

## **Appendix C**

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**Martin A. Benassi, AIA - Architect LLC**

Two Broadway  
Hamden, Connecticut 06518

## **Thermal Imaging**

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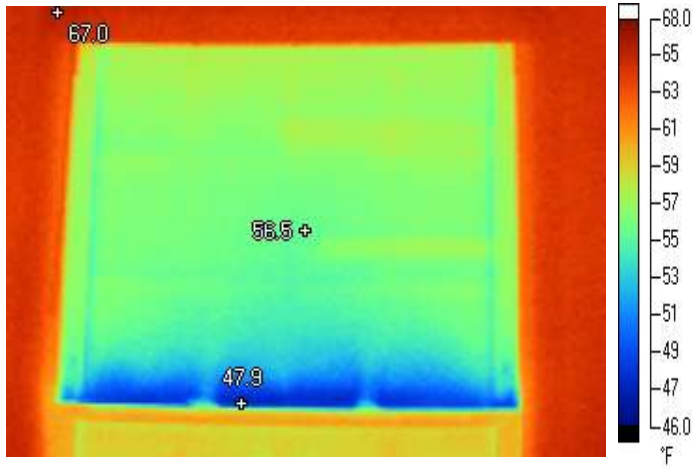
*Prepared for:*

**North Haven Congregational Church**

28 Church Street  
North Haven, Connecticut 06473

08-08

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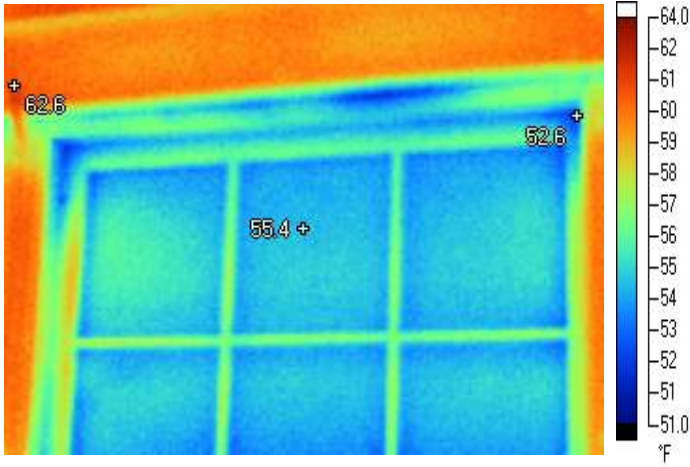
**Music Room.IS2**

**Visible Light Image**

10/30/2008 6:49:56 PM

### **Markers**

Label	Temperature	Emissivity	Background
Centerpoint	56.5 °F	0.95	71.6 °F
Hot	67.0 °F	0.95	71.6 °F
Cold	47.9 °F	0.95	71.6 °F



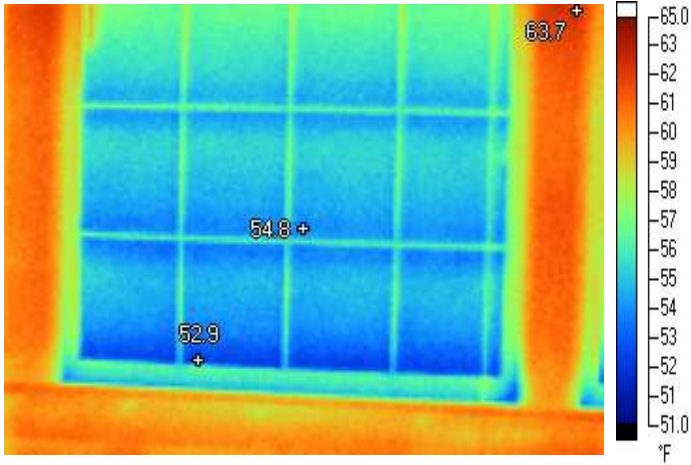
**Rear Stairwell.IS2**

**Visible Light Image**

10/30/2008 6:50:57 PM

### **Markers**

Label	Temperature	Emissivity	Background
Centerpoint	55.4 °F	0.95	71.6 °F
Hot	62.6 °F	0.95	71.6 °F
Cold	52.6 °F	0.95	71.6 °F



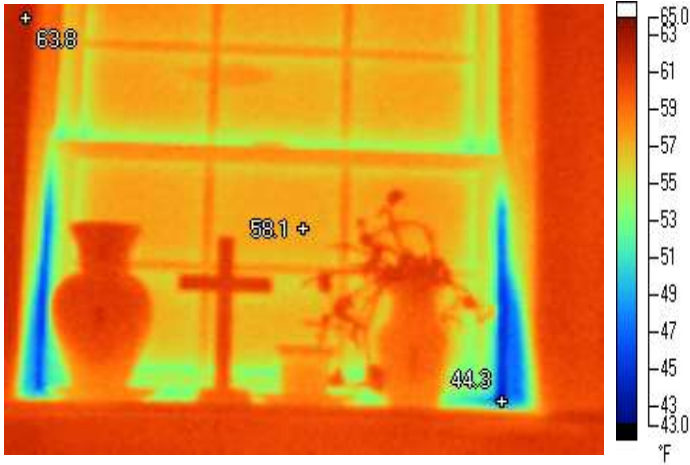
**Heath Room.IS2**

**Visible Light Image**

10/30/2008 6:53:06 PM

**Markers**

Label	Temperature	Emissivity	Background
Centerpoint	54.8 °F	0.95	71.6 °F
Hot	63.7 °F	0.95	71.6 °F
Cold	52.9 °F	0.95	71.6 °F



**Elevator Entrance.IS2**

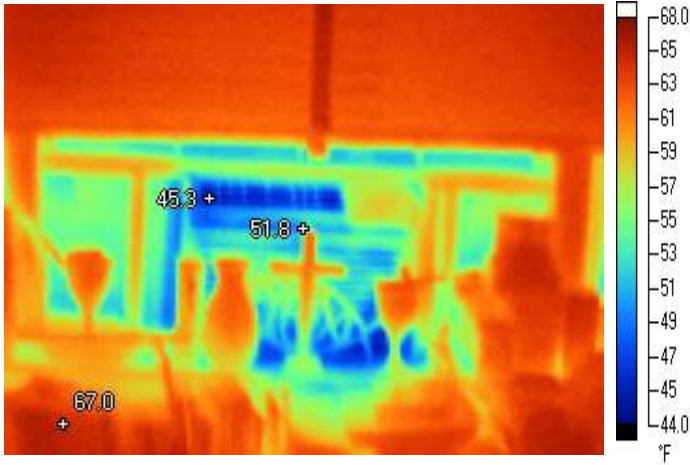
10/30/2008 6:53:38 PM



**Visible Light Image**

**Markers**

Label	Temperature	Emissivity	Background
Centerpoint	58.1 °F	0.95	71.6 °F
Hot	63.8 °F	0.95	71.6 °F
Cold	44.3 °F	0.95	71.6 °F



**Minister's Office.IS2**

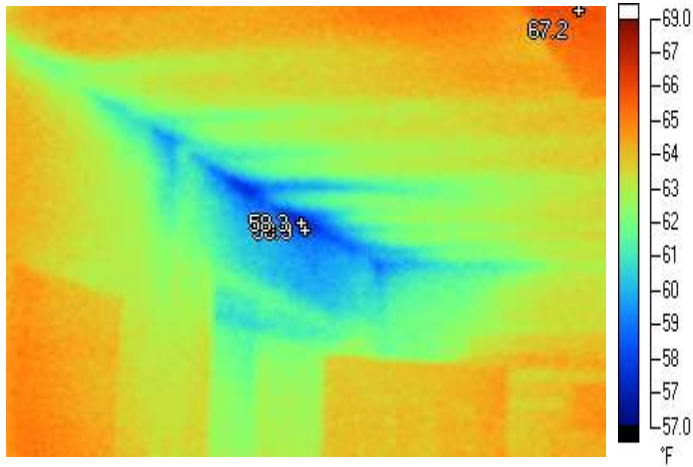
10/30/2008 6:54:43 PM



**Visible Light Image**

### **Markers**

Label	Temperature	Emissivity	Background
Centerpoint	51.8 °F	0.95	71.6 °F
Hot	67.0 °F	0.95	71.6 °F
Cold	45.3 °F	0.95	71.6 °F



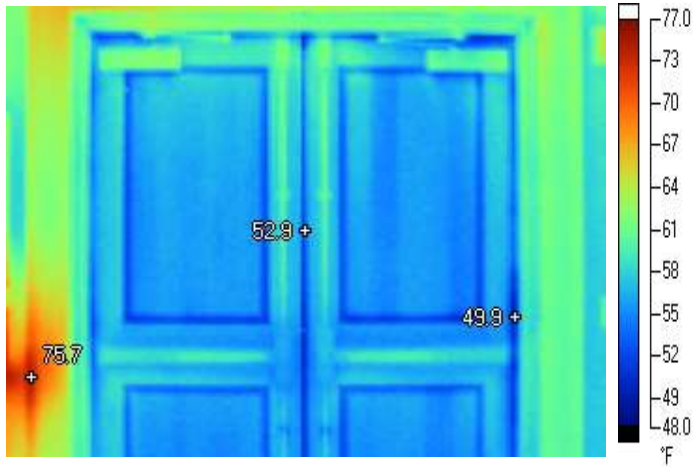
**Hallway.IS2**

**Visible Light Image**

10/30/2008 6:56:01 PM

**Markers**

Label	Temperature	Emissivity	Background
Centerpoint	58.9 °F	0.95	71.6 °F
Hot	67.2 °F	0.95	71.6 °F
Cold	58.3 °F	0.95	71.6 °F



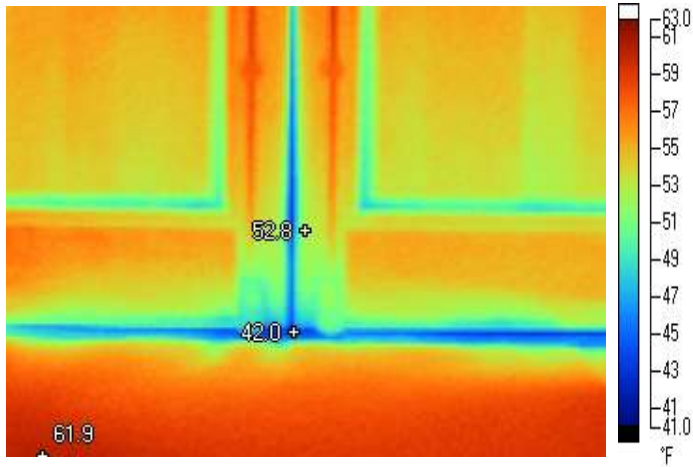
**Narthex.IS2**

**Visible Light Image**

10/30/2008 6:57:41 PM

### **Markers**

Label	Temperature	Emissivity	Background
Centerpoint	52.9 °F	0.95	71.6 °F
Hot	75.7 °F	0.95	71.6 °F
Cold	49.9 °F	0.95	71.6 °F



**Front Entrance Doors.IS2**

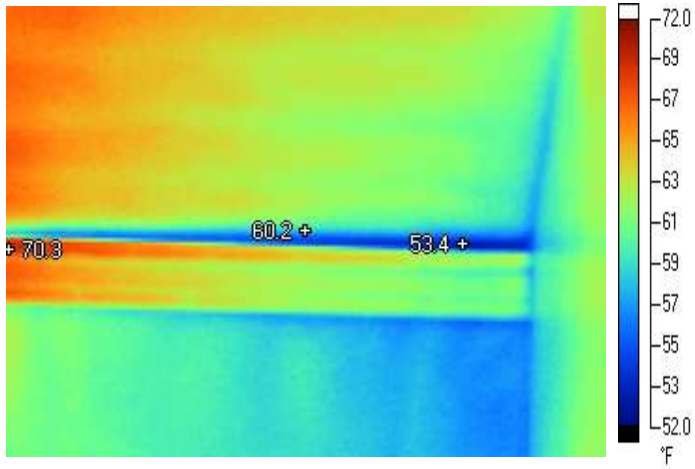
10/30/2008 6:57:58 PM



**Front Entrance Doors.IS2**

### **Markers**

Label	Temperature	Emissivity	Background
Centerpoint	52.8 °F	0.95	71.6 °F
Hot	61.9 °F	0.95	71.6 °F
Cold	42.0 °F	0.95	71.6 °F



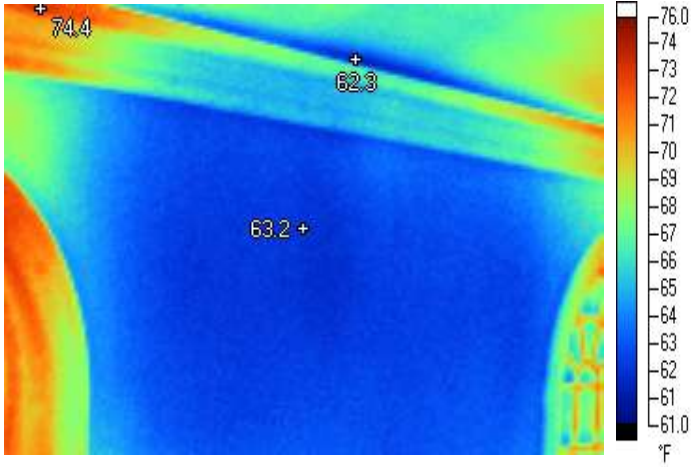
**Nave Ceiling 2.IS2**

**Visible Light Image**

10/30/2008 6:59:59 PM

**Markers**

Label	Temperature	Emissivity	Background
Centerpoint	60.2 °F	0.95	71.6 °F
Hot	70.3 °F	0.95	71.6 °F
Cold	53.4 °F	0.95	71.6 °F



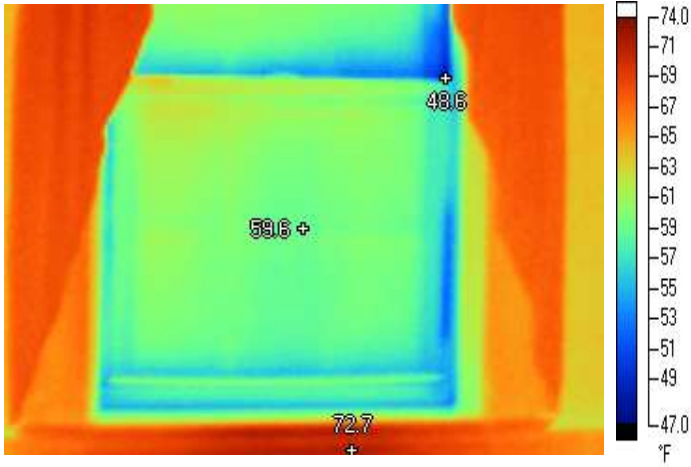
**Nave Windows.IS2**

**Visible Light Image**

10/30/2008 7:02:59 PM

**Markers**

Label	Temperature	Emissivity	Background
Centerpoint	63.2 °F	0.95	71.6 °F
Hot	74.4 °F	0.95	71.6 °F
Cold	62.3 °F	0.95	71.6 °F



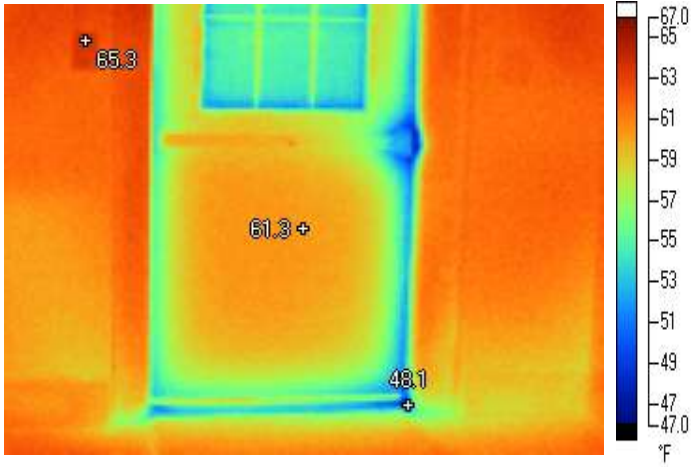
**Library.IS2**

**Visible Light Image**

10/30/2008 7:04:38 PM

**Markers**

Label	Temperature	Emissivity	Background
Centerpoint	59.6 °F	0.95	71.6 °F
Hot	72.7 °F	0.95	71.6 °F
Cold	48.6 °F	0.95	71.6 °F



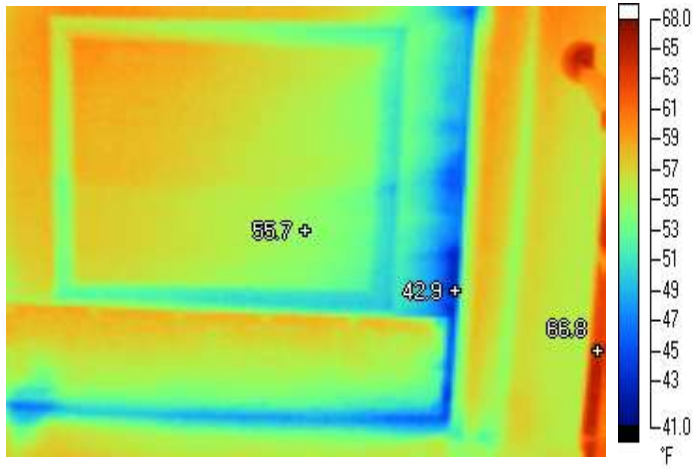
**Exit Door Carroll Hall.IS2**

**Visible Light Image**

10/30/2008 7:10:11 PM

### **Markers**

Label	Temperature	Emissivity	Background
Centerpoint	61.3 °F	0.95	71.6 °F
Hot	65.3 °F	0.95	71.6 °F
Cold	48.1 °F	0.95	71.6 °F



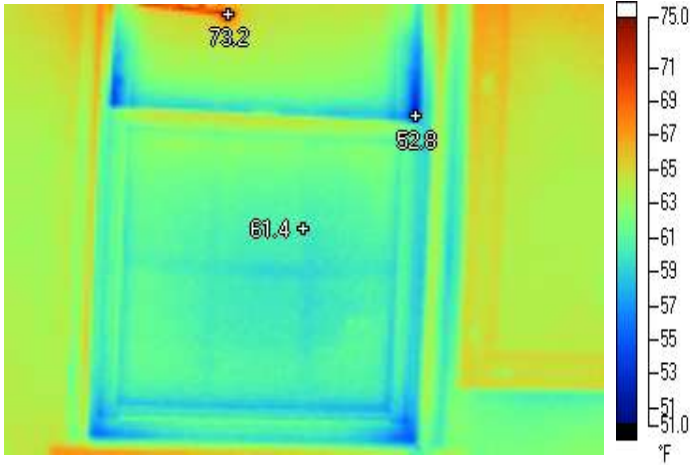
**Kitchen Door.IS2**

**Visible Light Image**

10/30/2008 7:10:55 PM

**Markers**

Label	Temperature	Emissivity	Background
Centerpoint	55.7 °F	0.95	71.6 °F
Hot	66.8 °F	0.95	71.6 °F
Cold	42.9 °F	0.95	71.6 °F



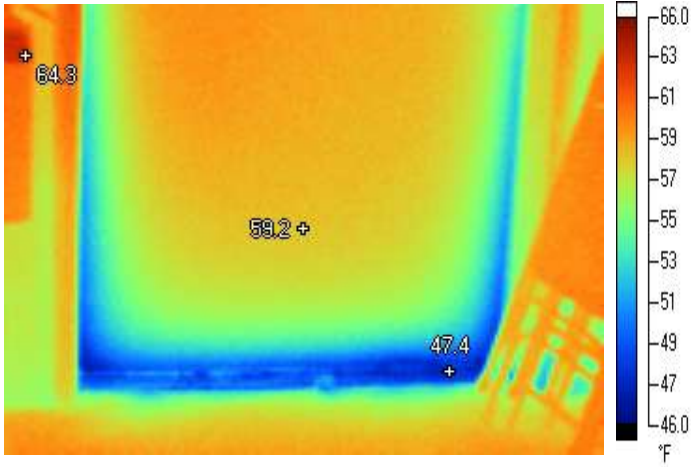
**Lower Level Classroom.IS2**

**Visible Light Image**

10/30/2008 7:12:23 PM

### **Markers**

Label	Temperature	Emissivity	Background
Centerpoint	61.4 °F	0.95	71.6 °F
Hot	73.2 °F	0.95	71.6 °F
Cold	52.8 °F	0.95	71.6 °F



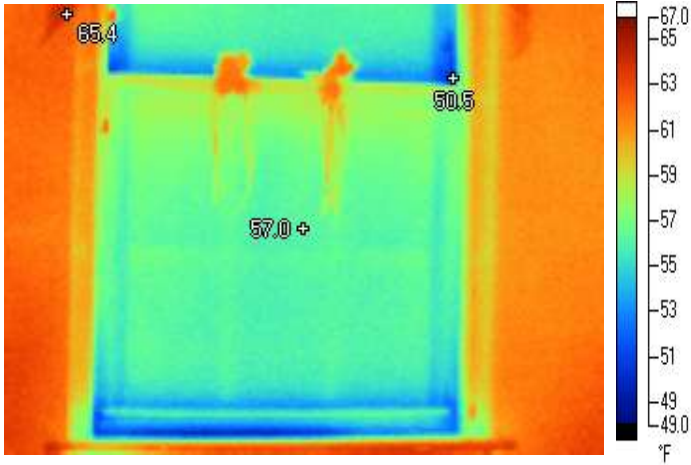
**Lower Level Exit Door.IS2**

**Visible Light Image**

10/30/2008 7:14:04 PM

### **Markers**

Label	Temperature	Emissivity	Background
Centerpoint	59.2 °F	0.95	71.6 °F
Hot	64.3 °F	0.95	71.6 °F
Cold	47.4 °F	0.95	71.6 °F



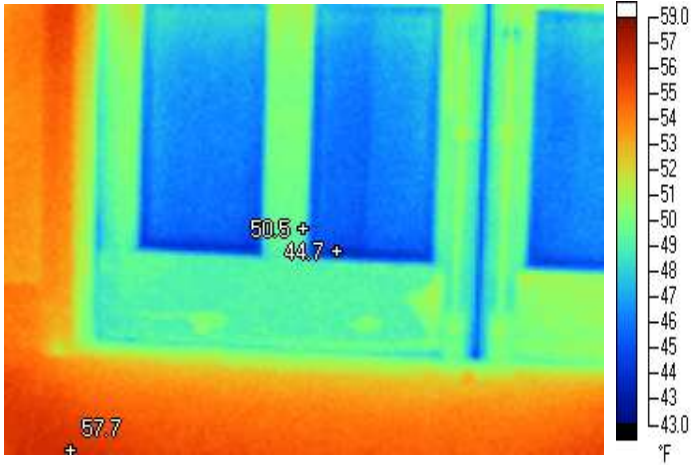
**Carroll Hall.IS2**

**Visible Light Image**

10/30/2008 7:16:18 PM

### **Markers**

Label	Temperature	Emissivity	Background
Centerpoint	57.0 °F	0.95	71.6 °F
Hot	65.4 °F	0.95	71.6 °F
Cold	50.5 °F	0.95	71.6 °F



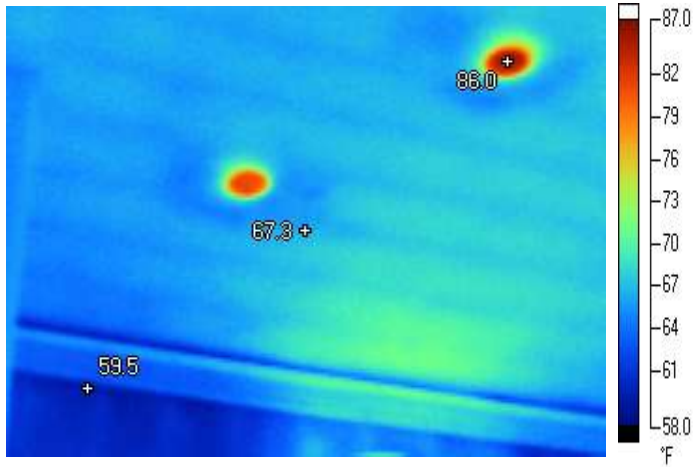
**Elevator Lobby Doors.IS2**

**Visible Light Image**

10/30/2008 7:17:06 PM

### **Markers**

Label	Temperature	Emissivity	Background
Centerpoint	50.5 °F	0.95	71.6 °F
Hot	57.7 °F	0.95	71.6 °F
Cold	44.7 °F	0.95	71.6 °F



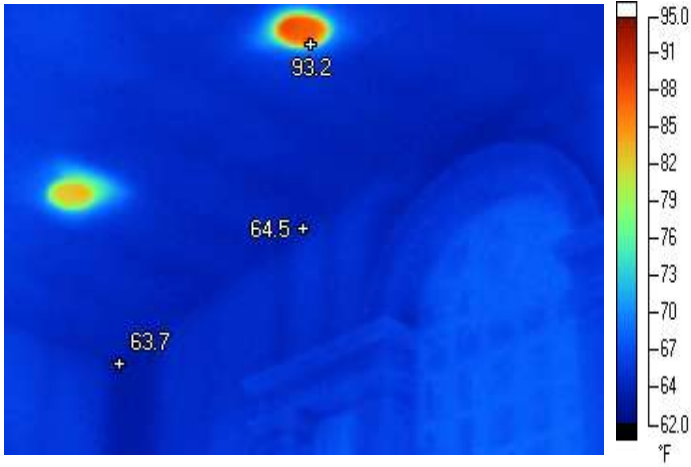
**Nave Ceiling 3.IS2**

**Visible Light Image**

10/30/2008 7:18:58 PM

### **Markers**

Label	Temperature	Emissivity	Background
Centerpoint	67.3 °F	0.95	71.6 °F
Hot	86.0 °F	0.95	71.6 °F
Cold	59.5 °F	0.95	71.6 °F



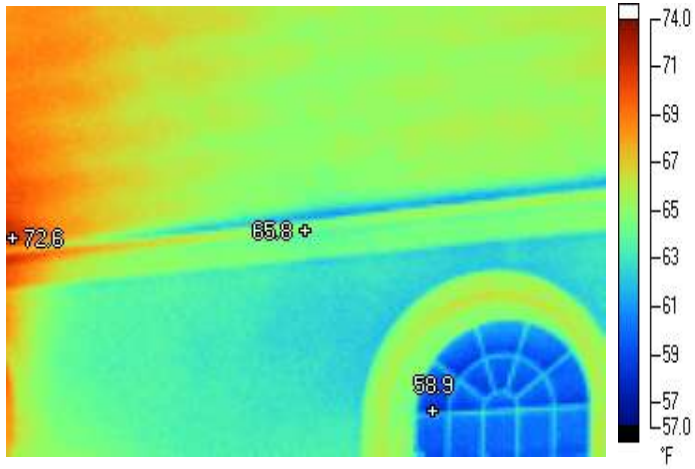
**Sanctuary Ceiling3.IS2**

**Visible Light Image**

10/30/2008 7:19:44 PM

**Markers**

Label	Temperature	Emissivity	Background
Centerpoint	64.5 °F	0.95	71.6 °F
Hot	93.2 °F	0.95	71.6 °F
Cold	63.7 °F	0.95	71.6 °F



**Nave Ceiling.IS2**

**Visible Light Image**

10/30/2008 7:20:43 PM

### **Markers**

Label	Temperature	Emissivity	Background
Centerpoint	65.8 °F	0.95	71.6 °F
Hot	72.6 °F	0.95	71.6 °F
Cold	58.9 °F	0.95	71.6 °F

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## *Summary*

An infrared scan was performed on the interior surfaces of the church on the evening of October 30, 2008.

Thermal infrared sensing is possible because all objects above absolute zero (-273 degrees C. or -470 degrees F.) emits radiation due to their molecular agitation. This radiation is electromagnetic infrared radiation, and has a frequency and wavelength and can be transmitted, reflected, and absorbed similar to visible light energy.

The temperature of the objects also determines the spectral wavelengths in which this radiation is emitted. The scanner unit converts this infrared radiation into an electrical video signal.

Equipment used was a FLUKE TiR1.

### CONCLUSION:

There is nothing unusual observed during the inspection that would not be anticipated in a building of this type and age.

Wall and ceiling construction have limited quantities of insulation.

There is air leakage along the perimeters of old windows.

New replacement windows have better thermal resistance. However, there is still air leakage around the sash and sill.

Weather stripping on exterior doors should be replaced or adjusted.