

HEAT LOAD CALCULATIONS

JOB NAME: **Dominos-GMR-1D**
 SPACE FOR: **Kitchen Area**
 SIZE: **502 Sq ft** **6325** Cu ft Estimate for: **SUMMER**

SOLAR GAIN GLASS				HEAT GAIN	CONDITION	DB (°F)	WB (°F)	% RH	DP (°F)	GR/LB
ITEM	Area (Sq ft)	Sun Gain (Btu/h.sq ft)	Factor	Btu/hour	OUTSIDE	113	75			75
N - Glass		11	0.47	0	ROOM	75		55		72
NE - Glass		11	0.47	0	DIFFERENCE	38	XXXX	XXXX	XXXX	2.7
E - Glass		11	0.47	0	OUTSIDE AIR (VENTILATION)					
SE - Glass		11	0.47	0		10 People X	12		CFM/Person	120
S - Glass		11	0.47	0		502 Sq ft X	0.18		CFM/Sq ft	90
SW - Glass		113	0.47	0					CFM VENTILATION=	210
W - Glass		165	0.47	0						510
NW - Glass		118	0.47	0	EFF. SENSIBLE HEAT FACTOR (ESHF) = 0.95					

SOLAR & TRANS. GAIN WALLS & ROOF				
ITEM	Area (Sq ft)	Eq. temp. diff. (°F)	U (Btu/h.sq ft)	
N - Wall		27	0.45	0
NE - Wall		33	0.45	0
E - Wall		41	0.45	0
SE - Wall		41	0.45	0
S - Wall		39	0.45	0
SW - Wall		37	0.45	0
W - Wall		35	0.45	0
NW - Wall		29	0.45	0
Roof Sun		58	0.14	0

TRANS. GAIN EXCEPT WALLS & ROOF				
ITEM	Area (Sq ft)	Temp. diff. (°F)	U (Btu/h.sq ft)	
All Glass	250	38	0.72	6840
Partition wall	300	33	0.38	3762
Ceiling		33	0.43	0
Floor	502	33	0.32	5301

INTERNAL HEAT GAIN				
People	10 Nos X		245	2450
Light	502 W X 1.25		3.4	2134
Eq. Load	3000 W X		3.4	10200
ROOM SENSIBLE HEAT (RSH)				30687
Supply duct heat gain +	Supply duct leak. loss +		12.0	4034

Outside & Infiltrated Air				
CFM	°F	BF	FACTOR	
255	38	1	1.08	10473
510	38	0.14	1.08	2932

EFFECTIVE ROOM SENSIBLE HEAT (ERSH)				48126
LATENT HEAT				
People	10 Nos X		205	2050
Permeation Load				0

Outside & Infiltrated Air				
CFM	GR/LB	BF	FACTOR	
255.18	2.7	1	0.68	469
510	2.7	0.14	0.68	131

EFFECTIVE ROOM LATENT HEAT (ERLH)				2759
EFFECTIVE ROOM TOTAL HEAT (ERTH)				50885

OUTSIDE AIR HEAT (SENSIBLE)				
CFM	°F	1 - BF	FACTOR	
510	38	0.86	1.08	18013

OUTSIDE AIR HEAT (LATENT)				
CFM	GR/LB	1 - BF	FACTOR	
510	2.7	0.86	0.68	806

HEAT SUB TOTAL				69703
Return duct heat gain & leak. loss +	HP Pump +	Dehum. & Pipe loss (%)	3.0	2091

TONS	6.0	GRAND TOTAL HEAT	71794
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NOTES
 Occupancy = 50 Sqft/person
 Light = 1.0 W/Sqft
 Eq. Load = 3.00 kW
 Air Change per hour = 4.84

CHECK FIGURES
 Btu/h/ Sq ft = 143.0
 CFM / Sq ft = 4.49
 Sq ft / TR = 84
 CFM/ TR = 377