



**Equipment Summary**  
**Entire House**  
**Alpha Mechanical Heating & AC**

Job: TJJ 950 Boise Ave,IF  
Date: Feb 08, 2019  
By:

2184 Charming Way PMB 314, Idaho Falls, Idaho 83406 Phone: 208-243-0453 Fax: 888-600-5731 Email: bradw@alpha-mechanical.com

### Project Information

For: Tyler Jone, Trust Home Inspections  
4202 Marlin, Idaho Falls, Idaho 83401  
Phone: 208-419-8721  
Email: tyler.s.jones@gmail.com

#### Base System:

**Cooling: Goodman Mfg. GOODMAN GSX16S181A\***

Coil Model: A(E,F)W254++TDR

Total cooling capacity = 15500 Btuh, 11.9 EER, 15 SEER, Sound Level = 0.0

**Heating: Goodman Mfg. GOODMAN GMSS960403AN**

Input = 40000 Btuh, Output = 38000 Btuh, 96.1 AFUE

**Water Heating: Gas conventional**

40 gal tank, 36 MBtuh input, 0.60 EF

#### Warranties:

#### Features:

#### Investment 1:

**Cooling:**

Coil Model:

Total cooling capacity = 0 Btuh, 0 SEER, Sound Level = 0.0

**Heating:**

Input = 0 Btuh, Output = 0 Btuh, 80 AFUE

**Water Heating: Gas conventional**

40 gal tank, 36 MBtuh input, 0.60 EF

#### Warranties:

#### Features:



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#### Investment 2:

**Cooling:**

Coil Model:  
Total cooling capacity = 0 Btuh, 0 SEER, Sound Level = 0.0

**Heating:**

Input = 0 Btuh, Output = 0 Btuh, 80 AFUE

**Water Heating: Gas conventional**

40 gal tank, 36 MBtuh input, 0.60 EF

**Warranties:**

**Features:**

#### Investment 3:

**Cooling:**

Coil Model:  
Total cooling capacity = 0 Btuh, 0 SEER, Sound Level = 0.0

**Heating:**

Input = 0 Btuh, Output = 0 Btuh, 80 AFUE

**Water Heating: Gas conventional**

40 gal tank, 36 MBtuh input, 0.60 EF

**Warranties:**

**Features:**



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

Form  
RPER 1  
15 Mar 09

### Header Information

Contractor:	Alpha Mechanical Heating & AC Brad Wellard	REQUIRED ATTACHMENTS	ATTACHED
Mechanical license:		Manual J1 Form (and supporting worksheets):	Yes <input type="checkbox"/> No <input type="checkbox"/>
Building plan #:		or MJ1AE Form* (and supporting worksheets):	Yes <input type="checkbox"/> No <input type="checkbox"/>
Home address (Street or Lot#, Block, Subdivision):	4202 Marlin, Entire House	OEM performance data (heating, cooling, blower):	Yes <input type="checkbox"/> No <input type="checkbox"/>
		Manual D Friction Rate Worksheet:	Yes <input type="checkbox"/> No <input type="checkbox"/>
		Duct distribution sketch:	Yes <input type="checkbox"/> No <input type="checkbox"/>

## HVAC LOAD CALCULATION (IRC M1401.3)

### Design Conditions

#### Winter Design Conditions

Outdoor temperature: -7 °F  
 Indoor temperature: 70 °F  
 Total heat loss: 22746 Btuh

#### Summer Design Conditions

Outdoor temperature: 90 °F  
 Indoor temperature: 75 °F  
 Grains difference: -29 gr/lb @ 50% RH  
 Sensible heat gain: 11088 Btuh  
 Latent heat gain: 243 Btuh  
 Total heat gain: 11332 Btuh

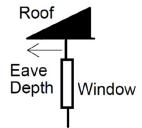
### Building Construction Information

#### Building

Orientation: Front Door faces North  
North, East, West, South, Northeast, Northwest, Southeast, Southwest  
 Number of bedrooms: 2  
 Conditioned floor area: 1890 ft<sup>2</sup>  
 Number of occupants: 3

#### 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: Gas furnace  
Furnace, Heat pump, Boiler, etc.  
 Model: Goodman Mfg.  
 GMSS960403AN  
 Heating output capacity: 38000 Btuh  
Heat pumps - capacity at winter design outdoor conditions  
 Aux. heating output capacity: 0 Btuh

### Cooling Equipment Data

Equipment type: Split AC  
Air Conditioner, Heat pump, etc.  
 Model: Goodman Mfg.  
 GSX16S181A\*+A(E,F)W254++TDR  
 Total cooling capacity: 0 Btuh  
 Sensible cooling capacity: 0 Btuh  
 Latent cooling capacity: 0 Btuh

### Blower Data

Heating cfm: 822  
 Cooling cfm: 800  
 Static pressure: 0.70 in H<sub>2</sub>O  
Fan's rated external static pressure for design airflow

## HVAC DUCT DISTRIBUTION SYSTEM DESIGN (IRC M1601.1)

Design airflow:	822 cfm	Longest supply duct:	211 ft	Duct Materials Used
Equipment design ESP:	0.70 in H <sub>2</sub> O	Longest return duct:	179 ft	Trunk duct: Sheet metal
Total device pressure losses:	-0.4 in H <sub>2</sub> O	<b>Total effective length (TEL):</b>	<b>391 ft</b>	Branch duct: Round flex vinyl, Sheet metal
<b>Available static pressure (ASP):</b>	<b>0.27 in H<sub>2</sub>O</b>	<b>Friction rate:</b>	<b>0.069 in/100ft</b>	

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.

\*Home qualifies for MJ1AE Form based on Abridged Edition Checklist

### Project Information

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 4202 Marlin, Idaho Falls, Idaho 83401  
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 Email: tyler.s.jones@gmail.com

### Design Information

	Htg	Clg	Infiltration	
Outside db (°F)	-7	90	Method	Simplified
Inside db (°F)	70	75	Construction quality	Semi-tight
Design TD (°F)	77	15	Fireplaces	0
Daily range	-	H		
Inside humidity (%)	30	50		
Moisture difference (gr/lb)	35	-29		

#### HEATING EQUIPMENT

Make	Goodman Mfg.
Trade	GOODMAN
Model	GMSS960403AN
AHRI ref	10515334
Efficiency	96.1 AFUE
Heating input	40000 Btuh
Heating output	38000 Btuh
Temperature rise	50 °F
Actual air flow	822 cfm
Air flow factor	0.036 cfm/Btuh
Static pressure	0.70 in H2O
Space thermostat	

#### COOLING EQUIPMENT

Make	Goodman Mfg.
Trade	GOODMAN
Cond	GSX16S181A*
Coil	A(E,F)W254++TDR
AHRI ref	202146696
Efficiency	11.9 EER, 15 SEER
Sensible cooling	10850 Btuh
Latent cooling	4650 Btuh
Total cooling	15500 Btuh
Actual air flow	<b>800</b> cfm
Air flow factor	0.076 cfm/Btuh
Static pressure	0.70 in H2O
Load sensible heat ratio	0.98

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Room1	230	3773	1078	136	<b>82</b>
Room2	71	520	94	19	<b>7</b>
Room3	434	8033	6236	290	<b>476</b>
Room4	210	4941	3017	179	<b>230</b>
Room5	945	5478	64	198	<b>5</b>
Entire House	1890	22746	10490	822	<b>800</b>
Other equip loads		0	0		
Equip. @ 0.95 RSM			9923		
Latent cooling			230		
<b>TOTALS</b>	<b>1890</b>	<b>22746</b>	<b>10153</b>	<b>822</b>	<b>800</b>

*Bold/italic values have been manually overridden*

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

**Project Information**

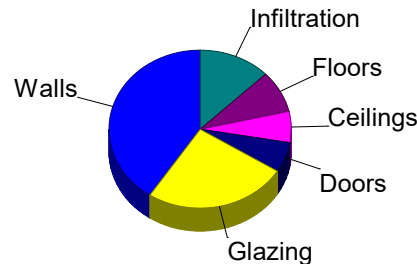
For: Tyler Jone, Trust Home Inspections  
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**Design Conditions**

<b>Location:</b> Idaho Falls Rgnl, ID, US Elevation: 4744 ft Latitude: 44°N		<b>Indoor:</b> Indoor temperature (°F) Design TD (°F) Relative humidity (%) Moisture difference (gr/lb)	<b>Heating</b> 70 77 30 35.3	<b>Cooling</b> 75 15 50 -29.4
<b>Outdoor:</b> Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	<b>Heating</b> -7 - - 15.0	<b>Cooling</b> 90 35 ( H ) 61 7.5	<b>Infiltration:</b> Method Construction quality Fireplaces	Simplified Semi-tight 0

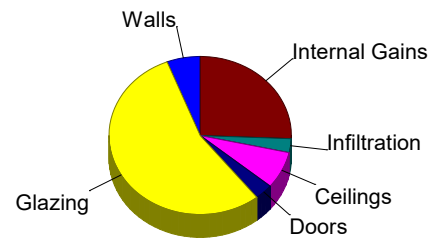
**Heating**

Component	Btuh/ft²	Btuh	% of load
Walls	5.1	9257	40.7
Glazing	43.7	5778	25.4
Doors	22.2	1401	6.2
Ceilings	1.5	1450	6.4
Floors	2.1	1957	8.6
Infiltration	1.9	2902	12.8
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		0	0
Adjustments		0	0
<b>Total</b>		<b>22746</b>	<b>100.0</b>



**Cooling**

Component	Btuh/ft²	Btuh	% of load
Walls	0.3	621	5.9
Glazing	43.5	5746	54.8
Doors	5.4	340	3.2
Ceilings	0.8	796	7.6
Floors	0	0	0
Infiltration	0.2	297	2.8
Ducts		0	0
Ventilation		0	0
Internal gains		2690	25.6
Blower		0	0
Adjustments		0	0
<b>Total</b>		<b>10490</b>	<b>100.0</b>



Latent Cooling Load = 230 Btuh  
 Overall U-value = 0.065 Btuh/ft²-°F

Data entries checked.

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<b>Location:</b> Idaho Falls Rgnl, ID, US Elevation: 4744 ft Latitude: 44°N			<b>Indoor:</b> Indoor temperature (°F) Design TD (°F) Relative humidity (%) Moisture difference (gr/lb)	<b>Heating</b> 70 77 30 35.3	<b>Cooling</b> 75 15 50 -29.4
<b>Outdoor:</b> Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	<b>Heating</b> -7 - - 15.0	<b>Cooling</b> 90 35 ( H ) 61 7.5	<b>Infiltration:</b> Method Construction quality Fireplaces	Simplified Semi-tight 0	

### Construction descriptions

Construction descriptions	Or	Area ft²	U-value Btuh/ft²·°F	Insul R ft²·°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
<b>Walls</b> 12F-0sw: Frm wall, wd ext, 1/2" wood shth, r-21 cav ins, 5/8" gypsum board int fnsh, 2"x6" wood frm, 16" o.c. stud	n	537	0.065	21.0	4.99	2677	0.48	258
	e	135	0.065	21.0	4.99	673	0.48	65
	s	448	0.065	21.0	4.99	2235	0.48	216
	w	89	0.065	21.0	4.99	441	0.48	43
	all	1209	0.065	21.0	4.99	6027	0.48	581
15B13-0wc-4: Bg wall, heavy dry or light damp soil, 2"x4" wood int frm, concrete wall, r-13 cav ins, 8" thk, 1/2" gypsum board int fnsh	n	252	0.059	13.0	5.18	1305	0.06	16
	e	60	0.059	13.0	5.18	311	0.06	4
	s	252	0.059	13.0	5.18	1305	0.06	16
	w	60	0.059	13.0	5.18	311	0.06	4
	all	624	0.059	13.0	5.18	3231	0.06	39
<b>Partitions</b> (none)								
<b>Windows</b> 1D-c2ov: 2 glazing, clr outr, air gas, vnl frm mat, clr innr, 1/4" gap, 1/4" thk; 6.67 ft head ht	n	9	0.570	0	43.7	393	19.0	171
	s	98	0.570	0	43.7	4270	33.5	3273
	w	26	0.570	0	43.7	1115	60.7	1548
	all	132	0.570	0	43.7	5778	37.8	4992
<b>Doors</b> 11P0: Door, mtl pur core type	n	21	0.290	10.5	22.2	467	5.39	113
	s	21	0.290	10.5	22.2	467	5.39	113
	w	21	0.290	10.5	22.2	467	5.39	113
	all	63	0.290	10.5	22.2	1401	5.39	340
<b>Ceilings</b> 16B-50ad: Attic ceiling, asphalt shingles roof mat, r-50 ceil ins, 1/2" gypsum board int fnsh		945	0.020	50.0	1.53	1450	0.84	796
<b>Floors</b> 21A-20t: Bg floor, heavy dry or light damp soil, 3' depth		945	0.027	0	2.07	1957	0	0

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<b>Location:</b> Idaho Falls Rgnl, ID, US Elevation: 4744 ft Latitude: 44°N			<b>Indoor:</b> Indoor temperature (°F) 70 Design TD (°F) 77 Relative humidity (%) 30 Moisture difference (gr/lb) 35.3	<b>Heating</b> 70 77 30 35.3	<b>Cooling</b> 75 15 50 -29.4
<b>Outdoor:</b> Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	<b>Heating</b> -7 - - 15.0	<b>Cooling</b> 90 35 ( H ) 61 7.5	<b>Infiltration:</b> Method Construction quality Fireplaces	Simplified Semi-tight 0	

### Construction descriptions

	Or	Area ft²	U-value Btuh/ft²·°F	Insul R ft²·°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
<b>Walls</b> 12F-0sw: Frm wall, wd ext, 1/2" wood shth, r-21 cav ins, 5/8" gypsum board int fnsh, 2"x6" wood frm, 16" o.c. stud	n	138	0.065	21.0	4.99	688	0.48	66
	e	135	0.065	21.0	4.99	673	0.48	65
	s	122	0.065	21.0	4.99	610	0.48	59
	all	395	0.065	21.0	4.99	1971	0.48	190

### Partitions (none)

<b>Windows</b> 1D-c2ov: 2 glazing, clr outr, air gas, vnl frm mat, clr innr, 1/4" gap, 1/4" thk; 6.67 ft head ht	s	16	0.570	0	43.7	685	33.5	525
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### Doors (none)

<b>Ceilings</b> 16B-50ad: Attic ceiling, asphalt shingles roof mat, r-50 ceil ins, 1/2" gypsum board int fnsh		230	0.020	50.0	1.53	353	0.84	194
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### Floors (none)

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### Design Conditions

<b>Location:</b>		<b>Indoor:</b>		<b>Heating</b>	<b>Cooling</b>
Idaho Falls Rgnl, ID, US		Indoor temperature (°F)		70	75
Elevation: 4744 ft		Design TD (°F)		77	15
Latitude: 44°N		Relative humidity (%)		30	50
<b>Outdoor:</b>		Moisture difference (gr/lb)		35.3	-29.4
	<b>Heating</b>	<b>Cooling</b>	<b>Infiltration:</b>		
Dry bulb (°F)	-7	90	Method	Simplified	
Daily range (°F)	-	35 ( H )	Construction quality	Semi-tight	
Wet bulb (°F)	-	61	Fireplaces	0	
Wind speed (mph)	15.0	7.5			

### Construction descriptions

	Or	Area ft²	U-value Btuh/ft²·°F	Insul R ft²·°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
<b>Walls</b> 12F-0sw: Frm wall, wd ext, 1/2" wood shth, r-21 cav ins, 5/8" gypsum board int fnsh, 2"x6" wood frm, 16" o.c. stud	n	60	0.065	21.0	4.99	299	0.48	29
<b>Partitions</b> (none)								
<b>Windows</b> (none)								
<b>Doors</b> (none)								
<b>Ceilings</b> 16B-50ad: Attic ceiling, asphalt shingles roof mat, r-50 ceil ins, 1/2" gypsum board int fnsh		71	0.020	50.0	1.53	109	0.84	60
<b>Floors</b> (none)								



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<b>Outdoor:</b> Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	<b>Heating</b> -7 - - 15.0	<b>Cooling</b> 90 35 ( H ) 61 7.5	<b>Infiltration:</b> Method Construction quality Fireplaces	Simplified Semi-tight 0	

### Construction descriptions

Construction descriptions	Or	Area ft²	U-value Btuh/ft²·°F	Insul R ft²·°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
<b>Walls</b> 12F-0sw: Frm wall, wd ext, 1/2" wood shth, r-21 cav ins, 5/8" gypsum board int fnsh, 2"x6" wood frm, 16" o.c. stud	n	213	0.065	21.0	4.99	1062	0.48	102
	s	216	0.065	21.0	4.99	1077	0.48	104
	all	429	0.065	21.0	4.99	2139	0.48	206
<b>Partitions</b> (none)								
<b>Windows</b> 1D-c2ov: 2 glazing, clr outr, air gas, vnl frm mat, clr innr, 1/4" gap, 1/4" thk; 6.67 ft head ht	n	9	0.570	0	43.7	393	19.0	171
	s	66	0.570	0	43.7	2885	33.5	2212
	all	75	0.570	0	43.7	3279	31.8	2383
<b>Doors</b> 11P0: Door, mtl pur core type	n	21	0.290	10.5	22.2	467	5.39	113
	s	21	0.290	10.5	22.2	467	5.39	113
	all	42	0.290	10.5	22.2	934	5.39	227
<b>Ceilings</b> 16B-50ad: Attic ceiling, asphalt shingles roof mat, r-50 ceil ins, 1/2" gypsum board int fnsh		434	0.020	50.0	1.53	666	0.84	365
<b>Floors</b> (none)								

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<b>Outdoor:</b> Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	<b>Heating</b> -7 - - 15.0	<b>Cooling</b> 90 35 ( H ) 61 7.5	<b>Infiltration:</b> Method Construction quality Fireplaces	Simplified Semi-tight 0	

**Construction descriptions**

	Or	Area ft²	U-value Btuh/ft²·°F	Insul R ft²·°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
<b>Walls</b> 12F-0sw: Frm wall, wd ext, 1/2" wood shth, r-21 cav ins, 5/8" gypsum board int fnsh, 2"x6" wood frm, 16" o.c. stud	n	126	0.065	21.0	4.99	628	0.48	61
	s	110	0.065	21.0	4.99	548	0.48	53
	w	89	0.065	21.0	4.99	441	0.48	43
	all	325	0.065	21.0	4.99	1618	0.48	156

**Partitions**  
(none)

<b>Windows</b> 1D-c2ov: 2 glazing, clr outr, air gas, vnl frm mat, clr innr, 1/4" gap, 1/4" thk; 6.67 ft head ht	s	16	0.570	0	43.7	700	33.5	536
	w	26	0.570	0	43.7	1115	60.7	1548
	all	42	0.570	0	43.7	1814	50.2	2085

<b>Doors</b> 11P0: Door, mtl pur core type	w	21	0.290	10.5	22.2	467	5.39	113
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<b>Ceilings</b> 16B-50ad: Attic ceiling, asphalt shingles roof mat, r-50 ceil ins, 1/2" gypsum board int fnsh		210	0.020	50.0	1.53	322	0.84	177
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**Floors**  
(none)

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**Construction descriptions**

	Or	Area ft²	U-value Btuh/ft²·°F	Insul R ft²·°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
<b>Walls</b> 15B13-0wc-4: Bg wall, heavy dry or light damp soil, 2"x4" wood int frm, concrete wall, r-13 cav ins, 8" thk, 1/2" gypsum board int fnsh	n	252	0.059	13.0	5.18	1305	0.06	16
	e	60	0.059	13.0	5.18	311	0.06	4
	s	252	0.059	13.0	5.18	1305	0.06	16
	w	60	0.059	13.0	5.18	311	0.06	4
	all	624	0.059	13.0	5.18	3231	0.06	39

**Partitions**  
(none)

**Windows**  
(none)

**Doors**  
(none)

**Ceilings**  
(none)

<b>Floors</b> 21A-20t: Bg floor, heavy dry or light damp soil, 3' depth		945	0.027	0	2.07	1957	0	0
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## Project Information

For: Tyler Jone, Trust Home Inspections  
 4202 Marlin, Idaho Falls, Idaho 83401  
 Phone: 208-419-8721  
 Email: tyler.s.jones@gmail.com

Notes:

## Design Information

Weather: Idaho Falls Rgnl, ID, US

### Winter Design Conditions

Outside db -7 °F  
 Inside db 70 °F  
 Design TD 77 °F

### Summer Design Conditions

Outside db 90 °F  
 Inside db 75 °F  
 Design TD 15 °F  
 Daily range H  
 Relative humidity 50 %  
 Moisture difference -29 gr/lb

### Heating Summary

Structure 22746 Btuh  
 Ducts 0 Btuh  
 Central vent (0 cfm)  
 (none) 0 Btuh  
 Humidification 0 Btuh  
 Piping 0 Btuh  
 Equipment load 22746 Btuh

### Sensible Cooling Equipment Load Sizing

Structure 10490 Btuh  
 Ducts 0 Btuh  
 Central vent (0 cfm)  
 (none) 0 Btuh  
 Blower 0 Btuh  
 Use manufacturer's data n  
 Rate/swing multiplier 0.95  
 Equipment sensible load 9923 Btuh

### Infiltration

Method Simplified  
 Construction quality Semi-tight  
 Fireplaces 0

### Latent Cooling Equipment Load Sizing

Structure 230 Btuh  
 Ducts 0 Btuh  
 Central vent (0 cfm)  
 (none) 0 Btuh  
 Equipment latent load 230 Btuh

	<b>Heating</b>	<b>Cooling</b>
Area (ft <sup>2</sup> )	1890	1890
Volume (ft <sup>3</sup> )	9450	9450
Air changes/hour	0.26	0.14
Equiv. AVF (cfm)	41	22

**Equipment Total Load (Sen+Lat)** 10153 Btuh  
 Req. total capacity at 0.70 SHR 1.2 ton

### Heating Equipment Summary

Make Goodman Mfg.  
 Trade GOODMAN  
 Model GMSS960403AN  
 AHRI ref 10515334

Efficiency 96.1 AFUE  
 Heating input 40000 Btuh  
 Heating output 38000 Btuh  
 Temperature rise 50 °F  
 Actual air flow 822 cfm  
 Air flow factor 0.036 cfm/Btuh  
 Static pressure 0.70 in H2O  
 Space thermostat

### Cooling Equipment Summary

Make Goodman Mfg.  
 Trade GOODMAN  
 Cond GSX16S181A\*  
 Coil A(E,F)W254++TDR  
 AHRI ref 202146696

Efficiency 11.9 EER, 15 SEER  
 Sensible cooling 10850 Btuh  
 Latent cooling 4650 Btuh  
 Total cooling 15500 Btuh  
 Actual air flow **800** cfm  
 Air flow factor 0.076 cfm/Btuh  
 Static pressure 0.70 in H2O  
 Load sensible heat ratio 0.98

*Bold/italic values have been manually overridden*

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

# Right-J® Worksheet

## Entire House

### Alpha Mechanical Heating & AC

Job: TJJ 950 Boise Ave,IF  
 Date: Feb 08, 2019  
 By:

2184 Charming Way PMB 314, Idaho Falls, Idaho 83406 Phone: 208-243-0453 Fax: 888-600-5731 Email: bradw@alpha-mechanical.com

1 Room name		Entire House							Room1					
2 Exposed wall		312.0 ft							45.7 ft					
3 Room height		6.5 ft							9.0 ft					
4 Room dimensions									15.0 x 15.3 ft					
5 Room area		1890.0 ft²							230.0 ft²					
	Ty	Construction number	U-value (Btuh/ft²·°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sw	0.065	n	4.99	0.48	567	537	2677	258	138	138	688	66
	G	1D-c2ov	0.570	n	43.72	18.95	9	0	393	171	0	0	0	0
	D	11P0	0.290	n	22.24	5.39	21	21	467	113	0	0	0	0
	W	15B13-0wc-4	0.093	n	5.18	0.06	252	252	1305	16	0	0	0	0
11	W	12F-0sw	0.065	e	4.99	0.48	135	135	673	65	135	135	673	65
	W	15B13-0wc-4	0.093	e	5.18	0.06	60	60	311	4	0	0	0	0
	W	12F-0sw	0.065	s	4.99	0.48	567	448	2235	216	138	122	610	59
	G	1D-c2ov	0.570	s	43.72	33.52	98	0	4270	3273	16	0	685	525
	D	11P0	0.290	s	22.24	5.39	21	21	467	113	0	0	0	0
	W	15B13-0wc-4	0.093	s	5.18	0.06	252	252	1305	16	0	0	0	0
	W	12F-0sw	0.065	w	4.99	0.48	135	89	441	43	0	0	0	0
	G	1D-c2ov	0.570	w	43.72	60.72	26	0	1115	1548	0	0	0	0
	D	11P0	0.290	w	22.24	5.39	21	21	467	113	0	0	0	0
	W	15B13-0wc-4	0.093	w	5.18	0.06	60	60	311	4	0	0	0	0
	C	16B-50ad	0.020	-	1.53	0.84	945	945	1450	796	230	230	353	194
	F	21A-20t	0.027	-	2.07	0.00	945	945	1957	0	0	0	0	0
6	c) AED excursion									754				91
	Envelope loss/gain								19843	7502			3009	1000
12	a) Infiltration								2902	297			765	78
	b) Room ventilation								0	0			0	0
13	Internal gains:		Occupants @	230			3			690	0			0
			Appliances/other							2000				0
	Subtotal (lines 6 to 13)								22746	10490			3773	1078
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								22746	10490			3773	1078
15	Duct loads								0	0	-0%	0%	0	0
	Total room load								22746	10490			3773	1078
	Air required (cfm)								822	800			136	82

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



# Right-J® Worksheet

## Entire House

### Alpha Mechanical Heating & AC

Job: TJJ 950 Boise Ave,IF  
 Date: Feb 08, 2019  
 By:

2184 Charming Way PMB 314, Idaho Falls, Idaho 83406 Phone: 208-243-0453 Fax: 888-600-5731 Email: bradw@alpha-mechanical.com

1 Room name				Room2				Room3						
2 Exposed wall				6.7 ft				60.7 ft						
3 Room height				9.0 ft				9.0 ft						
4 Room dimensions				10.7 x 6.7 ft				1.0 x 433.9 ft						
5 Room area				71.1 ft²				433.9 ft²						
	Ty	Construction number	U-value (Btuh/ft²·°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sw	0.065	n	4.99	0.48	60	60	299	29	243	213	1062	102
	G	1D-c2ov	0.570	n	43.72	18.95	0	0	0	0	9	0	393	171
	D	11P0	0.290	n	22.24	5.39	0	0	0	0	21	21	467	113
	W	15B13-0wc-4	0.093	n	5.18	0.06	0	0	0	0	0	0	0	0
11	W	12F-0sw	0.065	e	4.99	0.48	0	0	0	0	0	0	0	0
	W	15B13-0wc-4	0.093	e	5.18	0.06	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	s	4.99	0.48	0	0	0	0	303	216	1077	104
	G	1D-c2ov	0.570	s	43.72	33.52	0	0	0	0	66	0	2885	2212
	D	11P0	0.290	s	22.24	5.39	0	0	0	0	21	21	467	113
	W	15B13-0wc-4	0.093	s	5.18	0.06	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	w	4.99	0.48	0	0	0	0	0	0	0	0
	G	1D-c2ov	0.570	w	43.72	60.72	0	0	0	0	0	0	0	0
	D	11P0	0.290	w	22.24	5.39	0	0	0	0	0	0	0	0
	W	15B13-0wc-4	0.093	w	5.18	0.06	0	0	0	0	0	0	0	0
	C	16B-50ad	0.020	-	1.53	0.84	71	71	109	60	434	434	666	365
	F	21A-20t	0.027	-	2.07	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-6				261
	Envelope loss/gain								408	82			7017	3442
12	a) Infiltration								112	11			1016	104
	b) Room ventilation								0	0			0	0
13	Internal gains:		Occupants @	230			0			0	3			690
			Appliances/other							0				2000
	Subtotal (lines 6 to 13)								520	94			8033	6236
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								520	94			8033	6236
15	Duct loads								-0%	0%			0	0
	Total room load								520	94			8033	6236
	Air required (cfm)								19	7			290	476

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



# Right-J® Worksheet

## Entire House

### Alpha Mechanical Heating & AC

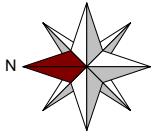
Job: TJ-J 950 Boise Ave,IF  
 Date: Feb 08, 2019  
 By:

2184 Charming Way PMB 314, Idaho Falls, Idaho 83406 Phone: 208-243-0453 Fax: 888-600-5731 Email: bradw@alpha-mechanical.com

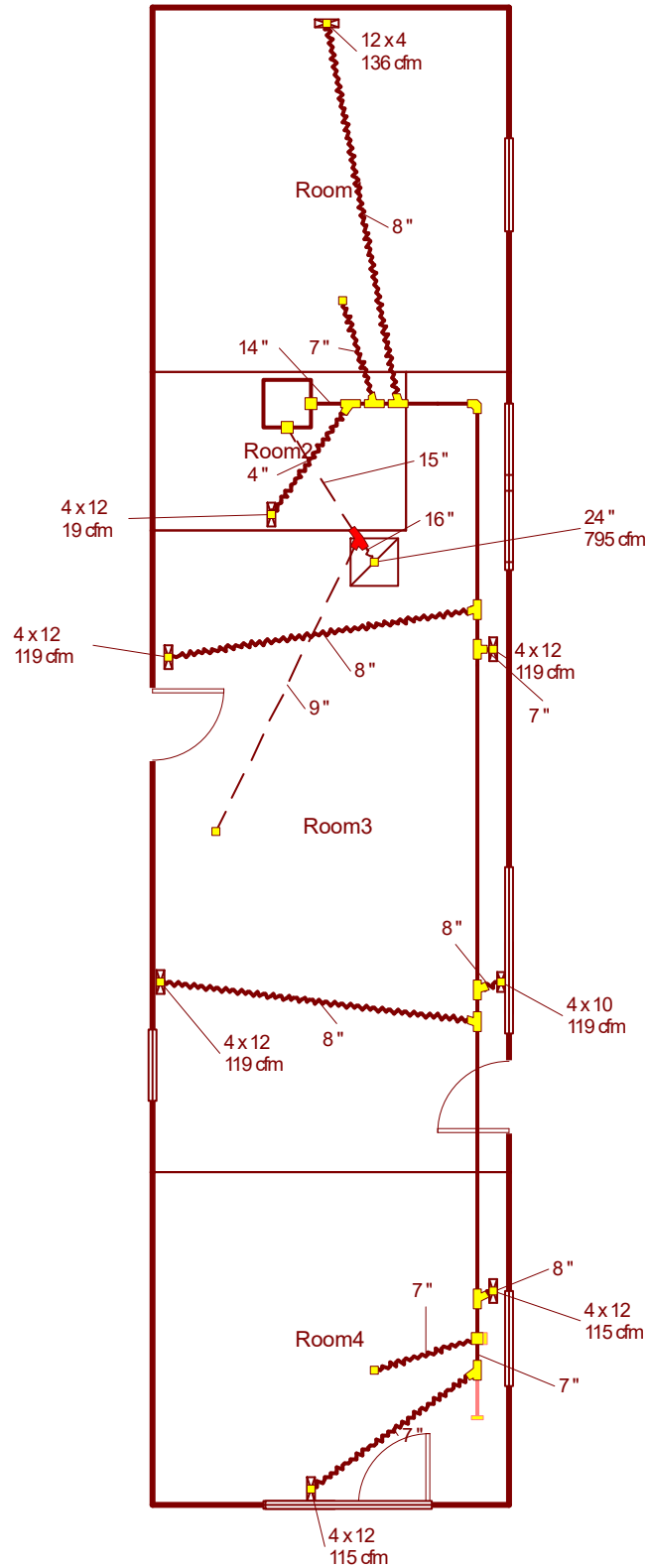
				Room4 43.0 ft 9.0 ft heat/cool 210.0 ft <sup>2</sup> 15.0 x 14.0 ft				Room5 156.0 ft 4.0 ft heat/cool 945.0 ft <sup>2</sup> 15.0 x 63.0 ft						
	Ty	Construction number	U-value (Btuh/ft <sup>2</sup> ·°F)	Or	HTM (Btuh/ft <sup>2</sup> )		Area (ft <sup>2</sup> ) or perimeter (ft)		Load (Btuh)		Area (ft <sup>2</sup> ) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sw	0.065	n	4.99	0.48	126	126	628	61	0	0	0	0
	G	1D-c2ov	0.570	n	43.72	18.95	0	0	0	0	0	0	0	0
	D	11P0	0.290	n	22.24	5.39	0	0	0	0	0	0	0	0
	W	15B13-0wc-4	0.093	n	5.18	0.06	0	0	0	0	252	252	1305	16
11	W	12F-0sw	0.065	e	4.99	0.48	0	0	0	0	0	0	0	0
	W	15B13-0wc-4	0.093	e	5.18	0.06	0	0	0	0	60	60	311	4
	W	12F-0sw	0.065	s	4.99	0.48	126	110	548	53	0	0	0	0
	G	1D-c2ov	0.570	s	43.72	33.52	16	0	700	536	0	0	0	0
	D	11P0	0.290	s	22.24	5.39	0	0	0	0	0	0	0	0
	W	15B13-0wc-4	0.093	s	5.18	0.06	0	0	0	0	252	252	1305	16
	W	12F-0sw	0.065	w	4.99	0.48	135	89	441	43	0	0	0	0
	G	1D-c2ov	0.570	w	43.72	60.72	26	0	1115	1548	0	0	0	0
	D	11P0	0.290	w	22.24	5.39	21	21	467	113	0	0	0	0
	W	15B13-0wc-4	0.093	w	5.18	0.06	0	0	0	0	60	60	311	4
	C	16B-50ad	0.020	-	1.53	0.84	210	210	322	177	0	0	0	0
	F	21A-20t	0.027	-	2.07	0.00	0	0	0	0	945	945	1957	0
6	c) AED excursion									412				-4
	Envelope loss/gain								4221	2943			5188	35
12	a) Infiltration								720	74			290	30
	b) Room ventilation								0	0			0	0
13	Internal gains:		Occupants @	230			0			0	0			0
			Appliances/other							0				0
	Subtotal (lines 6 to 13)								4941	3017			5478	64
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								4941	3017			5478	64
15	Duct loads								-0%	0%			0	0
	Total room load								4941	3017			5478	64
	Air required (cfm)								179	230			198	5

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





### Main Floor



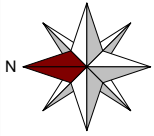
**Job #: TJ-J 950 Boise Ave,IF**  
**Performed for:**  
Tyler Jone  
4202 Marlin  
Idaho Falls, Idaho 83401  
Phone: 208-419-8721  
tyler.s.jones@gmail.com

**Alpha Mechanical Heating & AC**  
2184 Channing Way PMB 314  
Idaho Falls, Idaho 83406  
Phone: 208-243-0453 Fax: 888-600-5731  
bradw@alpha-mechanical.com

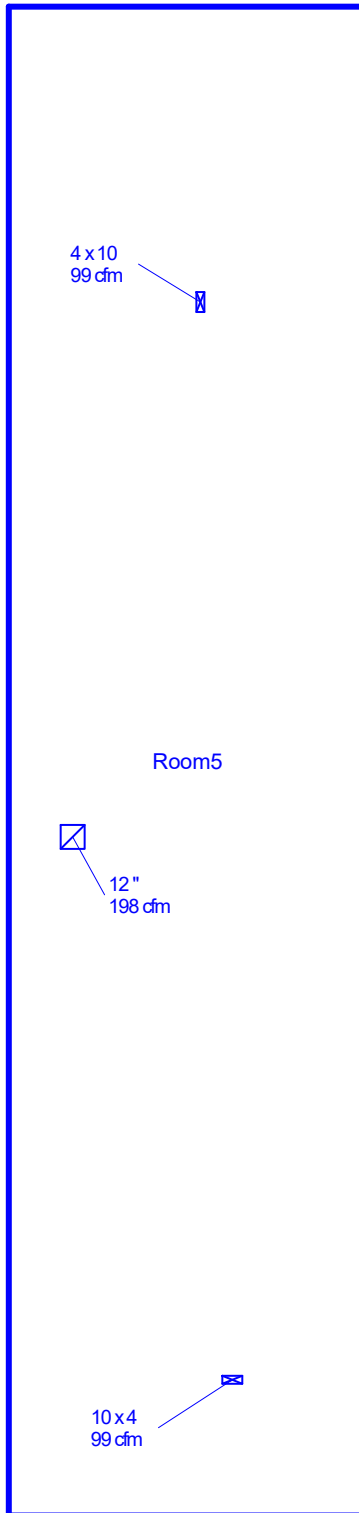
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### Crawl



**Job #: TJ-J 950 Boise Ave,IF**  
**Performed for:**  
Tyler Jone  
4202 Marlin  
Idaho Falls, Idaho 83401  
Phone: 208-419-8721  
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bradw@alpha-mechanical.com

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Page 2  
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2019-Feb-13 15:17:42  
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### Project Information

For: Tyler Jone, Trust Home Inspections  
 4202 Marlin, Idaho Falls, Idaho 83401  
 Phone: 208-419-8721  
 Email: tyler.s.jones@gmail.com

	Heating	Cooling
External static pressure	0.70 in H2O	0.70 in H2O
Pressure losses	0.43 in H2O	0.43 in H2O
Available static pressure	0.27 in H2O	0.27 in H2O
Supply / return available pressure	0.146 / 0.124 in H2O	0.146 / 0.124 in H2O
Lowest friction rate	0.069 in/100ft	0.069 in/100ft
Actual air flow	822 cfm	<b>800</b> cfm
Total effective length (TEL)	391 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
Room1	h 3773	136	82	0.101	8.0	0x0	VIFx	19.9	125.0	st1
Room2	h 520	19	7	0.103	4.0	0x0	VIFx	7.4	135.0	st1
Room3	c 1559	73	119	0.079	8.0	0x0	VIFx	28.8	155.0	st1
Room3-A	c 1559	73	119	0.076	8.0	0x0	VIFx	46.4	145.0	st1
Room3-B	c 1559	73	119	0.080	8.0	0x0	VIFx	32.7	150.0	st1
Room3-C	c 1559	73	119	0.072	7.0	0x0	ShMt	18.0	185.0	st1
Room4	c 1508	89	115	0.069	7.0	0x0	VIFx	56.3	155.0	st3
Room4-A	c 1508	89	115	0.079	8.0	0x0	VIFx	45.4	140.0	st1
Room5	h 2739	99	2	0.106	7.0	0x0	VIFx	7.2	130.0	st1
Room5-A	h 2739	99	2	0.079	7.0	0x0	VIFx	50.9	135.0	st1

### Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st1	Peak AVF	822	800	0.069	769	14.0	0 x 0	ShtMetl	
st3	Peak AVF	89	115	0.069	430	7.0	0 x 0	ShtMetl	st1

*Bold/italic values have been manually overridden*

## 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
rb1	0x0	624	795	166.7	0.074	569	16.0	0x 0		VIFx	rt1
rb3	0x0	198	5	179.3	0.069	448	9.0	0x 0		ShMt	rt1

## Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rt1	Peak AVF	822	800	0.069	670	15.0	0 x 0	ShtMetl	