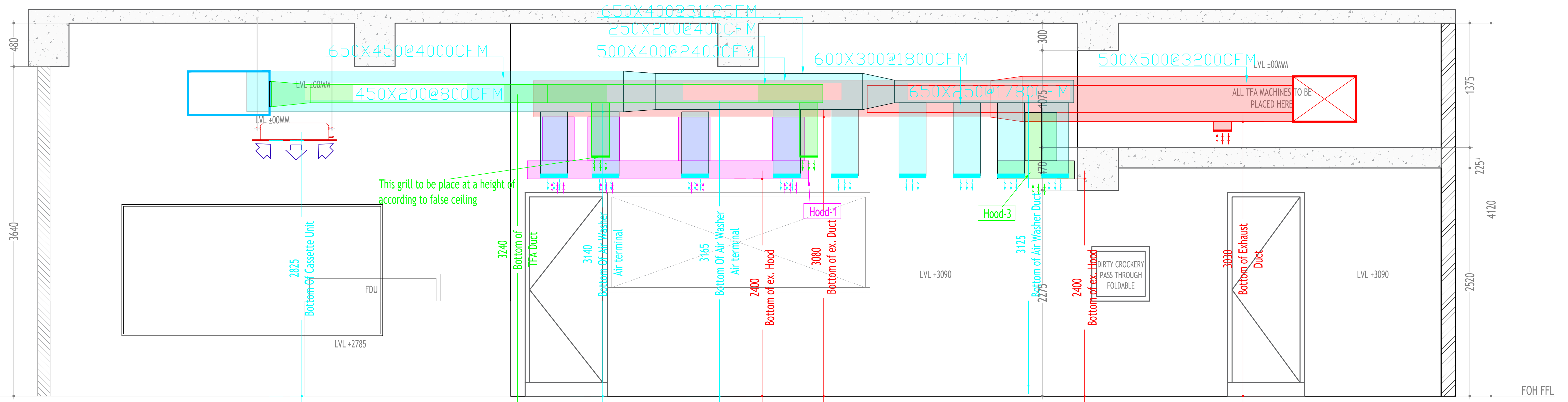
SCRUBBER LOCATION  
 EXACT DIMENSIONS TO BE  
 TAKEN FROM  
 MANUFACTURER



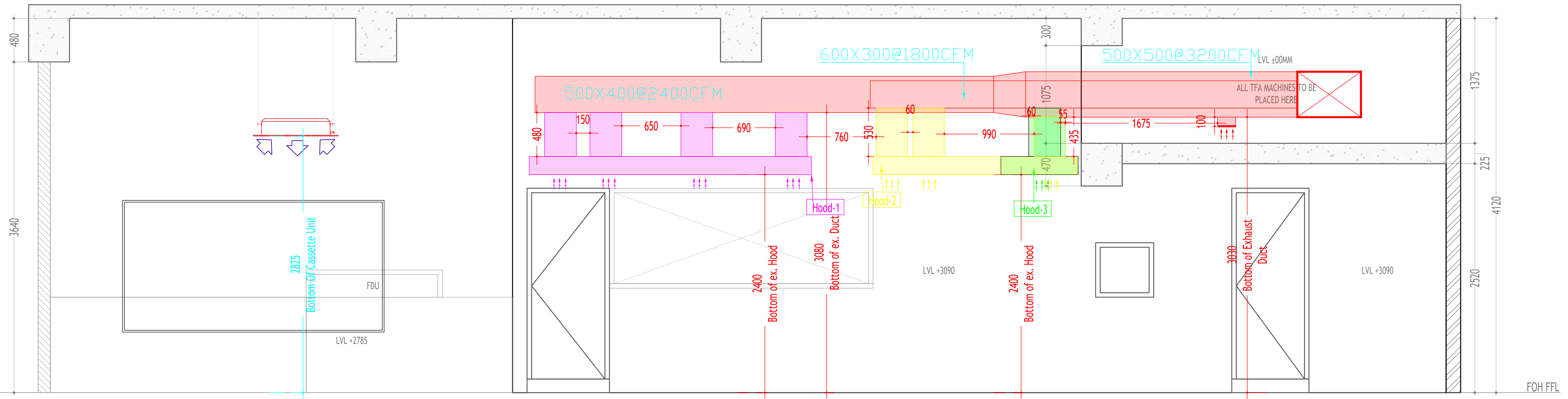
HVAC LEGEND	
SYMBOL	DESCRIPTION
	TOILET EXHAUST AIR DUCT
	EXHAUST AIR DUCT
	MAKE-UP AIR DUCT
	TFA DUCT
	KITCHEN HOOD EXHAUST
	HI-WALL UNIT
	TFA
	REFRIGERANT PIPE
	DRAIN PIPE
	TREATED FRESH AIR GRILLE
	4 WAY CASSETTE UNIT
	LOUVERS WITH BIRD SCREEN
	REFRIGERANT Y JOINT
	OUTDOOR UNIT



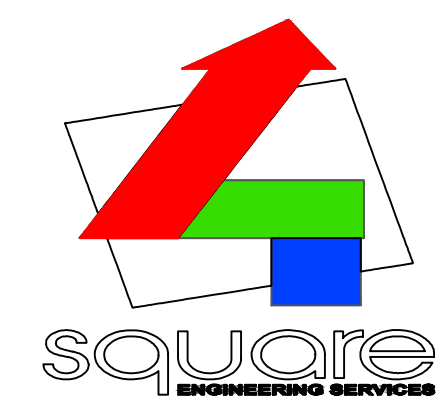


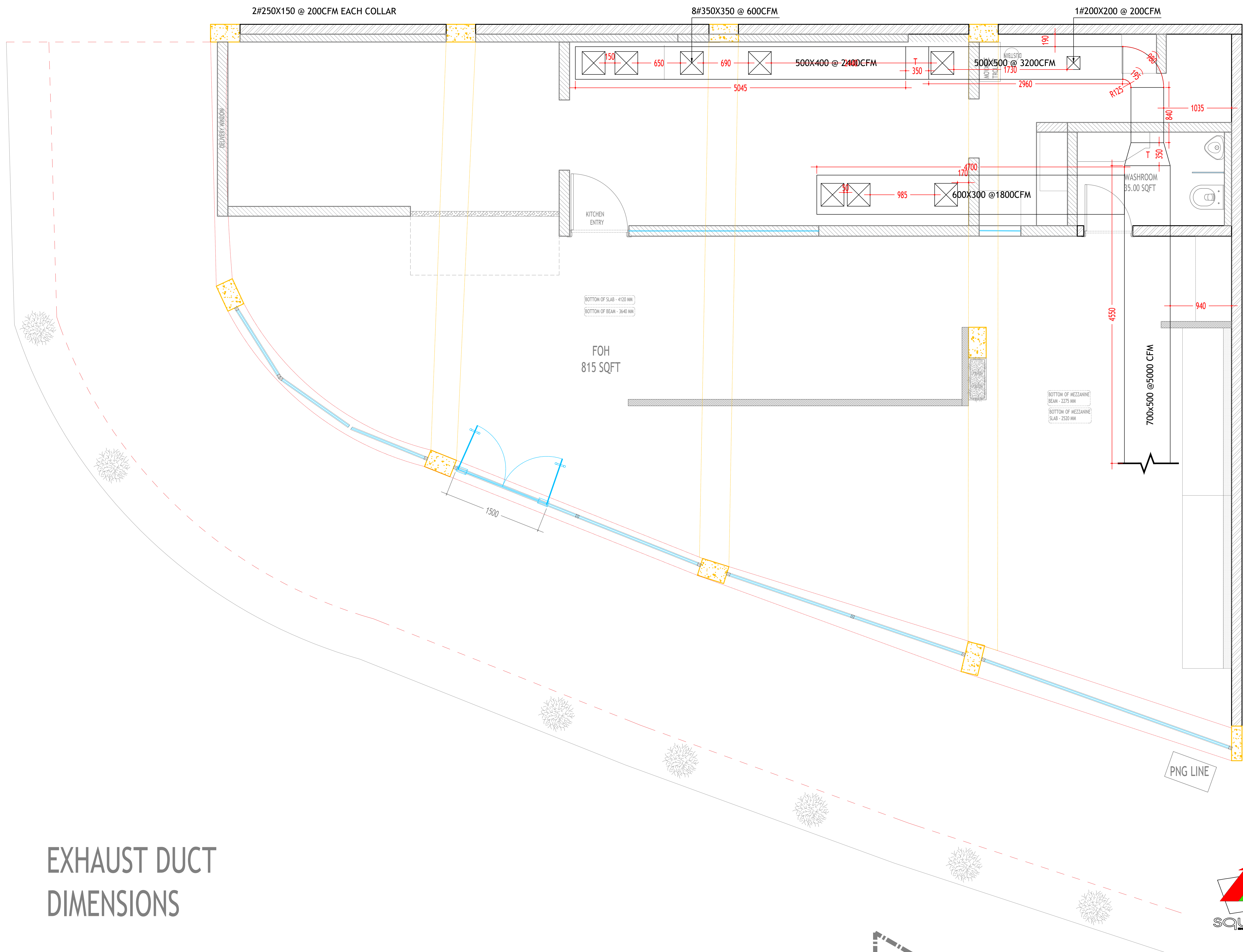


SECTIONAL ELEVATION-AA'  
All Ducts Section View

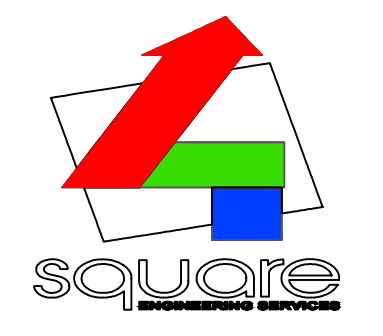


SECTIONAL ELEVATION-AA'  
Exhaust Section View





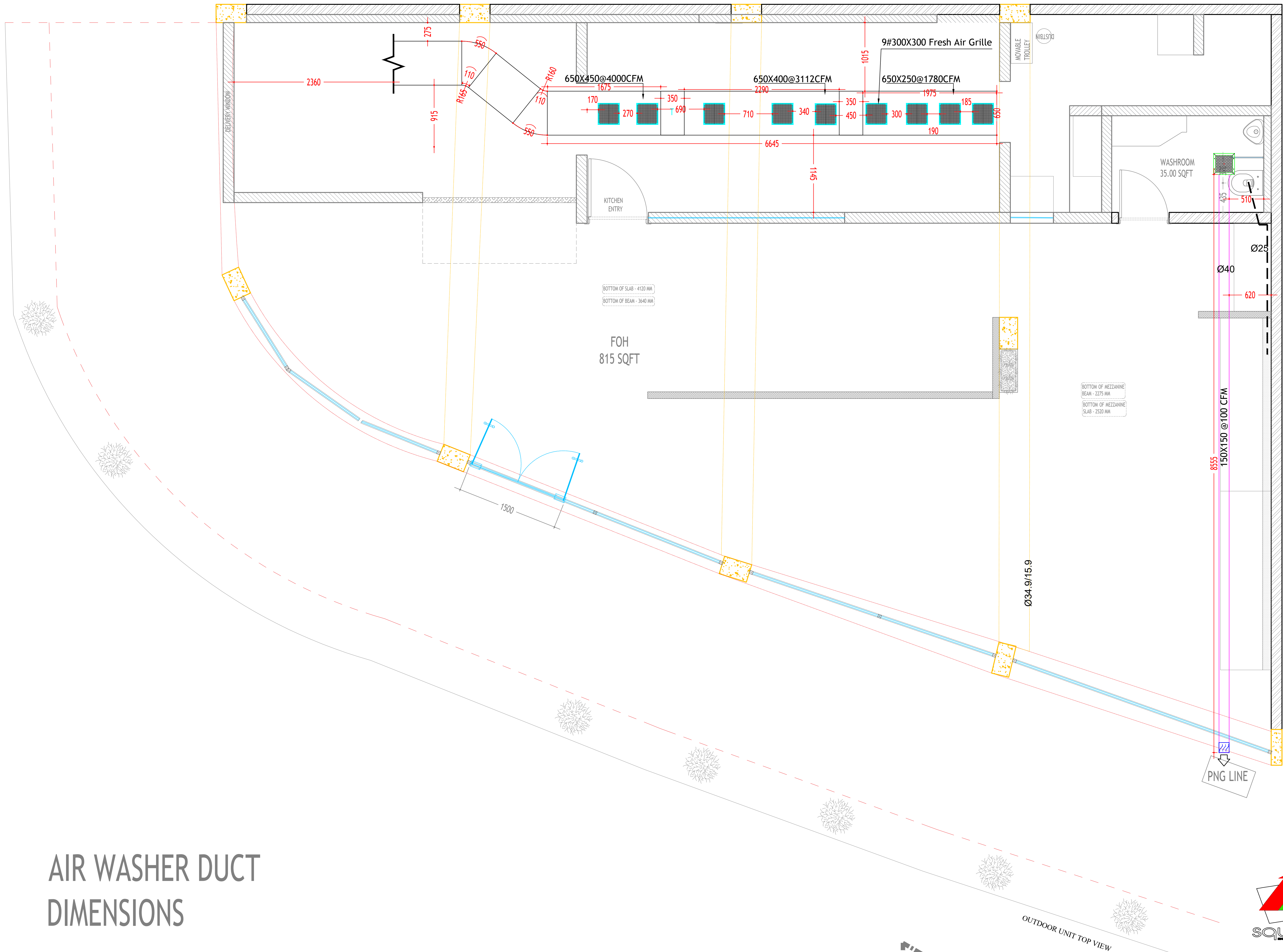
# EXHAUST DUCT DIMENSIONS



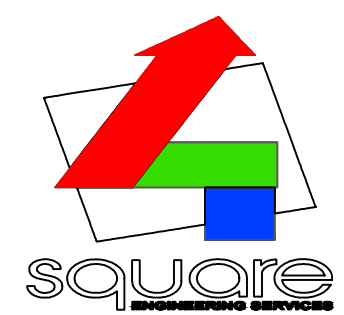


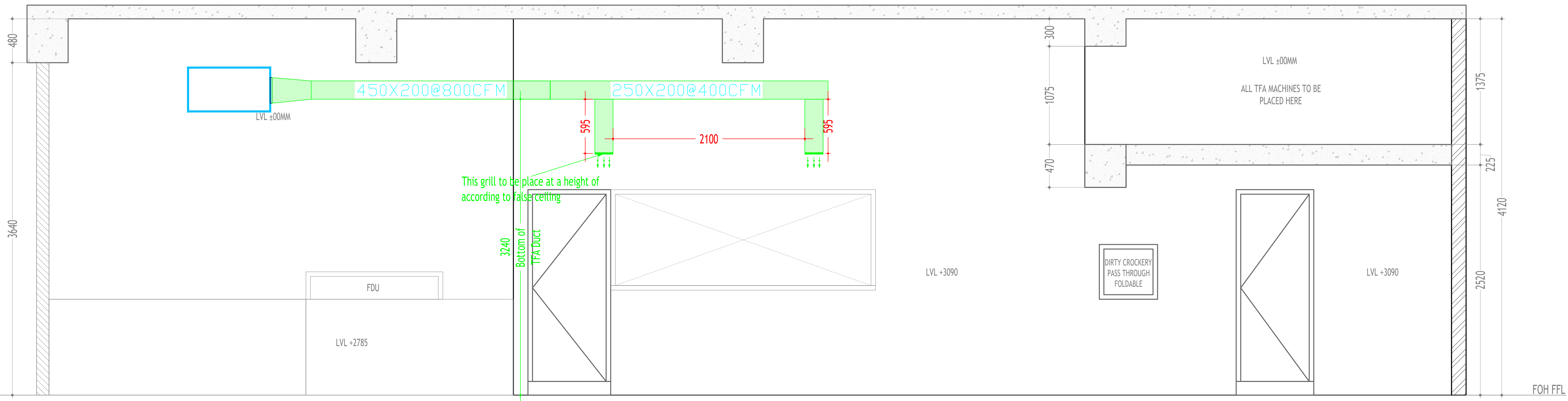


1#200X200 @ 200CFM

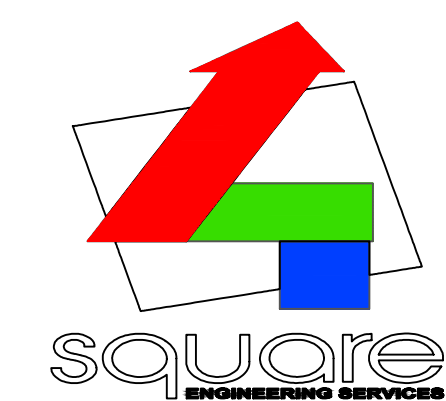


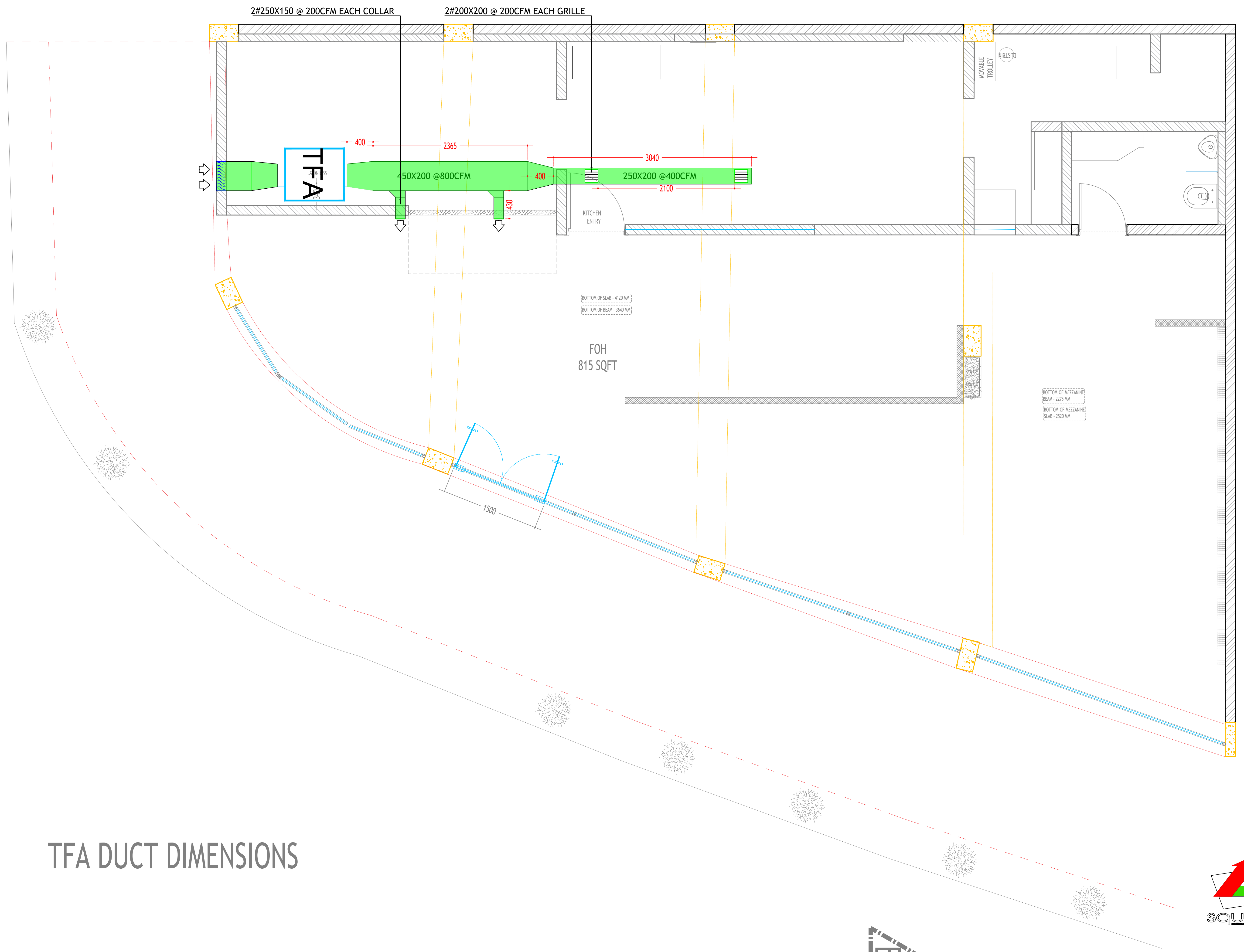
# AIR WASHER DUCT DIMENSIONS



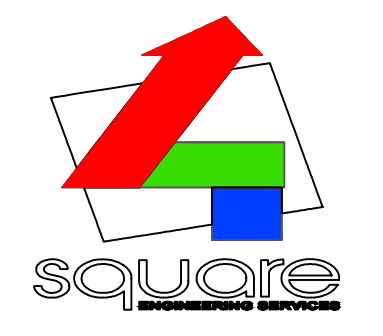


SECTIONAL ELEVATION-AA'  
TFA Duct Section View





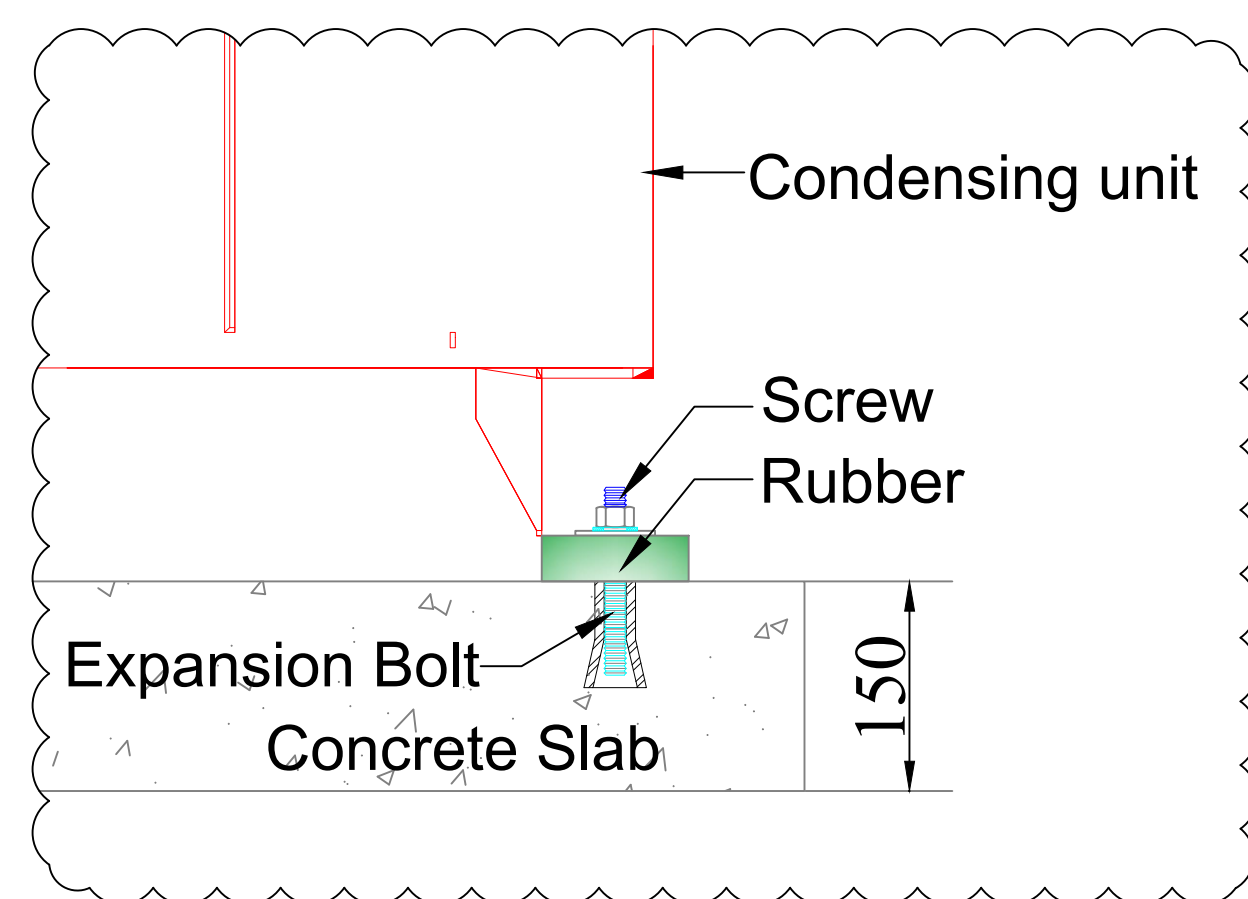
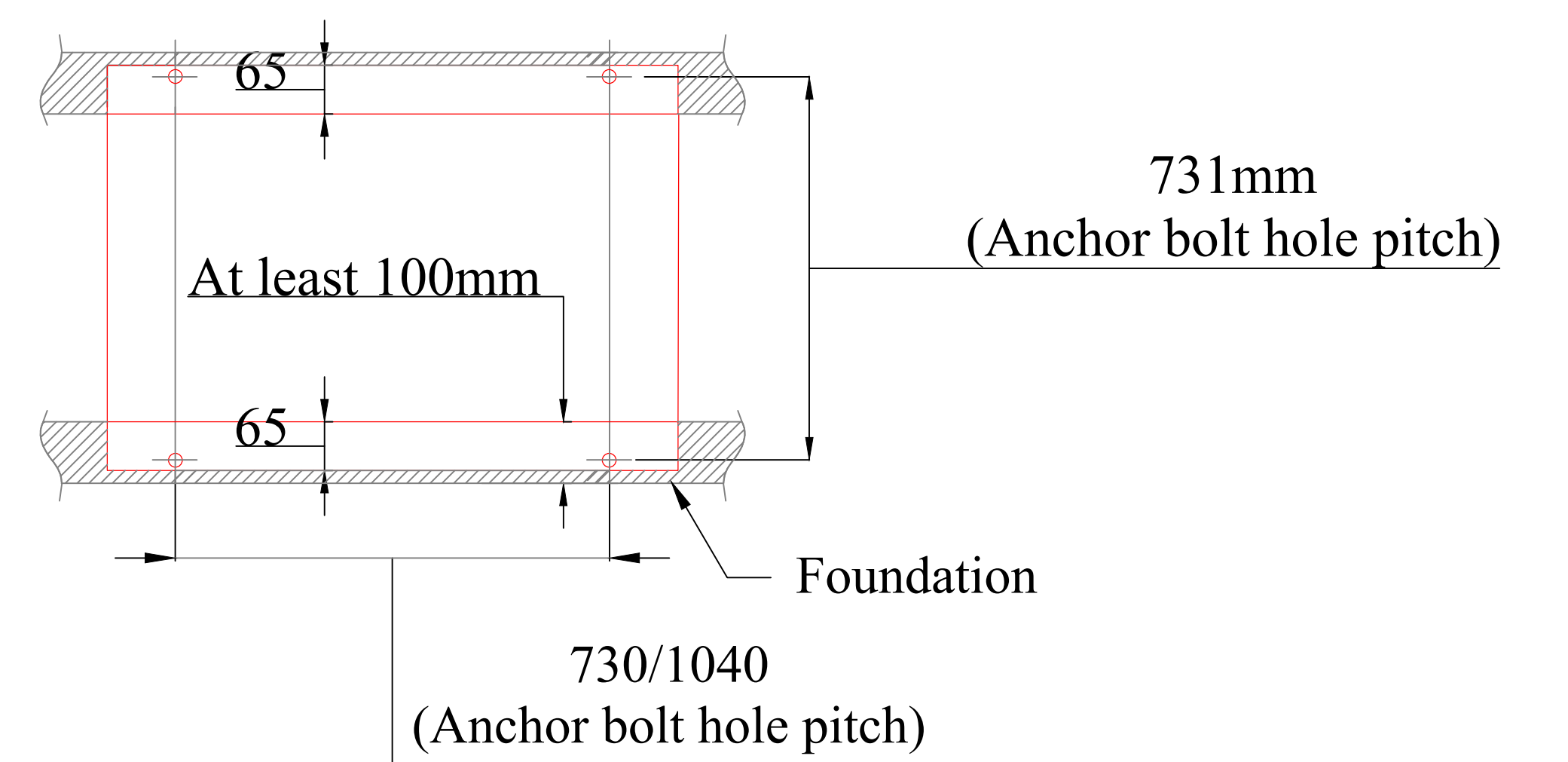
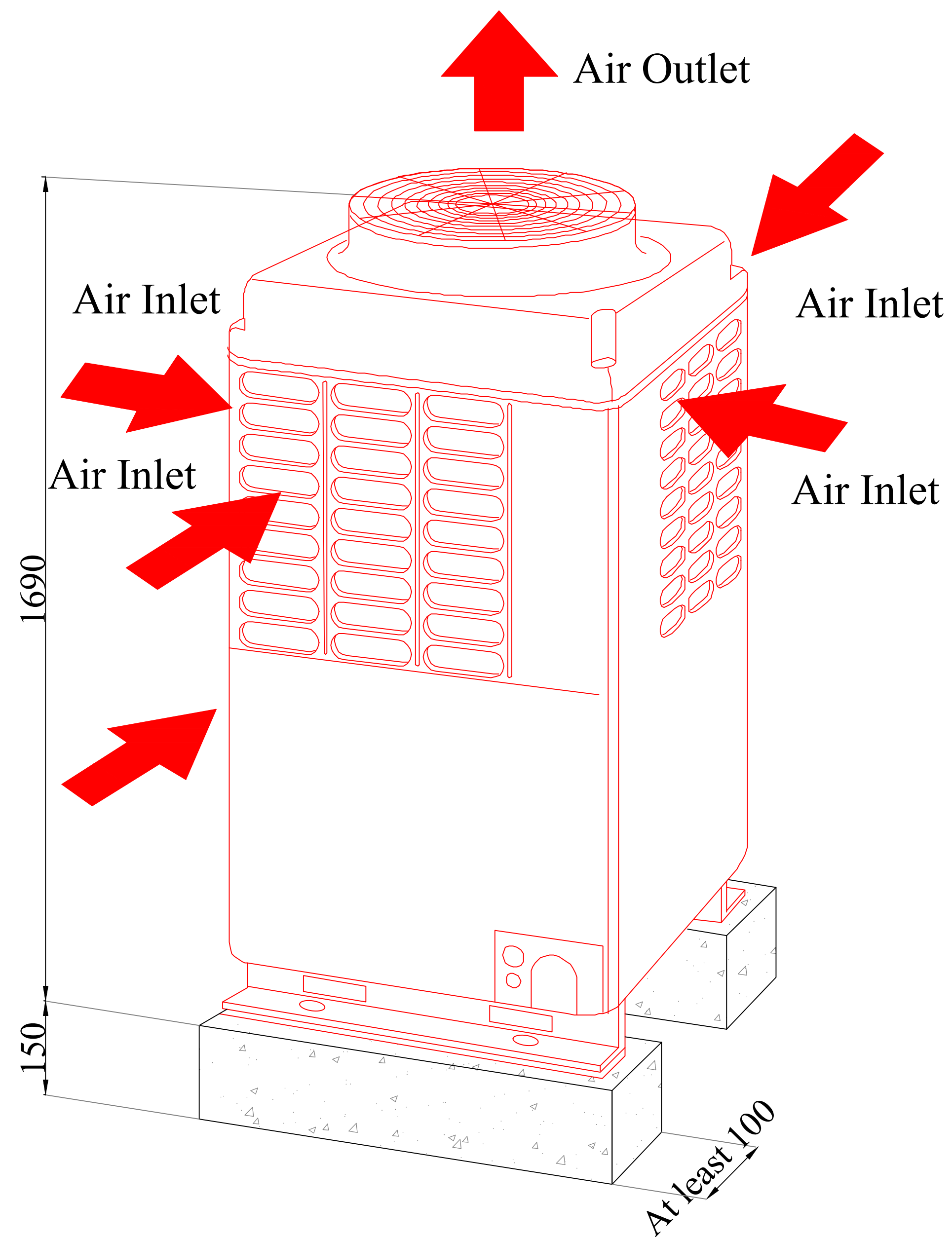
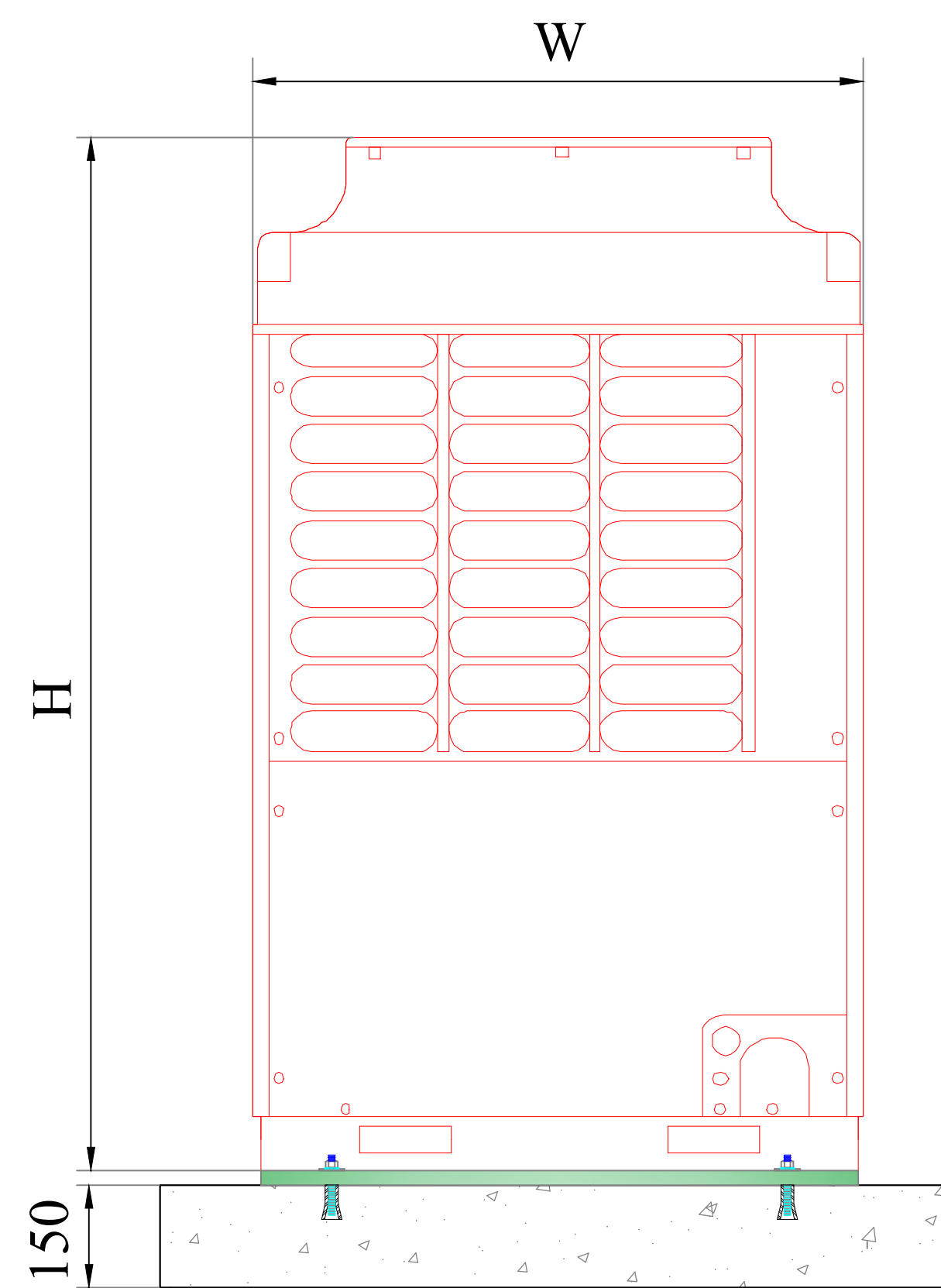
TFA DUCT DIMENSIONS





## HVAC LOAD CALCULATION

HVAC LOAD CALCULATION								Ground Floor								
PROJECT		Chaayos, Navi Mumbai						FLOOR		Café						
LOCATION		Mumbai						SPACE REFERENCE		Café						
CLIENT		SunShine House						AREA ( SqFt) (WxH)		988.00						
CONSULTANT		Four Square						False Ceiling Height (Ft)		13.50						
126.00								Volume (CuFt)		13,338.00						
Item	Area or Quantity	Sun Gain or Temp. Diff.	Factor (U)	Btu/Hour	Watts	Estimate for										
						Design Conditions										
						DB (°F)	WB (°F)	RH (%)	HR (Gr/Lb)							
						96.80	84.00	60.00	157.00							
						71.60	59.70	50.00	57.80							
						Difference Δ				25.20	24.30	10.00	99.20			
ROOM SENSIBLE HEAT								Summer								
Solar Gain - Glass								CFM Ventilation								
Area	ΔT	U	By Pass Factor (BF)		Contact Factor (CF = 1 - BF)		CFM Per Person		CFM Per SqFt		Air Change Per Hour (CFM)					
Glass - N	28.00	0.61	x	x			7.50	No	=	50.00	=	375.00				
Glass - NE	468.00	0.61	x	x			0.12	Sqft	x	988.00	=	118.56				
Glass - E	163.00	0.61	x	x			CFM		Cu.ft		13,338.00	x	1.00	x1/60	=	222.30
Glass - SE	350.00	0.61	x	x			CFM Infiltration									
Glass - S	14.00	0.61	x	x			Swinging	2.00	x	400.00	cfm/door	=	800.00			
Glass - SW	85.00	0.61	x	x			Revolving Doors (People)		x		cfm/door	=	0.00			
Glass - W	163.00	0.61	x	x			Open Doors		x	1.00	cfm/door	=	0.00			
Glass - NW	138.00	0.61	x	x			Crack (feet)		x		cfm/ft	=	0.00			
Skylight	251.00	0.56	x	x			Supply CFM from Machine									
Solar & Transmission Gain - Walls & Roof								Effective Room Sensible Heat Factor =								
Wall - N		0.41	F	x			Effective Room Sensible Heat/Eff Room Total Heat				=	0.88				
Wall - NE		0.41	F	x			Apparatus Dew Point (ADP)									
Wall - E		0.41	F	x			Indicated ADP (°F)				=					
Wall - SE	111.30	0.41	F	x			Selected ADP (°F)				=	50.00				
Wall - S		0.41	F	x			Dehumidified Rise									
Wall - SW		0.41	F	x			(Room DB - ADP) x CF				=	19.87				
Wall - W		0.41	F	x			DEHUMIDIFIED AIR QUANTITY									
Wall - NW		0.41	F	x			Effective Room Sensible Heat				=	5,591.38				
Roof	988.00	0.13	F	x			Dehumidified Rise x 1.08				=					
Transmission Gain - Except Walls & Roof								Dehumidified Rise				=	2,627.95			
All Glass		0.30	F	x			TOTAL HEAT CAPACITY									
Partition	692.00	0.50	F	x			Grand Total Heat				=	14.51				
Ceiling		0.00	F	x			Grand Total Heat				=	14.51				
Floor	988.00	0.27	F	x			Grand Total Heat				=	14.51				
INFILTRATION AND BY PASSED AIR								Grand Total Heat				=	14.51			
Infiltration		1.08	T.Diff	x			Grand Total Heat				=	14.51				
Outside Air	375.00		x				Grand Total Heat				=	14.51				
Internal Heat								Grand Total Heat				=	14.51			
People	50.00	350.00	Btu/Hour Per Person				Grand Total Heat				=	14.51				
Lighting	988.00	1.39	W/SqFt	x			Grand Total Heat				=	14.51				
Equipments	1.00	1,000.00	Watts	x			Grand Total Heat				=	14.51				
Power							Grand Total Heat				=	14.51				
Sub Total							Grand Total Heat				=	14.51				
Factor							Grand Total Heat				=	14.51				
Effective Room Sensible Heat								Grand Total Heat				=	14.51			
								5-15%								
								1,20,000.75	1.00	SENSIBLE HEAT CAPACITY						
ROOM LATENT HEAT								Grand Total Heat				=	14.51			
Infiltration	2.00	CFM	x	99.20	Gr/Lb	x	0.68	134.91	Grand Total Heat				=	14.51		
Outside Air	375.00	CFM	x	99.20	Gr/Lb	x	BFx0.68	2,023.68	Grand Total Heat				=	14.51		
People	50.00	Nos.	x	270.00	Btu/Hour Per Person			13,500.00	Grand Total Heat				=	14.51		
Sub Total								15,658.59	Grand Total Heat				=	14.51		
Factor								782.93	Grand Total Heat				=	14.51		
								2.5 - 5%								
								16,441.52	2.00	SENSIBLE HEAT CAPACITY						
EFFECTIVE ROOM TOTAL HEAT								Grand Total Heat				=	14.51			
								1,36,442.27								
OUTSIDE AIR HEAT								Grand Total Heat				=	14.51			
Sensible	375.00	CFM	x	25.20	F(TD)	x	CF x 1.08	9,389.52	3.00	Grand Total Heat				=	14.51	
Latent	375.00	CFM	x	99.20	Gr/Lb	x	CF x 0.68	23,272.32	4.00	Grand Total Heat				=	14.51	
OUTSIDE AIR TOTAL HEAT								Grand Total Heat				=	14.51			
								32,661.84								
GRAND SUB-TOTAL HEAT								Grand Total Heat				=	14.51			
								1,69,104.11								
Factor								5,073.12	Grand Total Heat				=	14.51		
								1 - 3%								
GRAND TOTAL HEAT								Grand Total Heat				=	14.51			
								1,74,177.24								
								TMBH	174.18							
								TKW	50.51							
								TSMBH	1,29,390.27							
								TSKW	37,523.18							
TONS=GRAND TOTAL HEAT/12000								Grand Total Heat				=	14.51			
								14.51	Grand Total Heat				=	14.51		



TYPICAL DETAIL OF CONDENSING UNIT VRF  
SCALE NTS@A3