

RCCL Majesty Of The Seas				Date:	May-06	Rev:	1	Design by:		Page:	1/1																														
Cooling/Heat Load & HVAC Air Flow Calculations								Conditions																																	
Plant: 0								<table border="1"> <thead> <tr> <th colspan="4">SUMMER</th> <th colspan="2">WINTER</th> </tr> <tr> <th>d.b. °C</th> <th>w.b. °C</th> <th>u.r. %</th> <th>x gr/kg</th> <th>b. °C</th> <th>x gr/kg</th> </tr> </thead> <tbody> <tr> <td>35</td> <td></td> <td>80</td> <td>28.9</td> <td>-5</td> <td>2</td> </tr> <tr> <td>24</td> <td></td> <td>55</td> <td>9.4</td> <td>22</td> <td>2</td> </tr> <tr> <td>11</td> <td></td> <td></td> <td>19.5</td> <td>27</td> <td>0</td> </tr> </tbody> </table>				SUMMER				WINTER		d.b. °C	w.b. °C	u.r. %	x gr/kg	b. °C	x gr/kg	35		80	28.9	-5	2	24		55	9.4	22	2	11			19.5	27	0
SUMMER				WINTER																																					
d.b. °C	w.b. °C	u.r. %	x gr/kg	b. °C	x gr/kg																																				
35		80	28.9	-5	2																																				
24		55	9.4	22	2																																				
11			19.5	27	0																																				
Size	A	12.6 m	75.6 m ²	System :		CHT/ALT		Outdoor																																	
	B	6 m	166.32 m ³	Room:		DK	MFZ	Indoor																																	
	H	2.2 m	166.32 Rvs			7	4	Difference																																	
conference room P.S.																																									
SUMMER LOAD								Peak Load																																	
Item	Area or Quantity		Sun Gain Temp. Diff.	Factor	W			Month																																	
								Sun. Time																																	
SOLAR GAIN - glass								People																																	
window (w/shading)	0	m ²	x 240	x 1	=	0	Minimum Air Changes/h			74																															
window glare	0	m ²	x 100	x 1	=	0	Calculated Air Changes/h			6																															
window	29	m ²	x 350	x 0.4	=	4060				31																															
window	0	m ²	x 350	x 1	=	0	WINTER LOAD																																		
skylight	0	m ²	x	x	=	0	Factor K	Temp Diff. (Δ)	Heating Load (W)	%	W																														
TRANSMISSION GAIN - glass																																									
window (twin glass)	0	m ²	x 21	x 2.8	=	0	2.8	x 27	=	+	= 0																														
window	29	m ²	x 11	x 5.7	=	1818.3	2.8	x 27	=	2192.4	+																														
window	0	m ²	x 11	x 6.5	=	0	6.5	x 27	=	0	+																														
window	0	m ²	x 11	x 6.5	=	0	6.5	x 27	=	0	+																														
skylight	0	m ²	x	x	=	0	x	=	0	+																															
SOLAR & TRANSMISSION GAIN - dk & blkd								Infiltrat ⁿ (1 Air Chng * δT * Air Vol Adj.) = 1233																																	
blkd							0.85	x 27	=	0	+																														
light blkd (shg)	0	m ²	x 26	x 0.85	=	0	0.85	x 27	=	0	+																														
dark blkd (shg)	0	m ²	x 39	x 0.85	=	0	0.85	x 27	=	0	+																														
dk																																									
light dk (shg)	0	m ²	x 12	x 0.85	=	0		x 27	=	0	+																														
dark dk (shg)	0	m ²	x 42	x 0.85	=	0	0.85	x 27	=	0	+																														
TRANSMISSION GAIN - internal dk & blkd																																									
technical rm blkd	0	m ²	x 20	x 0.8	=	0	0.8	x 12	=	0	+																														
technical rm dk	0	m ²	x 18	x 0.8	=	0	0.8	x 12	=	0	+																														
non air cond blkd	0	m ²	x 22	x 0.8	=	0	0.8	x 12	=	0	+																														
spaces dk	0	m ²	x 10	x 0.8	=	0	0.8	x 12	=	0	+																														
alleyway blkd	0	m ²	x 2	x 0.8	=	0	2.5	x 5	=	0	+																														
dk	0	m ²	x 2	x 0.8	=	0																																			
SUB-TOTAL HEAT								1233																																	
SENSIBLE INTERNAL HEAT								PRIMARY AIR LOAD																																	
resting people			n ^v 74	x 85	=	6290	Winter Flow x Factor x (Room Temp - Delivery Temp) = FA Load																																		
working people			n ^v 0	x 140	=	0																																			
light	18	w	75.6	m ²	x 0	x 0	=	1360.8	2539.71	x 0.337	x 22 - 14 = 6847																														
appliance	3000				x 0	x 0	=	3000																																	
ROOM SENSIBLE HEAT (RSH)								TOTAL WINTER HEAT LOAD																																	
16529 + Inf. 589 = 17118								1233																																	
LATENT HEAT																																									
resting people			n ^v 74	x 50	=	3700																																			
working people			n ^v 0	x 250	=	0																																			
ROOM LATENT HEAT								REQUIRED SUPPLY TEMPERATURE																																	
3700 + Inf. 1346 = 5046								22 + 1233 / (0.337 x 2540) = T °C 23.4																																	
ROOM TOTAL HEAT (RTH)								22163.6																																	
CALCULATED MINIMUM OUTDOOR AIR								REQUIRED MINIMUM OUTDOOR AIR																																	
5079 x 1 = 5079.413 m ³ /h								74 people x 30 m ³ /p = 2220																																	
								Outdoor Air m ³ /h 5079																																	
SUMMER GRAND TOTAL HEAT (GTH)																																									
AIR FLOW RATE																																									
RSH	=	17118	=	0.772332	indoor t.=	24																																			
RTH	=	22163.6	=	50794.13	supply t.=	14																																			
0.337 x 17118 = 5079.413 m ³ /h								HEAT GAINS																																	