

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Cooling Equipment

Design Conditions

Outdoor design DB:	90.9°F	Sensible gain:	24842	Btuh	Entering coil DB:	75.0°F
Outdoor design WB:	74.0°F	Latent gain:	3314	Btuh	Entering coil WB:	62.5°F
Indoor design DB:	75.0°F	Total gain:	28156	Btuh		
Indoor RH:	50%	Estimated airflow:	1160	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Goodman Mfg.	Model:	VSZ140361B+ASPT47D14A		
Actual airflow:	1160	cfm			
Sensible capacity:	26100	Btuh	105%	of load	
Latent capacity:	8700	Btuh	263%	of load	
Total capacity:	34800	Btuh	124%	of load	SHR: 75%

Heating Equipment

Design Conditions

Outdoor design DB:	18.6°F	Heat loss:	32979	Btuh	Entering coil DB:	68.0°F
Indoor design DB:	68.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Goodman Mfg.	Model:	VSZ140361B+ASPT47D14A		
Actual airflow:	1160	cfm			
Output capacity:	32200	Btuh	98%	of load	Capacity balance: 25 °F
Supplemental heat required:	779	Btuh			Economic balance: -99 °F

Meets all requirements of ACCA Manual S.

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Cooling Equipment

Design Conditions

Outdoor design DB:	90.9°F	Sensible gain:	22621	Btuh	Entering coil DB:	75.0°F
Outdoor design WB:	74.0°F	Latent gain:	3922	Btuh	Entering coil WB:	62.5°F
Indoor design DB:	75.0°F	Total gain:	26543	Btuh		
Indoor RH:	50%	Estimated airflow:	1147	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Goodman Mfg.	Model:	GSZ140361L+AVPTC37D14B		
Actual airflow:	1147	cfm			
Sensible capacity:	25800	Btuh	114%	of load	
Latent capacity:	8600	Btuh	219%	of load	
Total capacity:	34400	Btuh	130%	of load	SHR: 75%

Heating Equipment

Design Conditions

Outdoor design DB:	18.6°F	Heat loss:	41299	Btuh	Entering coil DB:	68.0°F
Indoor design DB:	68.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Goodman Mfg.	Model:	GSZ140361L+AVPTC37D14B		
Actual airflow:	1147	cfm			
Output capacity:	32200	Btuh	78%	of load	Capacity balance: 31 °F
Supplemental heat required:	9099	Btuh			Economic balance: -99 °F

Meets all requirements of ACCA Manual S.

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Cooling Equipment

Design Conditions

Outdoor design DB:	90.9°F	Sensible gain:	5246	Btuh	Entering coil DB:	75.0°F
Outdoor design WB:	74.0°F	Latent gain:	671	Btuh	Entering coil WB:	62.5°F
Indoor design DB:	75.0°F	Total gain:	5917	Btuh		
Indoor RH:	50%	Estimated airflow:	240	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split AC	Model:	SEER 14.0
Manufacturer:	Generic		
Actual airflow:	240	cfm	
Sensible capacity:	5032	Btuh	96% of load
Latent capacity:	2156	Btuh	321% of load
Total capacity:	7188	Btuh	121% of load SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	18.6°F	Heat loss:	10907	Btuh	Entering coil DB:	0°F
Indoor design DB:	68.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:		Model:			
Manufacturer:					
Actual airflow:	240	cfm			
Output capacity:	0	Btuh	0% of load	Capacity balance:	0 °F
Supplemental heat required:	0	Btuh		Economic balance:	0 °F

Meets all requirements of ACCA Manual S.

Residential Plans Examiner Review Form for HVAC System Design (Loads, Equipment, Ducts)

Form
RPER 1
15 Mar 09

Header Information

Contractor:

Mechanical license:

Building plan #:

Home address (Street or Lot#, Block, Subdivision):

11 DELAWARE RIM DRIVE, FAU Attic

REQUIRED ATTACHMENTS

Manual J1 Form (and supporting worksheets):
or MJ1AE Form* (and supporting worksheets):
OEM performance data (heating, cooling, blower):
Manual D Friction Rate Worksheet:
Duct distribution sketch:

ATTACHED

Yes ☐ No ☐
Yes ☐ No ☐
Yes ☐ No ☐
Yes ☐ No ☐
Yes ☐ No ☐

HVAC LOAD CALCULATION (IRC M1401.3)

Design Conditions

Winter Design Conditions

Outdoor temperature: 19 °F
Indoor temperature: 68 °F
Total heat loss: 32979 Btuh

Summer Design Conditions

Outdoor temperature: 91 °F
Indoor temperature: 75 °F
Grains difference: 35 gr/lb @ 50% RH
Sensible heat gain: 25904 Btuh
Latent heat gain: 3455 Btuh
Total heat gain: 29360 Btuh

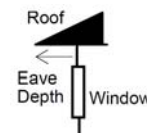
Building Construction Information

Building

Orientation: Front Door faces North
North, East, West, South, Northeast, Northwest, Southeast, Southwest
Number of bedrooms: 4
Conditioned floor area: 3558 ft²
Number of occupants: 5

Windows

Eave overhang depth: 0 ft
Internal shade: none
Blinds, drapes, etc.
Number of skylights: 0



HVAC EQUIPMENT SELECTION (IRC M1401.3)

Heating Equipment Data

Equipment type: Split ASHP
Furnace, Heat pump, Boiler, etc.
Model: Goodman Mfg.
VSZ140361B+ASPT47D14A
Heating output capacity: 0 Btuh
Heat pumps - capacity at winter design outdoor conditions
Aux. heating output capacity: 0 Btuh

Cooling Equipment Data

Equipment type: Split ASHP
Air Conditioner, Heat pump, etc.
Model: Goodman Mfg.
VSZ140361B+ASPT47D14A
Total cooling capacity: 0 Btuh
Sensible cooling capacity: 0 Btuh
Latent cooling capacity: 0 Btuh

Blower Data

Heating cfm: 1160
Cooling cfm: 1160
Static pressure: 0.30 in H2O
Fan's rated external static pressure for design airflow

HVAC DUCT DISTRIBUTION SYSTEM DESIGN (IRC M1601.1)

Design airflow: 1160 cfm
Equipment design ESP: 0.30 in H2O
Total device pressure losses: 0 in H2O
Available static pressure (ASP): 0.30 in H2O
Longest supply duct: 346 ft
Longest return duct: 134 ft
Total effective length (TEL): 481 ft
Friction rate: 0.062 in/100ft
Duct Materials Used
Trunk duct: Round flex metal
Branch duct: Round flex metal
Friction Rate = $ASP \div (TEL \times 100)$

I declare the load calculation, equipment, equipment selection and duct design were rigorously performed based on the building plan listed above. I understand the claims made on these forms will be subject to review and verification.

Contractor's printed name:

Contractor's signature:

Date:

Reserved for County, Town Municipality or Authority having jurisdiction use.

*Home qualifies for MJ1AE Form based on Abridged Edition Checklist

Residential Plans Examiner Review Form for HVAC System Design (Loads, Equipment, Ducts)

Form
RPER 1
15 Mar 09

Header Information

Contractor:

Mechanical license:

Building plan #:

Home address (Street or Lot#, Block, Subdivision):

11 DELAWARE RIM DRIVE, FAU Basement

REQUIRED ATTACHMENTS

Manual J1 Form (and supporting worksheets):
or MJ1AE Form* (and supporting worksheets):
OEM performance data (heating, cooling, blower):
Manual D Friction Rate Worksheet:
Duct distribution sketch:

ATTACHED

Yes ☐ No ☐
Yes ☐ No ☐
Yes ☐ No ☐
Yes ☐ No ☐
Yes ☐ No ☐

HVAC LOAD CALCULATION (IRC M1401.3)

Design Conditions

Winter Design Conditions

Outdoor temperature: 19 °F
Indoor temperature: 68 °F
Total heat loss: 41299 Btuh

Summer Design Conditions

Outdoor temperature: 91 °F
Indoor temperature: 75 °F
Grains difference: 35 gr/lb @ 50% RH
Sensible heat gain: 23588 Btuh
Latent heat gain: 4090 Btuh
Total heat gain: 27678 Btuh

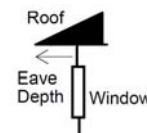
Building Construction Information

Building

Orientation: Front Door faces North
North, East, West, South, Northeast, Northwest, Southeast, Southwest
Number of bedrooms: 1
Conditioned floor area: 4689 ft²
Number of occupants: 5

Windows

Eave overhang depth: 0 ft
Internal shade: none
Blinds, drapes, etc.
Number of skylights: 0



HVAC EQUIPMENT SELECTION (IRC M1401.3)

Heating Equipment Data

Equipment type: Split ASHP
Furnace, Heat pump, Boiler, etc.
Model: Goodman Mfg.
GSZ140361L+AVPTC37D14B
Heating output capacity: 0 Btuh
Heat pumps - capacity at winter design outdoor conditions
Aux. heating output capacity: 0 Btuh

Cooling Equipment Data

Equipment type: Split ASHP
Air Conditioner, Heat pump, etc.
Model: Goodman Mfg.
GSZ140361L+AVPTC37D14B
Total cooling capacity: 0 Btuh
Sensible cooling capacity: 0 Btuh
Latent cooling capacity: 0 Btuh

Blower Data

Heating cfm: 1147
Cooling cfm: 1147
Static pressure: 0.40 in H2O
Fan's rated external static pressure for design airflow

HVAC DUCT DISTRIBUTION SYSTEM DESIGN (IRC M1601.1)

Design airflow:	1147 cfm	Longest supply duct:	604 ft	Duct Materials Used	
Equipment design ESP:	0.40 in H2O	Longest return duct:	187 ft	Trunk duct:	Sheet metal
Total device pressure losses:	0 in H2O	Total effective length (TEL):	790 ft	Branch duct:	Sheet metal
Available static pressure (ASP):	0.40 in H2O	Friction rate:	0.051 in/100ft		

Friction Rate = ASP ÷ (TEL x 100)

I declare the load calculation, equipment, equipment selection and duct design were rigorously performed based on the building plan listed above. I understand the claims made on these forms will be subject to review and verification.

Contractor's printed name:

Contractor's signature:

Date:

Reserved for County, Town Municipality or Authority having jurisdiction use.

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Residential Plans Examiner Review Form for HVAC System Design (Loads, Equipment, Ducts)

Form
RPER 1
15 Mar 09

Header Information

Contractor:

Mechanical license:

Building plan #:

Home address (Street or Lot#, Block, Subdivision):

11 DELAWARE RIM DRIVE, Mini Split

REQUIRED ATTACHMENTS

Manual J1 Form (and supporting worksheets):
or MJ1AE Form* (and supporting worksheets):
OEM performance data (heating, cooling, blower):
Manual D Friction Rate Worksheet:
Duct distribution sketch:

ATTACHED

Yes ☐ No ☐
Yes ☐ No ☐
Yes ☐ No ☐
Yes ☐ No ☐
Yes ☐ No ☐

HVAC LOAD CALCULATION (IRC M1401.3)

Design Conditions

Winter Design Conditions

Outdoor temperature: 19 °F
Indoor temperature: 68 °F
Total heat loss: 10907 Btuh

Summer Design Conditions

Outdoor temperature: 91 °F
Indoor temperature: 75 °F
Grains difference: 35 gr/lb @ 50% RH
Sensible heat gain: 5471 Btuh
Latent heat gain: 699 Btuh
Total heat gain: 6170 Btuh

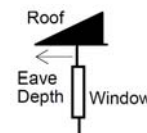
Building Construction Information

Building

Orientation: Front Door faces North
North, East, West, South, Northeast, Northwest, Southeast, Southwest
Number of bedrooms: 0
Conditioned floor area: 884 ft²
Number of occupants: 0

Windows

Eave overhang depth: 0 ft
Internal shade: none
Blinds, drapes, etc.
Number of skylights: 0



HVAC EQUIPMENT SELECTION (IRC M1401.3)

Heating Equipment Data

Equipment type: Furnace, Heat pump, Boiler, etc.
Model: Goodman Mfg.
Heating output capacity: 0 Btuh
Heat pumps - capacity at winter design outdoor conditions
Aux. heating output capacity: 0 Btuh

Cooling Equipment Data

Equipment type: Air Conditioner, Heat pump, etc.
Model:
Total cooling capacity: 0 Btuh
Sensible cooling capacity: 0 Btuh
Latent cooling capacity: 0 Btuh

Blower Data

Split AC
Heating cfm: 240
Cooling cfm: 240
Static pressure: 0 in H2O
Fan's rated external static pressure for design airflow
Generic
SEER 14.0+
0 Btuh
0 Btuh
0 Btuh

HVAC DUCT DISTRIBUTION SYSTEM DESIGN (IRC M1601.1)

Design airflow: 240 cfm
Equipment design ESP: 0 in H2O
Total device pressure losses: 0 in H2O
Available static pressure (ASP): 0 in H2O
Longest supply duct: 0 ft
Longest return duct: 0 ft
Total effective length (TEL): 0 ft
Friction rate: 0 in/100ft
Duct Materials Used
Trunk duct:
Branch duct: Round flex metal
Friction Rate = $ASP \div (TEL \times 100)$

I declare the load calculation, equipment, equipment selection and duct design were rigorously performed based on the building plan listed above. I understand the claims made on these forms will be subject to review and verification.

Contractor's printed name:

Contractor's signature:

Date:

Reserved for County, Town Municipality or Authority having jurisdiction use.

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Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Design Information

	Htg	Clg	Infiltration	
Outside db (°F)	19	91	Method	Simplified
Inside db (°F)	68	75	Construction quality	Average
Design TD (°F)	49	16	Fireplaces	0
Daily range	-	M		
Inside humidity (%)	50	50		
Moisture difference (gr/lb)	40	35		

HEATING EQUIPMENT

Make	n/a
Trade	n/a
Model	n/a
AHRI ref.	n/a
Efficiency	n/a
Heating input	0 Btuh
Heating output	0 °F
Temperature rise	0 cfm
Actual air flow	0 cfm/Btuh
Air flow factor	0 in H2O
Static pressure	n/a
Space thermostat	

COOLING EQUIPMENT

Make	n/a
Trade	n/a
Cond	n/a
Coil	n/a
AHRI ref.	n/a
Efficiency	n/a
Sensible cooling	0 Btuh
Latent cooling	0 Btuh
Total cooling	0 Btuh
Actual air flow	0 cfm
Air flow factor	0 cfm/Btuh
Static pressure	0 in H2O
Load sensible heat ratio	0

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
FAU Attic	3558	32979	24842	1160	1160
FAU Basement	4689	41299	22621	1147	1147
Mini Split	884	10907	5246	240	240
Entire House	9131	85184	52439	2547	2547
Other equip loads		0	0		
Equip. @ 0.96 RSM			50289		
Latent cooling			7907		
TOTALS	9131	85184	58196	2547	2547

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Design Information

	Htg	Clg	Infiltration	
Outside db (°F)	19	91	Method	Simplified
Inside db (°F)	68	75	Construction quality	Average
Design TD (°F)	49	16	Fireplaces	0
Daily range	-	M		
Inside humidity (%)	50	50		
Moisture difference (gr/lb)	40	35		

HEATING EQUIPMENT

Make Goodman Mfg.
Trade GOODMAN
Model VSZ140361B
AHRI ref 204879743

Efficiency 8.5 HSPF

Heating input
Heating output 32200 Btuh @ 47°F
Temperature rise 25 °F
Actual air flow 1160 cfm
Air flow factor 0.035 cfm/Btuh
Static pressure 0.30 in H2O
Space thermostat
Capacity balance point = 25 °F

COOLING EQUIPMENT

Make Goodman Mfg.
Trade GOODMAN
Cond VSZ140361B
Coil ASPT47D14A
AHRI ref 204879743

Efficiency 12.5 EER, 15 SEER

Sensible cooling 26100 Btuh
Latent cooling 8700 Btuh
Total cooling 34800 Btuh
Actual air flow 1160 cfm
Air flow factor 0.047 cfm/Btuh
Static pressure 0.30 in H2O
Load sensible heat ratio 0.88

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Den	172	1455	1950	51	91
WIC HIS	127	1037	530	36	25
WIC HERS	125	917	420	32	20
Master Bath	333	4157	2687	146	125
Bath 03	100	1063	406	37	19
WIC	80	404	121	14	6
Laundry Room	147	1054	883	37	41
Bath 02	152	1062	413	37	19
Bedroom 02	448	5083	4627	179	216
Master Bedroom	716	6306	5998	222	280
Gallery	807	7658	4585	269	214
Bedroom 03	352	2783	2222	98	104

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

FAU Attic	3558	32979	24842	1160	1160
Other equip loads		0	0		
Equip. @ 0.96 RSM			23824		
Latent cooling			3314		
TOTALS	3558	32979	27137	1160	1160

BCE COMPANY

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Design Information

	Htg	Clg	Infiltration	
Outside db (°F)	19	91	Method	Simplified
Inside db (°F)	68	75	Construction quality	Average
Design TD (°F)	49	16	Fireplaces	0
Daily range	-	M		
Inside humidity (%)	50	50		
Moisture difference (gr/lb)	40	35		

HEATING EQUIPMENT

Make Goodman Mfg.
Trade GOODMAN
Model GSZ140361L
AHRI ref 204876260

Efficiency 8.5 HSPF

Heating input
Heating output 32200 Btuh @ 47°F
Temperature rise 26 °F
Actual air flow 1147 cfm
Air flow factor 0.028 cfm/Btuh
Static pressure 0.40 in H2O
Space thermostat
Capacity balance point = 31 °F

COOLING EQUIPMENT

Make Goodman Mfg.
Trade GOODMAN
Cond GSZ140361L
Coil AVPTC37D14B
AHRI ref 204876260

Efficiency 12.0 EER, 14.5 SEER

Sensible cooling 25800 Btuh
Latent cooling 8600 Btuh
Total cooling 34400 Btuh
Actual air flow 1147 cfm
Air flow factor 0.051 cfm/Btuh
Static pressure 0.40 in H2O
Load sensible heat ratio 0.85

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Home Gym	379	4690	2372	130	120
Full Bath	59	622	58	17	3
Storage Area	109	1866	175	52	9
Mech Room	200	2680	251	74	13
Theatre	313	4546	2289	126	116
Siting Room	1139	7035	2138	195	108
Sauna	72	1627	153	45	8
Powder Room	43	0	0	0	0
Mud Room	124	814	311	23	16
Butler Pantry	127	571	323	16	16
Dining & Kitchen	1486	9651	9260	268	470
Coat Room	32	768	214	21	11
Play Room	272	2371	2150	66	109
Office	335	4057	2926	113	148

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

FAU Basement	4689	41299	22621	1147	1147
Other equip loads		0	0		
Equip. @ 0.96 RSM			21693		
Latent cooling			3922		
TOTALS	4689	41299	25616	1147	1147

BCE COMPANY

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Design Information

	Htg	Clg	Infiltration	
Outside db (°F)	19	91	Method	Simplified
Inside db (°F)	68	75	Construction quality	Average
Design TD (°F)	49	16	Fireplaces	0
Daily range	-	M		
Inside humidity (%)	50	50		
Moisture difference (gr/lb)	40	35		

HEATING EQUIPMENT

Make	n/a
Trade	n/a
Model	n/a
AHRI ref	n/a
Efficiency	n/a
Heating input	0 Btuh
Heating output	0 Btuh
Temperature rise	0 °F
Actual air flow	240 cfm
Air flow factor	0.022 cfm/Btuh
Static pressure	0 in H2O
Space thermostat	

COOLING EQUIPMENT

Make	Generic
Trade	
Cond	SEER 14.0
Coil	
AHRI ref	
Efficiency	12.2 EER, 14 SEER
Sensible cooling	5032 Btuh
Latent cooling	2156 Btuh
Total cooling	7188 Btuh
Actual air flow	240 cfm
Air flow factor	0.046 cfm/Btuh
Static pressure	0 in H2O
Load sensible heat ratio	0.89

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
3 Garage Room	884	10907	5246	240	240
Mini Split	884	10907	5246	240	240
Other equip loads		0	0		
Equip. @ 0.96 RSM			5031		
Latent cooling			671		
TOTALS	884	10907	5702	240	240

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Infiltration Summary

ZONE NAME	Heating				Cooling			
	Volume ft³	ACH	AVF cfm	HTM Btuh/ft²	Volume ft³	ACH	AVF cfm	HTM Btuh/ft²
FAU Basement	38792	0.37	240	3.6	38792	0.19	123	0.6
FAU Attic	32024	0.36	190	3.6	32024	0.18	98	0.6
Mini Split	7956	0.42	55	3.6	7956	0.21	28	0.6
Entire House	78772	0.37	486	3.6	78772	0.19	249	0.6

Load and AVF Summary

ROOM NAME	Area ft²	Htg load Btuh	Clg load Btuh	Htg AVF cfm	Clg AVF cfm
Home Gym	379	4690	2372	130	120
Full Bath	59	622	58	17	3
Storage Area	109	1866	175	52	9
Mech Room	200	2680	251	74	13
Theatre	313	4546	2289	126	116
Siting Room	1139	7035	2138	195	108
Sauna	72	1627	153	45	8
Powder Room	43	0	0	0	0
Mud Room	124	814	311	23	16
Butler Pantry	127	571	323	16	16
Dining & Kitchen	1486	9651	9260	268	470
Coat Room	32	768	214	21	11
Play Room	272	2371	2150	66	109
Office	335	4057	2926	113	148
FAU Basement	4689	41299	22621	1147	1147
Den	172	1455	1950	51	91
WIC HIS	127	1037	530	36	25
WIC HERS	125	917	420	32	20
Master Bath	333	4157	2687	146	125
Bath 03	100	1063	406	37	19
WIC	80	404	121	14	6
Laundry Room	147	1054	883	37	41
Bath 02	152	1062	413	37	19
Bedroom 02	448	5083	4627	179	216
Master Bedroom	716	6306	5998	222	280
Gallery	807	7658	4585	269	214
Bedroom 03	352	2783	2222	98	104
FAU Attic	3558	32979	24842	1160	1160
3 Garage Room	884	10907	5246	240	240
Mini Split	884	10907	5246	240	240
Entire House	9131	85184	52439	2547	2547

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Design Conditions

Location:

Philadelphia Intl, PA, US
Elevation: 10 ft
Latitude: 40°N

Outdoor:

Dry bulb (°F)
Daily range (°F)
Wet bulb (°F)
Wind speed (mph)

Heating

19
-
-
15.0

Cooling

91
16 (M)
74
7.5

Indoor:

Indoor temperature (°F)
Design TD (°F)
Relative humidity (%)
Moisture difference (gr/lb)

Heating

68
49
50
39.7

Cooling

75
16
50
34.8

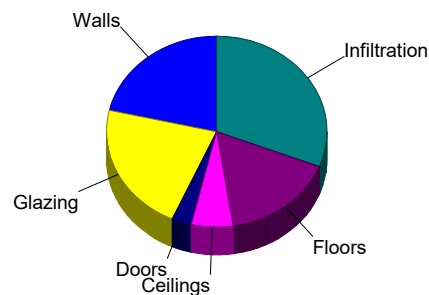
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

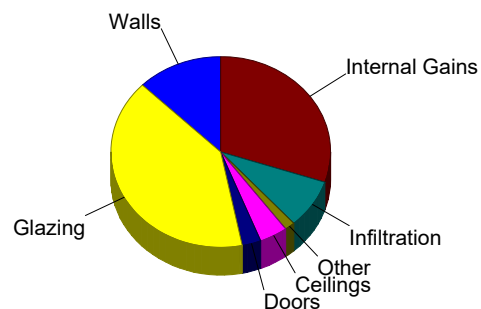
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	2.9	18219	21.4
Glazing	14.3	18721	22.0
Doors	14.8	2490	2.9
Ceilings	1.4	5200	6.1
Floors	4.0	14168	16.6
Infiltration	3.6	26387	31.0
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		0	0
Adjustments		0	0
Total		85184	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.1	6621	12.6
Glazing	16.2	21233	40.5
Doors	8.8	1477	2.8
Ceilings	0.6	2176	4.1
Floors	0.2	770	1.5
Infiltration	0.6	4361	8.3
Ducts		0	0
Ventilation		0	0
Internal gains		15800	30.1
Blower		0	0
Adjustments		0	0
Total		52439	100.0



Latent Cooling Load = 7907 Btuh
Overall U-value = 0.080 Btuh/ft²-°F

Data entries checked.

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Design Conditions

Location:

Philadelphia Intl, PA, US
Elevation: 10 ft
Latitude: 40°N

Outdoor:

Dry bulb (°F)
Daily range (°F)
Wet bulb (°F)
Wind speed (mph)

Heating

19
-
-
15.0

Cooling

91
16 (M)
74
7.5

Indoor:

Indoor temperature (°F)
Design TD (°F)
Relative humidity (%)
Moisture difference (gr/lb)

Heating

68
49
50
39.7

Cooling

75
16
50
34.8

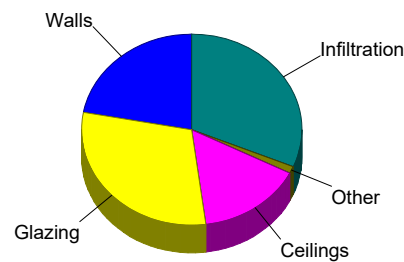
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

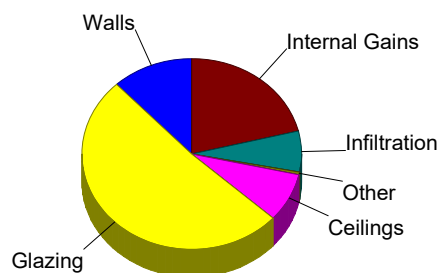
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.4	7278	22.1
Glazing	14.3	9880	30.0
Doors	0	0	0
Ceilings	1.4	5098	15.5
Floors	1.9	387	1.2
Infiltration	3.6	10336	31.3
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		0	0
Adjustments		0	0
Total		32979	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.4	2976	12.0
Glazing	18.5	12740	51.3
Doors	0	0	0
Ceilings	0.6	2043	8.2
Floors	0.6	125	0.5
Infiltration	0.6	1708	6.9
Ducts		0	0
Ventilation		0	0
Internal gains		5250	21.1
Blower		0	0
Adjustments		0	0
Total		24842	100.0



Latent Cooling Load = 3314 Btuh
Overall U-value = 0.070 Btuh/ft²-°F

Data entries checked.

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Design Conditions

Location:

Philadelphia Intl, PA, US
Elevation: 10 ft
Latitude: 40°N

Outdoor:

Dry bulb (°F)
Daily range (°F)
Wet bulb (°F)
Wind speed (mph)

Heating

19
-
-
15.0

Cooling

91
16 (M)
74
7.5

Indoor:

Indoor temperature (°F)
Design TD (°F)
Relative humidity (%)
Moisture difference (gr/lb)

Heating

68
49
50
39.7

Cooling

75
16
50
34.8

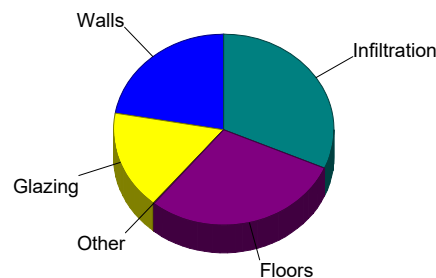
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

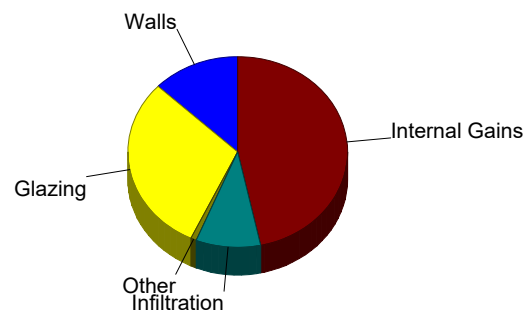
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	2.6	9179	22.2
Glazing	14.3	6898	16.7
Doors	0	0	0
Ceilings	2.5	63	0.2
Floors	5.0	12104	29.3
Infiltration	3.6	13055	31.6
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		0	0
Adjustments		0	0
Total		41299	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	0.8	2925	12.9
Glazing	14.1	6800	30.1
Doors	0	0	0
Ceilings	3.3	82	0.4
Floors	0.0	106	0.5
Infiltration	0.6	2158	9.5
Ducts		0	0
Ventilation		0	0
Internal gains		10550	46.6
Blower		0	0
Adjustments		0	0
Total		22621	100.0



Latent Cooling Load = 3922 Btuh
Overall U-value = 0.086 Btuh/ft²-°F

Data entries checked.

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Design Conditions

Location:

Philadelphia Intl, PA, US
Elevation: 10 ft
Latitude: 40°N

Outdoor:

Dry bulb (°F)
Daily range (°F)
Wet bulb (°F)
Wind speed (mph)

Heating

19
-
-
15.0

Cooling

91
16 (M)
74
7.5

Indoor:

Indoor temperature (°F)
Design TD (°F)
Relative humidity (%)
Moisture difference (gr/lb)

Heating

68
49
50
39.7

Cooling

75
16
50
34.8

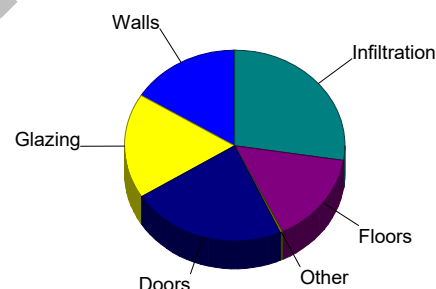
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

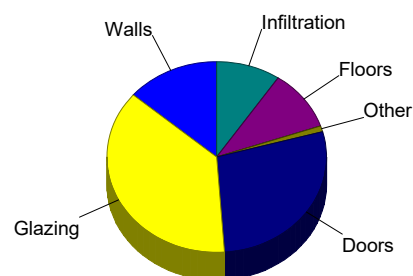
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.4	1762	16.2
Glazing	14.3	1942	17.8
Doors	14.8	2490	22.8
Ceilings	2.5	40	0.4
Floors	1.9	1677	15.4
Infiltration	3.6	2996	27.5
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		0	0
Adjustments		0	0
Total		10907	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.4	720	13.7
Glazing	14.5	1963	37.4
Doors	8.8	1477	28.1
Ceilings	3.3	51	1.0
Floors	0.6	540	10.3
Infiltration	0.6	495	9.4
Ducts		0	0
Ventilation		0	0
Internal gains		0	0
Blower		0	0
Adjustments		0	0
Total		5246	100.0



Latent Cooling Load = 671 Btuh
Overall U-value = 0.098 Btuh/ft²-°F

Data entries checked.

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Notes:

Design Information

Weather: Philadelphia Intl, PA, US

Winter Design Conditions

Outside db	19 °F
Inside db	68 °F
Design TD	49 °F

Summer Design Conditions

Outside db	91 °F
Inside db	75 °F
Design TD	16 °F
Daily range	M
Relative humidity	50 %
Moisture difference	35 gr/lb

Heating Summary

Structure	85184 Btuh
Ducts	0 Btuh
Central vent (0 cfm)	0 Btuh
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	85184 Btuh

Sensible Cooling Equipment Load Sizing

Structure	52439 Btuh
Ducts	0 Btuh
Central vent (0 cfm)	0 Btuh
Blower	0 Btuh
Use manufacturer's data	n
Rate/swing multiplier	0.96
Equipment sensible load	50289 Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

Latent Cooling Equipment Load Sizing

Structure	7907 Btuh
Ducts	0 Btuh
Central vent (0 cfm)	0 Btuh
Equipment latent load	7907 Btuh
Equipment Total Load (Sen+Lat)	58196 Btuh
Req. total capacity at 0.70 SHR	6.0 ton

	Heating	Cooling
Area (ft²)	9131	9131
Volume (ft³)	78772	78772
Air changes/hour	0.37	0.19
Equiv. AVF (cfm)	486	249

Heating Equipment Summary

Make	n/a
Trade	n/a
Model	n/a
AHRI ref	n/a
Efficiency	n/a
Heating input	
Heating output	0 Btuh
Temperature rise	0 °F
Actual air flow	0 cfm
Air flow factor	0 cfm/Btuh
Static pressure	0 in H2O
Space thermostat	n/a

Cooling Equipment Summary

Make	n/a
Trade	n/a
Cond	n/a
Coil	n/a
AHRI ref	n/a
Efficiency	n/a
Sensible cooling	0 Btuh
Latent cooling	0 Btuh
Total cooling	0 Btuh
Actual air flow	0 cfm
Air flow factor	0 cfm/Btuh
Static pressure	0 in H2O
Load sensible heat ratio	0

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Notes:

Design Information

Weather: Philadelphia Intl, PA, US

Winter Design Conditions

Outside db 19 °F
Inside db 68 °F
Design TD 49 °F

Summer Design Conditions

Outside db 91 °F
Inside db 75 °F
Design TD 16 °F
Daily range M
Relative humidity 50 %
Moisture difference 35 gr/lb

Heating Summary

Structure 32979 Btuh
Ducts 0 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Humidification 0 Btuh
Piping 0 Btuh
Equipment load 32979 Btuh

Sensible Cooling Equipment Load Sizing

Structure 24842 Btuh
Ducts 0 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Blower 0 Btuh
Use manufacturer's data n
Rate/swing multiplier 0.96
Equipment sensible load 23824 Btuh

Infiltration

Method Simplified
Construction quality Average
Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 3314 Btuh
Ducts 0 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Equipment latent load 3314 Btuh

	Heating	Cooling
Area (ft²)	3558	3558
Volume (ft³)	32024	32024
Air changes/hour	0.36	0.18
Equiv. AVF (cfm)	190	98

Equipment Total Load (Sen+Lat) 27137 Btuh
Req. total capacity at 0.75 SHR 2.6 ton

Heating Equipment Summary

Make Goodman Mfg.
Trade GOODMAN
Model VSZ140361B
AHRI ref 204879743
Efficiency 8.5 HSPF
Heating input
Heating output 32200 Btuh @ 47°F
Temperature rise 25 °F
Actual air flow 1160 cfm
Air flow factor 0.035 cfm/Btuh
Static pressure 0.30 in H2O
Space thermostat
Capacity balance point = 25 °F

Cooling Equipment Summary

Make Goodman Mfg.
Trade GOODMAN
Cond VSZ140361B
Coil ASPT47D14A
AHRI ref 204879743
Efficiency 12.5 EER, 15 SEER
Sensible cooling 26100 Btuh
Latent cooling 8700 Btuh
Total cooling 34800 Btuh
Actual air flow 1160 cfm
Air flow factor 0.047 cfm/Btuh
Static pressure 0.30 in H2O
Load sensible heat ratio 0.88

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Notes:

Design Information

Weather: Philadelphia Intl, PA, US

Winter Design Conditions

Outside db 19 °F
Inside db 68 °F
Design TD 49 °F

Summer Design Conditions

Outside db 91 °F
Inside db 75 °F
Design TD 16 °F
Daily range M
Relative humidity 50 %
Moisture difference 35 gr/lb

Heating Summary

Structure 41299 Btuh
Ducts 0 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Humidification 0 Btuh
Piping 0 Btuh
Equipment load 41299 Btuh

Sensible Cooling Equipment Load Sizing

Structure 22621 Btuh
Ducts 0 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Blower 0 Btuh
Use manufacturer's data n
Rate/swing multiplier 0.96
Equipment sensible load 21693 Btuh

Infiltration

Method Simplified
Construction quality Average
Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 3922 Btuh
Ducts 0 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Equipment latent load 3922 Btuh

	Heating	Cooling
Area (ft²)	4689	4689
Volume (ft³)	38792	38792
Air changes/hour	0.37	0.19
Equiv. AVF (cfm)	240	123

Equipment Total Load (Sen+Lat) 25616 Btuh
Req. total capacity at 0.75 SHR 2.4 ton

Heating Equipment Summary

Make Goodman Mfg.
Trade GOODMAN
Model GSZ140361L
AHRI ref 204876260
Efficiency 8.5 HSPF
Heating input 32200 Btuh @ 47°F
Heating output 26 °F
Temperature rise 1147 cfm
Actual air flow 0.028 cfm/Btuh
Air flow factor 0.40 in H2O
Static pressure
Space thermostat
Capacity balance point = 31 °F

Cooling Equipment Summary

Make Goodman Mfg.
Trade GOODMAN
Cond GSZ140361L
Coil AVPTC37D14B
AHRI ref 204876260
Efficiency 12.0 EER, 14.5 SEER
Sensible cooling 25800 Btuh
Latent cooling 8600 Btuh
Total cooling 34400 Btuh
Actual air flow 1147 cfm
Air flow factor 0.051 cfm/Btuh
Static pressure 0.40 in H2O
Load sensible heat ratio 0.85

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Notes:

Design Information

Weather: Philadelphia Intl, PA, US

Winter Design Conditions

Outside db 19 °F
Inside db 68 °F
Design TD 49 °F

Summer Design Conditions

Outside db 91 °F
Inside db 75 °F
Design TD 16 °F
Daily range M
Relative humidity 50 %
Moisture difference 35 gr/lb

Heating Summary

Structure 10907 Btuh
Ducts 0 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Humidification 0 Btuh
Piping 0 Btuh
Equipment load 10907 Btuh

Sensible Cooling Equipment Load Sizing

Structure 5246 Btuh
Ducts 0 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Blower 0 Btuh
Use manufacturer's data n
Rate/swing multiplier 0.96
Equipment sensible load 5031 Btuh

Infiltration

Method Simplified
Construction quality Average
Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 671 Btuh
Ducts 0 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Equipment latent load 671 Btuh

	Heating	Cooling
Area (ft²)	884	884
Volume (ft³)	7956	7956
Air changes/hour	0.42	0.21
Equiv. AVF (cfm)	55	28

Equipment Total Load (Sen+Lat) 5702 Btuh
Req. total capacity at 0.70 SHR 0.6 ton

Heating Equipment Summary

Make n/a
Trade n/a
Model n/a
AHRI ref n/a
Efficiency n/a
Heating input 0 Btuh
Heating output 0 Btuh
Temperature rise 0 °F
Actual air flow 240 cfm
Air flow factor 0.022 cfm/Btuh
Static pressure 0 in H2O
Space thermostat

Cooling Equipment Summary

Make Generic
Trade
Cond SEER 14.0
Coil
AHRI ref
Efficiency 12.2 EER, 14 SEER
Sensible cooling 5032 Btuh
Latent cooling 2156 Btuh
Total cooling 7188 Btuh
Actual air flow 240 cfm
Air flow factor 0.046 cfm/Btuh
Static pressure 0 in H2O
Load sensible heat ratio 0.89

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Design Conditions

Location:

Philadelphia Intl, PA, US
Elevation: 10 ft
Latitude: 40°N

Outdoor:

Dry bulb (°F)
Daily range (°F)
Wet bulb (°F)
Wind speed (mph)

Heating

19
-
-
15.0

Cooling

91
16 (M)
74
7.5

Indoor:

Indoor temperature (°F)
Design TD (°F)
Relative humidity (%)
Moisture difference (gr/lb)

Heating

68
49
50
39.7

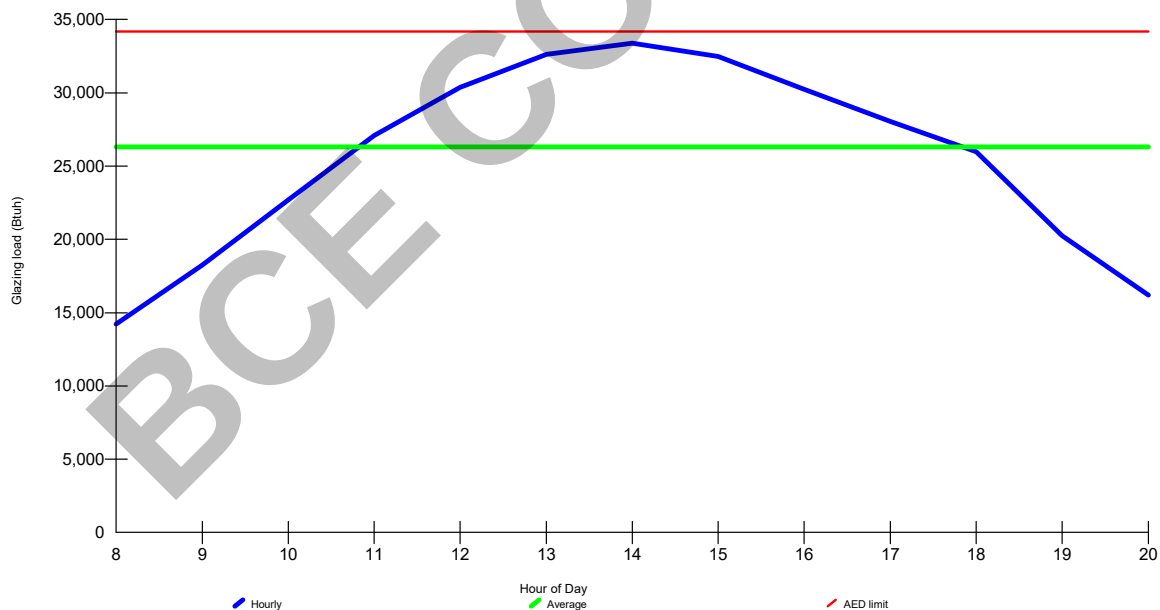
Cooling

75
16
50
34.8

Infiltration:

Test for Adequate Exposure Diversity

Hourly Glazing Load



Maximum hourly glazing load exceeds average by 27.0%.

House has adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 0 Btuh

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Design Conditions

Location:

Philadelphia Intl, PA, US
Elevation: 10 ft
Latitude: 40°N

Outdoor:

Dry bulb (°F)
Daily range (°F)
Wet bulb (°F)
Wind speed (mph)

Heating

19
-
-
15.0

Cooling

91
16 (M)
74
7.5

Indoor:

Indoor temperature (°F)
Design TD (°F)
Relative humidity (%)
Moisture difference (gr/lb)

Heating

68
49
50
39.7

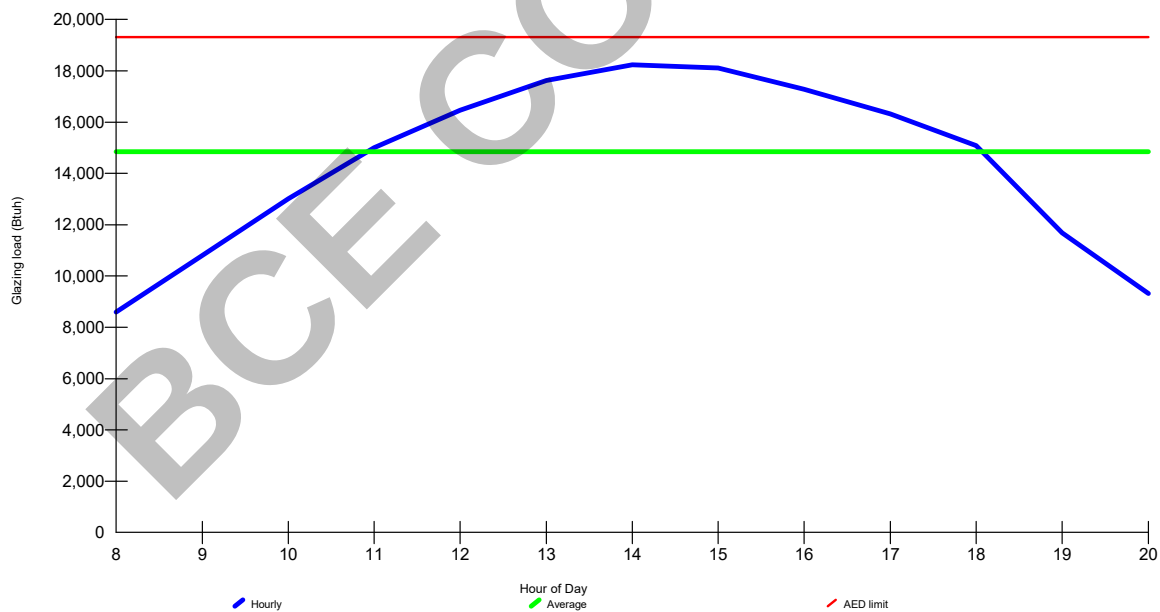
Cooling

75
16
50
34.8

Infiltration:

Test for Adequate Exposure Diversity

Hourly Glazing Load



Maximum hourly glazing load exceeds average by 22.8%.

Zone has adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 0 Btuh

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Design Conditions

Location:

Philadelphia Intl, PA, US
Elevation: 10 ft
Latitude: 40°N

Outdoor:

Dry bulb (°F)
Daily range (°F)
Wet bulb (°F)
Wind speed (mph)

Heating

19
-
-
15.0

Cooling

91
16 (M)
74
7.5

Indoor:

Indoor temperature (°F)
Design TD (°F)
Relative humidity (%)
Moisture difference (gr/lb)

Heating

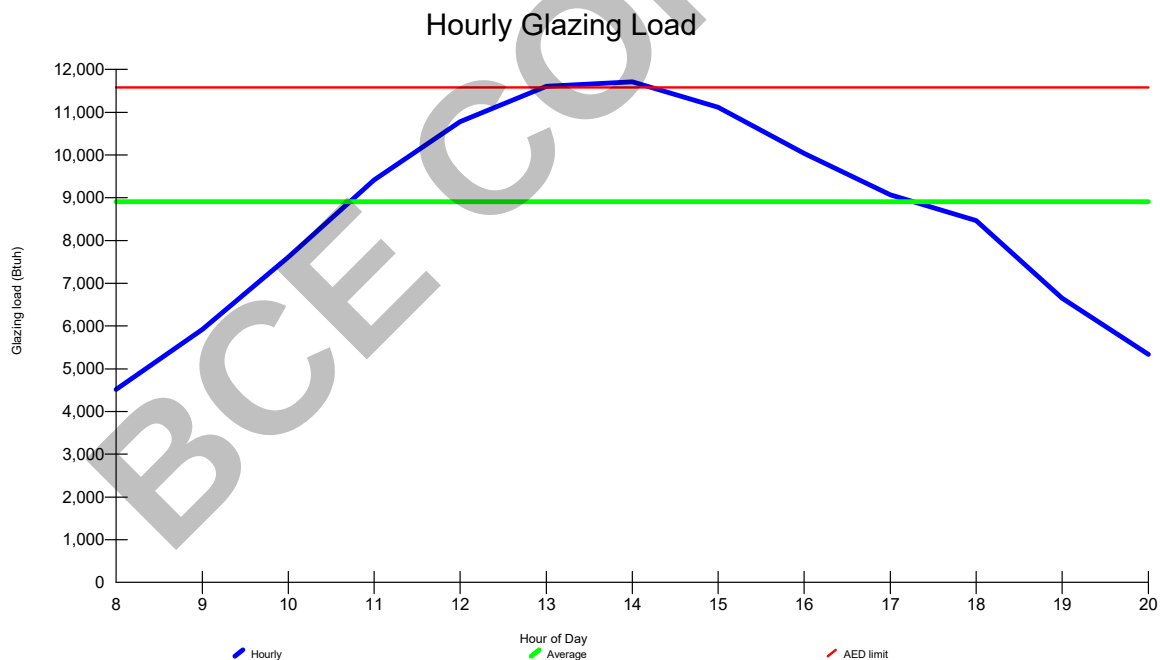
68
49
50
39.7

Cooling

75
16
50
34.8

Infiltration:

Test for Adequate Exposure Diversity



Maximum hourly glazing load exceeds average by 31.5%.

Zone does not have adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 131 Btuh (PFG - 1.3*AFG)

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

Design Conditions

Location:

Philadelphia Intl, PA, US
Elevation: 10 ft
Latitude: 40°N

Outdoor:

Dry bulb (°F)
Daily range (°F)
Wet bulb (°F)
Wind speed (mph)

Heating

19
-
-
15.0

Cooling

91
16 (M)
74
7.5

Indoor:

Indoor temperature (°F)
Design TD (°F)
Relative humidity (%)
Moisture difference (gr/lb)

Heating

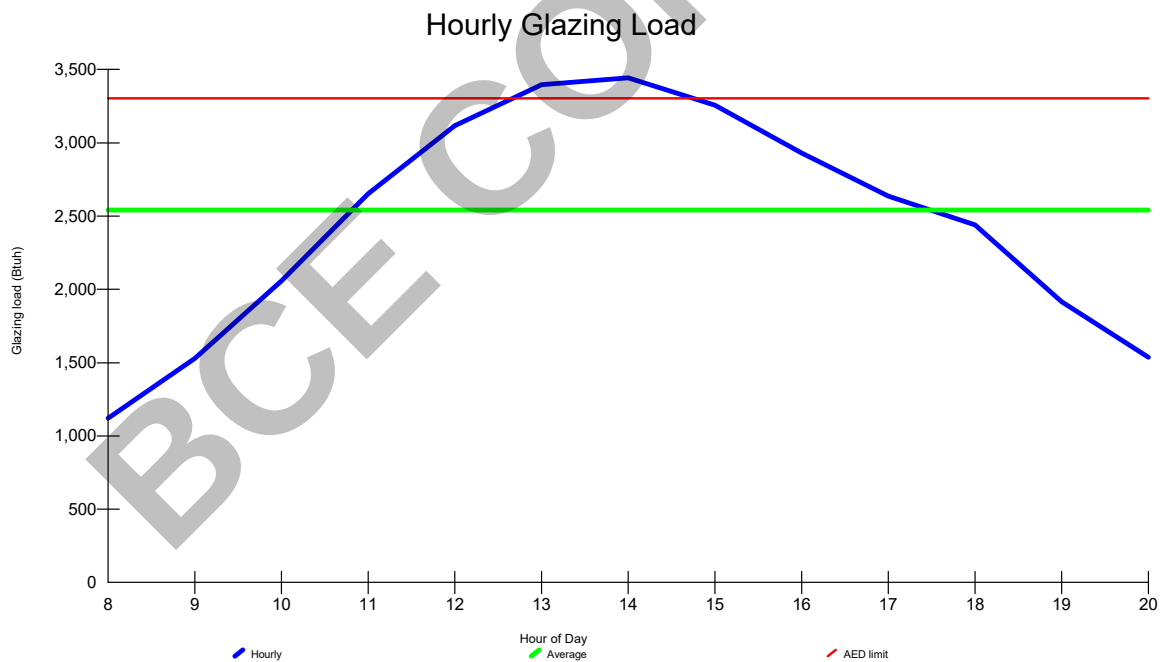
68
49
50
39.7

Cooling

75
16
50
34.8

Infiltration:

Test for Adequate Exposure Diversity



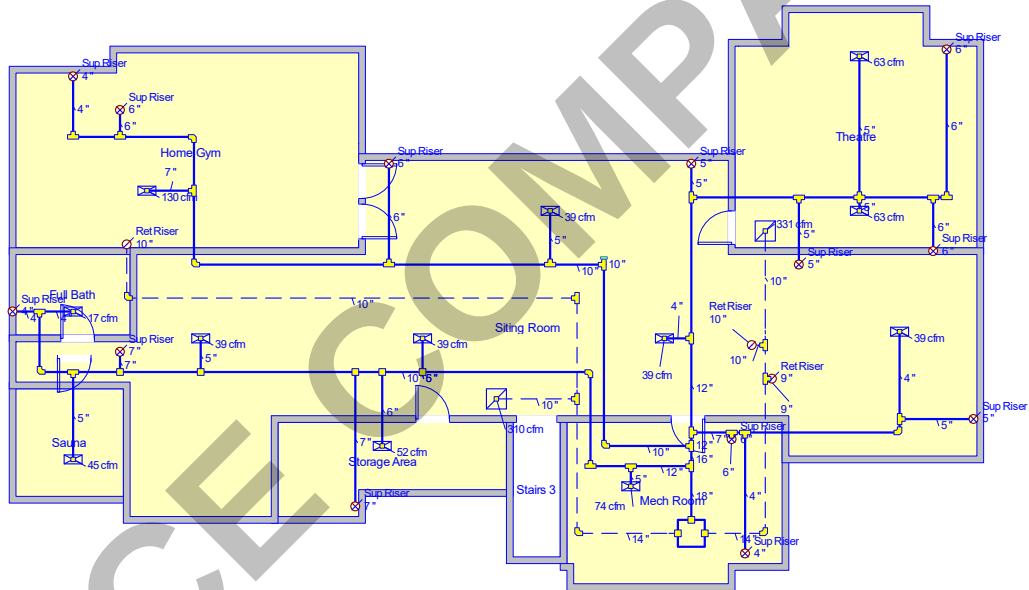
Maximum hourly glazing load exceeds average by 35.5%.

Zone does not have adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 139 Btuh (PFG - 1.3*AFG)



Level 1

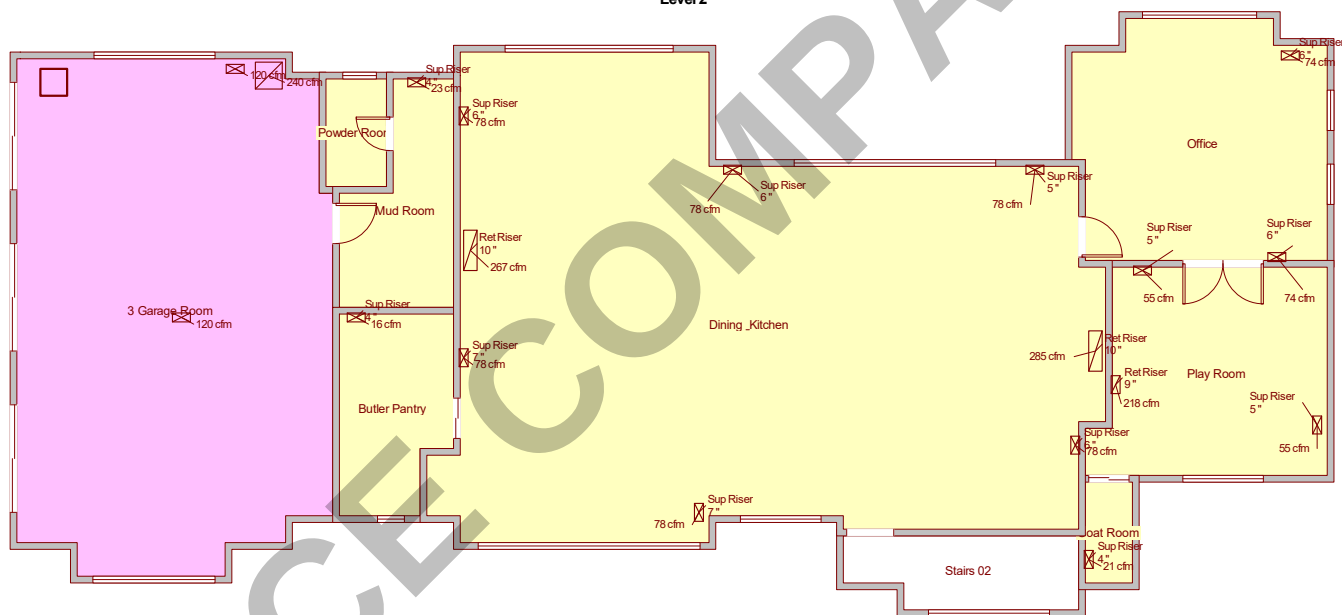


Job #: 090

Performed by MOE for:
NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE
LOWER MAKEFIELD, PA 19067

Scale: 1 : 172

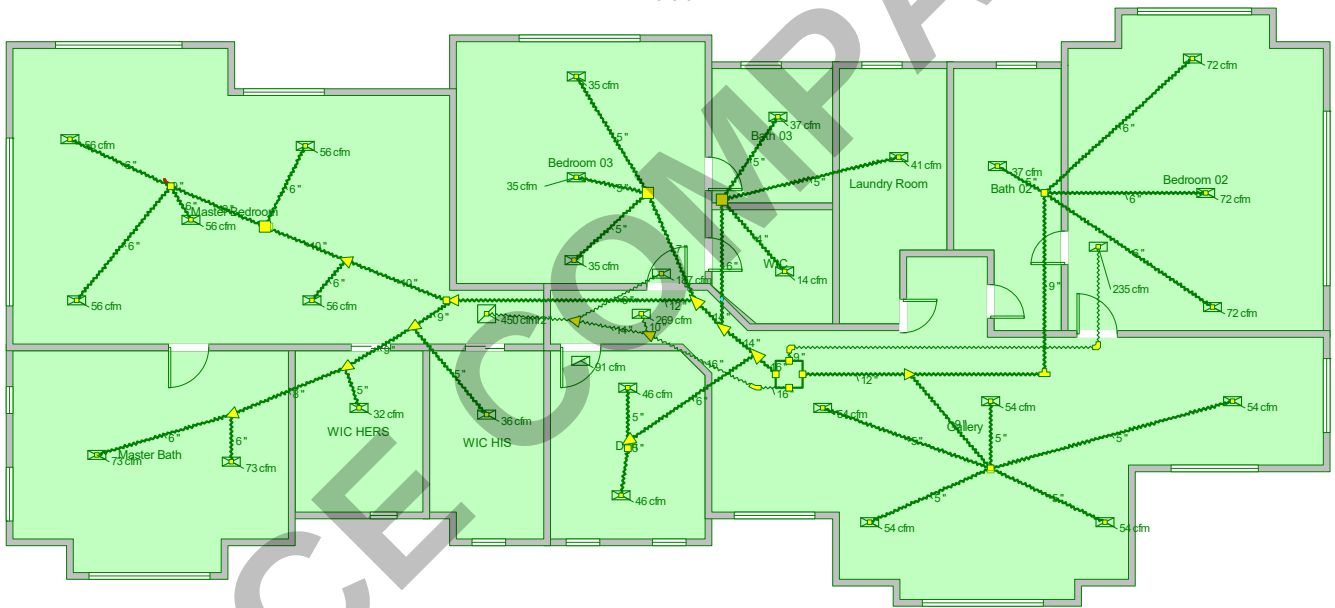
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Page 2
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Level 3



Job #: 090

Performed by MOE for:

NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE
LOWER MAKEFIELD, PA 19067

Scale: 1 : 172

Page 3

Right-Suite® Universal 2022

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...Wrightsoft HVAC\Makefield PA.rup

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

	Heating	Cooling
External static pressure	0.30 in H ₂ O	0.30 in H ₂ O
Pressure losses	0 in H ₂ O	0 in H ₂ O
Available static pressure	0.30 in H ₂ O	0.30 in H ₂ O
Supply / return available pressure	0.216 / 0.084 in H ₂ O	0.216 / 0.084 in H ₂ O
Lowest friction rate	0.062 in/100ft	0.062 in/100ft
Actual air flow	1160 cfm	1160 cfm
Total effective length (TEL)	481 ft	

Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
Bath 02	h 1062	37	19	0.120	5.0	0x0	MtFx	35.5	145.0	st4
Bath 03	h 1063	37	19	0.122	5.0	0x0	MtFx	22.3	155.0	st19
Bedroom 02	c 1542	60	72	0.113	6.0	0x0	MtFx	46.4	145.0	st4
Bedroom 02-A	c 1542	60	72	0.115	6.0	0x0	MtFx	43.5	145.0	st4
Bedroom 02-B	c 1542	60	72	0.113	6.0	0x0	MtFx	46.6	145.0	st4
Bedroom 03	c 741	33	35	0.107	5.0	0x0	MtFx	27.1	175.0	st9
Bedroom 03-A	c 741	33	35	0.110	5.0	0x0	MtFx	22.3	175.0	st9
Bedroom 03-B	c 741	33	35	0.108	5.0	0x0	MtFx	24.3	175.0	st9
Den	c 975	26	46	0.125	5.0	0x0	MtFx	17.7	155.0	st20
Den-A	c 975	26	46	0.142	5.0	0x0	MtFx	17.6	135.0	st20
Gallery	h 1532	54	43	0.131	5.0	0x0	MtFx	30.5	135.0	st5
Gallery-A	h 1532	54	43	0.126	5.0	0x0	MtFx	35.9	135.0	st5
Gallery-B	h 1532	54	43	0.137	5.0	0x0	MtFx	22.2	135.0	st5
Gallery-C	h 1532	54	43	0.133	5.0	0x0	MtFx	27.1	135.0	st5
Gallery-E	h 1532	54	43	0.134	5.0	0x0	MtFx	26.6	135.0	st5
Laundry Room	c 883	37	41	0.118	5.0	0x0	MtFx	28.4	155.0	st19
Master Bath	h 2079	73	63	0.074	6.0	0x0	MtFx	55.2	235.0	st13
Master Bath-A	h 2079	73	63	0.076	6.0	0x0	MtFx	48.3	235.0	st13
Master Bedroom	c 1200	44	56	0.063	6.0	0x0	MtFx	58.5	285.0	st17
Master Bedroom-A	c 1200	44	56	0.062	6.0	0x0	MtFx	61.3	285.0	st17
Master Bedroom-B	c 1200	44	56	0.079	6.0	0x0	MtFx	47.9	225.0	st15
Master Bedroom-C	c 1200	44	56	0.089	6.0	0x0	MtFx	38.6	205.0	st14
Master Bedroom-D	c 1200	44	56	0.064	6.0	0x0	MtFx	53.2	285.0	st17
WIC	h 404	14	6	0.122	4.0	0x0	MtFx	21.9	155.0	st19
WIC HERS	h 917	32	20	0.085	5.0	0x0	MtFx	38.8	215.0	st12
WIC HIS	h 1037	36	25	0.093	5.0	0x0	MtFx	38.3	195.0	st11

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st8	Peak AVF	535	554	0.062	518	14.0	0 x 0	MetlFlx	st7
st19	Peak AVF	89	66	0.118	452	6.0	0 x 0	MetlFlx	st7
st10	Peak AVF	437	450	0.062	573	12.0	0 x 0	MetlFlx	st8
st9	Peak AVF	98	104	0.107	388	7.0	0 x 0	MetlFlx	st8
st7	Peak AVF	623	619	0.062	583	14.0	0 x 0	MetlFlx	st2
st2	Peak AVF	674	711	0.062	509	16.0	0 x 0	MetlFlx	
st20	Peak AVF	51	91	0.125	464	6.0	0 x 0	MetlFlx	st2
st13	Peak AVF	146	125	0.074	419	8.0	0 x 0	MetlFlx	st12
st12	Peak AVF	178	145	0.074	404	9.0	0 x 0	MetlFlx	st11
st11	Peak AVF	215	170	0.074	487	9.0	0 x 0	MetlFlx	st10
st17	Peak AVF	133	168	0.062	380	9.0	0 x 0	MetlFlx	st16
st16	Peak AVF	133	168	0.062	380	9.0	0 x 0	MetlFlx	st15
st14	Peak AVF	222	280	0.062	514	10.0	0 x 0	MetlFlx	st10
st15	Peak AVF	177	224	0.062	411	10.0	0 x 0	MetlFlx	st14
st4	Peak AVF	216	235	0.113	533	9.0	0 x 0	MetlFlx	st1
st1	Peak AVF	486	449	0.113	618	12.0	0 x 0	MetlFlx	
st5	Peak AVF	269	214	0.126	610	9.0	0 x 0	MetlFlx	st1

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb11	0x 0	216	235	111.5	0.075	533	9.0	0x 0		MtFx	
rb13	0x 0	437	450	133.6	0.063	573	12.0	0x 0		MtFx	rt7
rb10	0x 0	187	170	134.4	0.062	422	9.0	0x 0		MtFx	rt7
rb14	0x 0	269	214	103.0	0.081	494	10.0	0x 0		MtFx	rt6
rb12	0x 0	51	91	0	0	0	0	0x 0		MtFx	

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rt7	Peak AVF	623	619	0.062	583	14.0	0 x 0	MetlFlx	rt6
rt6	Peak AVF	893	834	0.062	639	16.0	0 x 0	MetlFlx	rt2
rt2	Peak AVF	893	834	0.062	639	16.0	0 x 0	MetlFlx	

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

	Heating	Cooling
External static pressure	0.40 in H ₂ O	0.40 in H ₂ O
Pressure losses	0 in H ₂ O	0 in H ₂ O
Available static pressure	0.40 in H ₂ O	0.40 in H ₂ O
Supply / return available pressure	0.306 / 0.094 in H ₂ O	0.306 / 0.094 in H ₂ O
Lowest friction rate	0.051 in/100ft	0.051 in/100ft
Actual air flow	1147 cfm	1147 cfm
Total effective length (TEL)	790 ft	

Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
Butler Pantry	c 323	16	16	0.053	4.0	0x0	ShMt	75.0	505.0	st22
Coat Room	h 768	21	11	0.116	4.0	0x0	ShMt	28.5	235.0	st27
Dining & Kitchen-A	c 1543	45	78	0.112	6.0	0x0	ShMt	19.0	255.0	st27
Dining & Kitchen-B	c 1543	45	78	0.052	7.0	0x0	ShMt	55.0	535.0	st22
Dining & Kitchen-C	c 1543	45	78	0.080	6.0	0x0	ShMt	58.0	325.0	st30
Dining & Kitchen-D	c 1543	45	78	0.203	5.0	0x0	ShMt	35.5	115.0	st26
Dining & Kitchen-E	c 1543	45	78	0.072	6.0	0x0	ShMt	82.0	345.0	st30
Dining & Kitchen-F	c 1543	45	78	0.053	7.0	0x0	ShMt	64.0	510.0	st22
Full Bath	h 622	17	3	0.053	4.0	0x0	ShMt	66.5	505.0	st22
Home Gym-A	h 4690	130	120	0.076	7.0	0x0	ShMt	65.0	335.0	st30
Mech Room-A	h 2680	74	13	0.130	5.0	0x0	ShMt	10.0	225.0	st24
Mud Room	h 814	23	16	0.077	4.0	0x0	ShMt	88.0	310.0	st30
Office	c 1463	56	74	0.095	6.0	0x0	ShMt	63.0	260.0	st26
Office-A	c 1463	56	74	0.087	6.0	0x0	ShMt	55.0	295.0	st26
Play Room	c 1075	33	55	0.112	5.0	0x0	ShMt	37.5	235.0	st27
Play Room-A	c 1075	33	55	0.100	5.0	0x0	ShMt	46.0	260.0	st26
Sauna	h 1627	45	8	0.051	5.0	0x0	ShMt	63.5	540.0	st22
Sitting Room-A	h 1407	39	22	0.054	5.0	0x0	ShMt	50.0	520.0	st22
Sitting Room-B	h 1407	39	22	0.054	5.0	0x0	ShMt	34.0	530.0	st23
Sitting Room-C	h 1407	39	22	0.179	4.0	0x0	ShMt	15.5	155.0	st26
Sitting Room-D	h 1407	39	22	0.116	4.0	0x0	ShMt	29.5	235.0	st27
Sitting Room-E	h 1407	39	22	0.083	5.0	0x0	ShMt	33.5	335.0	st30
Storage Area	h 1866	52	9	0.054	6.0	0x0	ShMt	39.5	530.0	st22
Theatre	h 2273	63	58	0.106	5.0	0x0	ShMt	37.5	250.0	st26
Theatre-A	h 2273	63	58	0.103	5.0	0x0	ShMt	47.0	250.0	st26

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st24	Peak AVF	372	249	0.051	474	12.0	0 x 0	ShtMetl	st3
st22	Peak AVF	259	214	0.051	474	10.0	0 x 0	ShtMetl	st24
st23	Peak AVF	39	22	0.054	199	6.0	0 x 0	ShtMetl	st24
st26	Peak AVF	356	419	0.087	533	12.0	0 x 0	ShtMetl	st28
st27	Peak AVF	138	165	0.112	619	7.0	0 x 0	ShtMetl	st28
st28	Peak AVF	494	584	0.087	744	12.0	0 x 0	ShtMetl	st25
st30	Peak AVF	281	314	0.072	576	10.0	0 x 0	ShtMetl	st29
st29	Peak AVF	281	314	0.072	576	10.0	0 x 0	ShtMetl	st25
st3	Peak AVF	1147	1147	0.051	649	18.0	0 x 0	ShtMetl	
st25	Peak AVF	775	898	0.072	643	16.0	0 x 0	ShtMetl	st3

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb9	0x 0	155	218	175.5	0.054	493	9.0	0x 0		ShMt	rt3
rb7	0x 0	173	267	186.5	0.051	489	10.0	0x 0		ShMt	rt4
rb8	0x 0	179	285	173.5	0.054	523	10.0	0x 0		ShMt	rt3
rb5	0x 0	331	181	132.0	0.072	606	10.0	0x 0		ShMt	rt3
rb4	0x 0	310	196	128.5	0.073	568	10.0	0x 0		ShMt	rt4

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rt3	Peak AVF	665	684	0.054	640	14.0	0 x 0	ShtMetl	
rt4	Peak AVF	482	463	0.051	451	14.0	0 x 0	ShtMetl	

Project Information

For: NEW RESIDENCE FOR DAN KOSTINSKY
11 DELAWARE RIM DRIVE, LOWER MAKEFIELD, PA 19067

	Heating	Cooling
External static pressure	0 in H2O	0 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0 in H2O	0 in H2O
Supply / return available pressure	0.000 / 0.000 in H2O	0.000 / 0.000 in H2O
Lowest friction rate	0 in/100ft	0 in/100ft
Actual air flow	240 cfm	240 cfm
Total effective length (TEL)	0 ft	

Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
3 Garage Room	c 2623	120	120	0	0	0x 0	MtFx	0	0	
3 Garage Room-A	c 2623	120	120	0	0	0x 0	MtFx	0	0	

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb3	0x 0	240	240	0	0	0	0	0x 0		MtFx	