

MECHANICAL VENTILATION AND REHEAT

MECH-3C

Project Name: _____

Date: _____

710 Wilshire Blvd. Alex Gorbey Hotel Project

10/29/2015

MECHANICAL VENTILATION (\$121)(02)														REHEAT LIMITATION (\$144)(G)			
AREA BASIS							OCCUPANCY BASIS							VAV MINIMUM			
A	B	C	D	E	F	G	H	I	J	K	L	M	N				
Zone/Room	Condition Area (ft ²)	CFM per Area (ft ²)	Min CFM By Area (ft ²)	Number Of People	CFM by Person	Min CFM by Occupant (ft ²)	REQ'D V.A. Max of Zone (ft ²)	Design Ventilation V.A. Max of Zone (ft ²)	50% of Design Zone Supply CFM	Min X 0.4 CFM ft ²	Max. of Columns H, I, K, 300 CFM	Design Minimum Air Supply	Transfer Air				
Guest Room-S.E.	3,449	0.15	515				515	153					357				
Guest Room-S.W.	1,628	0.15	244				244	73					187				
Use New Bldg							4,268	4,268									
Corridor	3,979	0.30	1,194				1,194	358					806				
House Keeping	330	1.50	495				495	3,009									
Guest Suite (1)	660	0.15	99				99	30					69				
Guest Suite (2)	495	0.15	74				74	23					69				
Guest Suite (3)	695	0.15	104				104	29					69				
Guest Suite (4)	565	0.15	84				84	25					69				
Guest Suite (5)	805	0.15	121				121	40.5					69				
Guest Suite (6)	470	0.15	71				71	23					69				
Guest Suite (7)	495	0.15	74				74	23					69				
Guest Room-N.E.	6,130	0.15	919				919	275					663				
Guest Room-N.W.	2,730	0.15	409				409	122					248				
Guest Room-S.E.	3,449	0.15	515				515	153					357				
Totals																	
Column J Total Design Ventilation Air																	
G	Minimum ventilation rate per Section 3121, Table 3121-A.																
E	Based on fixed seat or the greater of the expected number of occupants and 50% of the CBC occupant load for express purposes for spaces without fixed seating.																
H	Required Ventilation Air (REQ'D V.A.) is the larger of the ventilation rates calculated on an AREA BASIS or OCCUPANCY BASIS (Column D or G).																
M	Must be greater than or equal to H, and the larger of the ventilation rates calculated on an AREA BASIS or OCCUPANCY BASIS (Column D or G).																
J	Design fan supply CFM from H or G at 55% or the design zone outdoor air flow rate per 3121.																
K	Condition areas (ft ²) > 0.4 CFM / ft ² or																
L	Minimum of Columns H, I, K, or 300 CFM																
M	This must be less than or equal to Column J, and greater than or equal to the sum of Columns H plus N.																
N	Transfer Air must be provided where the Required Ventilation Air (Column H) is greater than the Design Minimum Air (Column M). Where required, transfer air must be greater than or equal to the difference between the Required Ventilation Air (Column H) and the Design Minimum Air (Column M) minus M.																
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Worksheet: P-1 - Design Ventilation																	
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MECHANICAL VENTILATION AND REHEAT														MECH-3C		
Project Name: 710 Wilshire Blvd. Alex Garby Hotel Project														Date: 10/29/2015		
MECHANICAL VENTILATION (\$121/D2)										REHEAT LIMITATION (\$146/D3)						
AREA BASIS					OCCUPANCY BASIS					VAV MINIMUM						
A	B	C	D	E	F	G	H	I	J	K	L	M	N			
Zone/System	Condition Area ft ²	CFM per ft ²	Min CFM by Area B x C	Number Of People	CFM per Person	Min CFM by Occupant E x F	Reheat H x A CFM	Design Ventilation I x J CFM	50% of Design Zone Supply CFM	B x K CFM	Max. of Columns H x K, 300 CFM	Design Minimum Air Second	Transfer Air			
5th Floor New Bldg							Total	4,269	2,456							
Corridor	3,979	0.86	1,194				1,194	268					836			
House Keeping	331	1.56	481					300								
Guest Suite (1)	660	0.15	99					66					46			
Guest Suite (2)	439	0.15	66					66					46			
Guest Suite (3)	658	0.15	98					66					46			
Guest Suite (4)	565	0.15	84					66					59			
Guest Suite (5)	805	0.15	121					121								
Guest Suite (6)	476	0.15	71					71					233			
Guest Suite (7)	460	0.15	69					69					230			
Guest Room M.E.	6,120	0.15	918					918					543			
Guest Room N.W.	2,731	0.15	409					409					238			
Guest Room S.E.	3,400	0.15	510					510					307			
Guest Room S.W.	1,620	0.15	243					243					167			
6th Floor New Bldg							Total	4,269	4,926							
							Totals			Column I Total Design Ventilation Air						

C	Minimum ventilation rate per Section 3121 - Table 312-A.
E	Based on fixed seat or the greater of the expected number of occupants and 50% of the CBC occupied load for agents purposes for spaces without fixed seating.
H	Required Ventilation Air (REQD V.A.) is the larger of the ventilation rate calculated on an AREA BASIS x OCCUPANCY BASIS (Column D or E).
I	Must be greater than or equal to V.A. or use Transfer Air (column M) to make up the difference.
J	Design fan static CFM (Fan CFM) = 50% of the design zone outdoor airflow rate per 3121.
K	Condition areas (ft ²) x 0.4 CFM/ft ² or L.
L	Maximum of Columns H, I, J, or K, or 300 CFM.
M	This must be less than or equal to Column I, and greater than or equal to the sum of Columns I plus N.
N	Transfer Air must be provided where the Required Ventilation Air (Column H) is greater than the Design Minimum Air (Column M). Where required, transfer air must be greater than or equal to the difference between the Required Ventilation Air (Column H) and the Design Minimum Air (Column M) minus M.

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MECHANICAL VENTILATION AND REHEAT														MECH-3C			
Project Name: 7TH Wilshire Blvd. Alex Gorbly Hotel Project														Date: 10/29/2015			
MECHANICAL VENTILATION (I121d)(D)														REHEAT LIMITATION (I144(d))			
AREA BASIS				OCCUPANCY BASIS				VAV MINIMUM									
A	B	C	D	E	F	G	H	I	J	K	L	M	N				
Zone/System	Condition Area (ft ²)	CFM per ft ²	Min CFM by Area B x C	Number Of People	CFM per Person	Min CFM by Occupant E x F	Reheat V.A. Max of D or F	Design Ventilation Air CFM	10% of Design Zone Supply CFM	B X A or CFM	Max of Columns H, J, K, L, M, N	Design Minimum Air Supply	Transfer Air				
Kitchen	588	0.15	88				Total:	88	784								
7th Floor (N)Bldg-Kitchen							Total:	88	784								
Locker Room	650	0.15	98														
Administration	302	0.15	45														
7th Floor (N)Bldg-Admin-Lockers							Total:	143	143								
Rix Space	700	0.15	105											73			
7th Floor (N)Bldg-Rix							Total:	105	32								
Totals								Column I Total Design Ventilation Air									
G	Minimum ventilation rate per Section 121.1, Table 121-A.																
E	Based on fixed seat or the greater of the expected number of occupants and 50% of the CBC occupied load for areas purposes for spaces without fixed seating.																
H	Required Ventilation Air (REQ'D V.A.) is the target of the ventilation rates calculated on an AREA BASIS or OCCUPANCY BASIS (Column D or G).																
I	Must be greater than or equal to 1/3 or less Transfer Air Volume to make up the difference.																
J	Design fan supply CFM (Fan CFM) at 0.5% or the design zone outdoor air/fake rate per §121.																
K	Condition area (ft ²) x 0.4 CFM / ft ² .																
L	Maximum of Columns H, J, K, or 300 CFM.																
M	This must be less than or equal to Column I, and greater than or equal to the sum of Columns M plus N.																
N	Transfer Air must be provided where the Required Ventilation Air (Column H) is greater than the Design Minimum Air (Column M). Where required, transfer air must be greater than or equal to the difference between the Required Ventilation Air (Column H) and the Design Minimum Air (Column M).																
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MECHANICAL EQUIPMENT DETAILS

(Part 1 of 2)

MECH-5C

Project Name: 710 Wilshire Blvd. Alex Gorbly Hotel Project

Date: 10/29/2015

CHILLER AND TOWER SUMMARY

Equipment Name	Type	Qty.	Efficiency	Tons	Qty.	GPM	BHP	Pump Control
McQuay WMC400	Centrifugal	2	0.530 kW/ton	200	1	300	7.0	One-Speed / 3 Way Valves
HMC 10176	Flow over 10,000 GPM Fan	2	10.0 Appx/cool	200	2	300	16.0	One-Speed / 3 Way Valves
Hot Water Pumps					2	114	1.5	Variable Speed

DHW / BOILER SUMMARY

System Name	Type	Distribution	Qty.	Rated Input	Vol. (Gals.)	Energy Factor or RE	Standing Loss or Pilot	Unit	Test E-Value	Status
Royalpak M-2003	Large Gas	Hydronic Heating	2	199,800	40	87.0 %	6.00 %	n/a	n/a	New
MVB-M-2003	Large Gas	Kitchen Pipes Ins	4	796,900	40	87.0 %	6.00 %	n/a	n/a	New

MULTI-FAMILY CENTRAL WATER HEATING DETAILS

System Name		Hot Water Pump				Hot Water Piping Length (ft)				
Control	Qty.	HP	Type			In Plenum	Outside	Burred	Add 10" Insulation	
									☐	
									☐	

CENTRAL SYSTEM RATINGS

System Name			HEATING				COOLING				Status
Type	Qty.	Package VAV	Output	A/C kW	Efficiency	Output	Efficiency				
Energy Labs-AHU	2	1	16,670	0.00	n/a	64,742	13.0 EER			n/a	
Airflow Lab-Cool	276	1	16,670	0.00	n/A/EUE	11,167				New	
Armstrong CPRFR 04	4	1	16,800	0.00	n/A/EUE	23,640				n/a	
Armstrong BBI-060	1	1	367,300	0.00	n/A/EUE	216,240				n/a	
Armstrong CPRFR 12	2	1	38,400	0.00	n/A/EUE	35,600				n/a	
Armstrong CPRFR 15	2	1	62,100	0.00	n/A/EUE	46,230				n/a	
Armstrong CPRFR 10	1	1	33,900	0.00	n/A/EUE	25,940				n/a	

CENTRAL SYSTEM FAN SUMMARY

System Name			SUPPLY/FAN				RETURN/FAN			
Type	Fan Type	Economizer Type	CFM	BHP	CFM	BHP	CFM	BHP		
Energy Labs-AHU	Variable Speed	DW/ Term (Innovative)	300		300					
Armstrong CPRFR 04	Constant Volume	No Economizer	6,000	0.17	n/a					
Armstrong CPRFR 04	Constant Volume	No Economizer	6,000	0.17	n/a					
Armstrong BBI-060	Constant Volume	No Economizer	6,000	0.17	n/a					
Armstrong CPRFR 12	Constant Volume	No Economizer	1,500	0.17	n/a					
Armstrong CPRFR 15	Constant Volume	No Economizer	1,600	0.17	n/a					
Armstrong CPRFR 10	Constant Volume	No Economizer	1,600	0.17	n/a					
Economies 5.1 % EnergySuff			Unit Number: 2071	Rev:Code: 2015-10-29T14:36:30	05-201225	Page 86 of 87				

MECHANICAL EQUIPMENT DETAILS										(Part 1 of 2)	MECH-5C
Project Name 710 Wishire Blvd, Alax Gorty Hotel Project										Date 10/29/2015	
CHILLER AND TOWER SUMMARY											
Equipment Name		Type	Qty.	Efficiency	Tons	Qty.	GPM	BHP	Pump Control		
DHW / BOILER SUMMARY											
System Name		Type	Distribution	Qty.	Rated Input	Vol. (Gals.)	Energy Factor or RE	Standby Loss or Pilot	Tank Ext. R-Value	Status	
MULTI-FAMILY CENTRAL WATER HEATING DETAILS											
Control		Hot Water Pump Qty. HP		Type	In Plenum		Hot Water Piping Length (ft) Outside Buried Add 1/2" Insulation				
							☐				
							☐				
							☐				
CENTRAL SYSTEM RATINGS											
HEATING						COOLING					
System Name		Type	Qty.	Output	Aux. kW	Efficiency	Output	Efficiency	Status		
Airtherm CPFR 08		4 Pipe Fan Coil	f	25,800	0.0	% AFUE	20,190		n/a	New	
CENTRAL SYSTEM FAN SUMMARY											
						SUPPLY FAN			RETURN FAN		
System Name		Fan Type	Economizer Type		CFM	BHP	CFM	BHP			
Airtherm CPFR 08		Constant Volume	No Economizer		800	0.177	none				
EnergyPro 5.1.1 by EnergySoft User Number: 5261 RptCode: 2015-10-29T14:36:00 ID: 201725 Page: 87 of 87											

MECHANICAL VENTILATION AND REHEAT															MECH-3C
Project Name: 710 Wilshire Blvd. Alex Garby Hotel Project															Date 10/29/2015
MECHANICAL VENTILATION (\$1210/G)										REHEAT LITERATURE (\$144/G)					
AREA BASIS					OCCUPANCY BASIS					VAV MINIMUM					
A	B	C	D	E	F	G	H	I	J	K	L	M	N		
Zone/System	Condition Area B ¹ /V	CFM per Area B ¹ /V	Min CFM by Area B ¹ /V	Number Of People	CFM per Person	Min CFM by Occupant	REQ'D VAV Max of Zone G	Design Ventilation J	% of Design Zone Supply CFM	B X O A CFM ² /E	Max. of Columns H, I, K or L	Design Minimum Air Support	Transfer Air		
Guest Suite (10)	275	0.15	41			41	41	12							
Guest Suite (11)	275	0.15	41			41	41	12							
							Total	768	237						
Corridor	1,190	0.15	160			160	50							115	
Housekeeping	80	0.15	12			12	5							7	
Guest Suite (1)	360	0.15	54			54	16							38	
Guest Suite (2)	395	0.15	59			59	18							32	
Guest Suite (3)	295	0.15	44			44	13							31	
Guest Suite (4)	395	0.15	59			59	18							31	
Guest Suite (5)	500	0.15	75			75	23							52	
Guest Suite (6)	500	0.15	75			75	23							52	
Guest Suite (7)	445	0.15	67			67	20							45	
Guest Suite (8)	435	0.15	64			64	19							43	
Guest Suite (9)	295	0.15	44			44	13							30	
Guest Suite (15)	275	0.15	41			41	12							29	
						Totals					Column I Total Design Vent Air				
C	Minimum ventilation rate per Section 121.1, Table 121-A.														
E	Based on fixed seat or the greater of the expected number of occupants and 50% of the CBC occupant load for express purposes for spaces without fixed seating.														
H	Required Ventilation Air (REQ'D VAV) is the larger of the value for ventilation rates calculated on an AREA BASIS or OCCUPANCY BASIS (Column D and G).														
M	Must be greater than or equal to H, or use Transfer Air column N to make up the difference.														
J	Design fan supply (B x O) must be 20% (0.20), or the design zone outdoor airflow rate per 121.1.														
K	Condition area B ¹ is 0.4 CFM B ¹ /ft ² .														
L	Maximum of Columns H, K, or 300 CFM.														
N	This must be less than or equal to Column I, and greater than or equal to the sum of Columns H plus N.														
O	Transfer Air must be provided where the Required Ventilation Air (Column M) is greater than the Design Minimum Air (Column M). Where required, transfer air must be greater than or equal to the difference between the Required Ventilation Air (Column H) and the Design Minimum Air (Column M) minus M.														
P	Revised: 2015-10-29 15:27:02														
Energy(P) & Air Energy(Q)															

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REVISIONS	
BY	DATE DESCRIPTION
-	05/07/2015 Addendum 02
-	09/04/2015 Addendum 03
-	10/30/2015 Addendum 04
-	05/27/2016 Addendum 05

