



Outdoor model- MXZ5C42NAHZU1 3.5 Ton (42k btu) variable speed heat pump

Indoor-  
MSZFS09NAU1 three 9k btu indoor units (one for each bedroom)  
MSZFS12NAU1 one 12k btu indoor unit for family room/kitchen

**Customer Name - Debbie Akins**

**Customer Address - 637 Fieldcrest Dr Crestwood MO 63126**

**ESS Load Analyzer - Step 2**

**Initial Design Sheet**

<p><b>Winter</b></p> <p>Outside db                    8</p> <p>Inside db                     70</p> <p>Winter Design Temperature 62</p> <p>Difference</p>		<p><b>Summer</b></p> <p>Outside db                    95</p> <p>Inside db                     75</p> <p>Summer Design              20</p> <p>Temperature Difference</p>	
<p>Grains                         38</p>		<p>Daily Range                 M</p>	
<p><b>Home Size</b></p>			
<p>Number of Bedrooms        3</p> <p>Number of Appliances      3</p> <p>Square Feet of Home        1170</p> <p>Age of Home                 73 years</p> <p>Linear Length Around      138 ft</p> <p>Home</p> <p>Height of Ceilings         8</p> <p>Duct Loss/Gain              15%</p> <p>RNC(.3) or AOR(.5)        0.5</p>			

All calculations are based on DOE standards and ACCA Manual J.

## ESS Load Analyzer - Step 3

### Cooling Requirements Glass

<b>Glass Questions</b>	
Glass Type:	Double
Glass Style:	Clear
Shading:	Blinds
<b>Square Feet of Glass per direction</b>	
N	16 sq ft
NE & SW	0 sq ft
E & W	16 sq ft
SE SW	0 sq ft
S	35 sq ft

All calculations are based on DOE standards and ACCA Manual J.

## ESS Load Analyzer - Step 4

### Heating Requirements Glass

<b>Glass Questions</b>	
Glass Doors?	No
Window Type?	Moveable
Frame Type?	Wood
Glass Type?	Double
<b>Square feet of Glass Total</b>	
Windows	67 sq ft

All calculations are based on DOE standards and ACCA Manual J.

## ESS Load Analyzer - Step 5

Walls, Ceilings, Doors, Roof, Floor

Materials Area Sq Ft		
Door Type	Solid Wood	21
Home Structure (Net Wall Area)	Frame	1016
Roof Type	Ceiling Under Attic	1170
Insulation Type	R19	
Roof Color	Dark	
Floor	Concrete Slab	138

All calculations are based on DOE standards and ACCA Manual J.

## ESS Load Analyzer - Step 6

Calculations Summary Debbie Akins 637 Fieldcrest Dr Crestwood MO 63126

<b>Summer Infiltration for the Entire House</b>	
Air Changes per hour (.30 RNC or .50 for AOR)	0.5 AC/HR
1170 Sq FT            X            8 Ceiling Height	9360 Cu. Ft.
Total Infiltration = 0.5    X    9360 Cu.Ft X 0.0167 =	78 ft
<b>Summer Infiltration</b>	
Design Temperature Difference = Summer Design - Room Temperature	20 ° F
Total Infiltration	78 CFM
Sensible Gain	1719 Btuh
<b>Equipment Sizing Calculation</b>	
(Two People Per Bedroom)	3
Number of Bedrooms	
Number of Appliances	3
Latent Load for Appliances and People	4980
Latent Infiltration Load	2020
Latent Equipment Sizing Load	7000 Btuh

### Heating Summary

**Design Heating Load Requirements**

*46516 Btuh*

*(Total Heat Loss for Entire House)*

### Cooling Summary

**Total Sensible Gain**

*15770 Btuh*

**Total Latent Gain**

*7000 Btuh*

**Total Btuh (required) = Sensible + Latent or**

*22769 Btuh*

**Allowable 25% Increase**

*2.4*

**Minimum Total Cooling Tonnage**

*1.9*

**Square feet per ton**

*617*

All calculations are based on DOE standards and ACCA Manual J.