Appendix E: Controls Energy and Unit Calculations

The following can be found in this Controls Appendix:

- Delta DNT – 103 Specification/Cut Sheet
- BACnet Testing Labs – Test Sheet
- Weather Data for Alexandria, VA
- Drawing E 3.3
- Drawing M – 602
- Virginia Dominion Power, GS – 4 Schedule
- Energy and Cost Calculations
- Detail from Drawing E 2.1, Unit C
- Original Wiring Diagram
- INNCOM Wiring Diagrams
Network Thermostats
BACstat II: DNT-T103/H103

Description
The DNT-T103 is an intelligent room thermostat with a custom 3-value, 96 segment, LCD display. The DNT-T103 can communicate on Delta’s LINKnet network or directly on a BACnet MS/TP network. The DNT-T103 can display a wide-range of digital or analog values including setpoints, temperature, airflow, heating and cooling status, fan speed, valve and damper position, and more. When connected on a BACnet MS/TP network, the DNT-T103 functions as an independent BACnet thermostat. When connected to a Controller, on a LINKnet network, the DNT-T103 provides a programmable remote sensor and expanded I/O capabilities.

Application
The DNT-T103 is designed to be a low-cost solution for control of unitary equipment. It has built-in, configurable algorithms for VAV, VVT, fan coil/unit ventilator, heat pump, radiation and humidification applications.

The DNT-T103 may also be connected to a LINKnet network to provide programmable remote sensor and expanded I/O capabilities.

Features
—Native BACnet™ firmware
—BACnet MS/TP or LINKnet communications
—Configurable 3-value, 96 segment, LCD display (with optional backlighting)
—4 Configurable push buttons
—Derived Network Addressing (DNA) for simple integration into a standard network architecture
—Field selectable applications
—Service port

Specifications
BACnet Device Profile
BACnet Application Specific Controller (B-ASC)

LCD
3-value and various icons (96 total segments) with optional backlighting

Push Buttons
4 stylized momentary push buttons

Temperature Sensor
Thermistor Input - 10kΩ at 77°F (25°C)
Accuracy +/-0.36°F from 32-158°F (+/-0.2°C from 0-70°C)
Display resolution of 0.1°
Stability 0.24°F over 5 years (0.13°C)

Humidity Sensor
Accuracy of +/-2% RH from 0-100% RH (25°C, Vsupply = 5Vdc)
Display resolution of 0.1%
Stability of +/- 1% RH (typical at 50% RH over 5 years)
Note: Extended exposure to >90% RH causes a reversible shift of 3% RH

Inputs
1 Universal input - 10 bit (supporting 0-5v, 0-10v, 10kΩ)

Outputs
3 Binary triac outputs (supporting binary, PWM or tri-state)

Technology
8-bit processor with internal A/D, Flash and RAM

Document Edition 1.2 August 2004
Network Thermostats
BACstat II: DNT-T103/H103 Board Layout Diagram

Accessories
RPT-768—Delta Network Repeater for BACnet MS/TP
TRM-768—Delta Network Terminator for BACnet MS/TP
CON-768—Delta Network Converter

Ordering
Order the DNT-T103/H103 with the desired options, according to the following product numbers:

DNT-T103—Internal Thermistor Input, Additional I/O (1 IP and 3 OP), Backlighting (Option B), External Thermistor Terminator (Option X)

DNT-H103—Internal Thermistor Input, Internal Humidity Input, Additional I/O (1 IP and 3 OP), Backlighting, External Thermistor Terminator

An appended button icon code must be included to specify the desired icons embossed on the buttons. If a button icon code is not specified, the product is shipped with the default button icons.

Default—Bottom 2 buttons are ▼ & ▲ (Setpoint Adjust), top 2 buttons are OFF and ON

INT—Bottom 2 buttons are ▼ & ▲ (Setpoint Adjust), top 2 buttons are 0 and 1 (International)

Specifications (Continued)

Device Type
Configured as a LINKnet or subnet device

Device Addressing
Set via keypad

Communications Ports
BACnet MS/TP @ 9600, 19200, 38400 or 76800 bps (maximum of 99 devices per BACnet MS/TP segment)

Delta LINKnet @ 76800 bps (maximum 12 devices, depending on the controller with no more than 2 DFM/DNT devices per LINKnet segment)

Connectors
Screw-type terminal connectors

Wiring Class
Class 2

Power
24V AC

41 VA (with internally powered outputs)

Ambient
32° to 131°F (0° to 55°C)

10 - 90% RH (non-condensing)

Dimensions
5 x 3.25 x 1 in. (12.7 x 8.3 x 2.5 cm) with housing

0.3 lb. (120 g) with housing

Approvals/Standards
UL 916 Listed

CE

FCC Class B

BTL Listed
BACnet Testing Labs
Product Listing

This product has been tested at the BACnet Testing Labs and found to comply with all the necessary interoperability requirements in place on the published test date. This listing represents the tested capability of the Listed Product. For information on additional functionality that was not covered in the test process, refer to the Manufacturer’s PICS statement on the BMA website.

### Listing Information

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Listing Status</th>
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<tr>
<td>Delta Controls</td>
<td>Listed Product</td>
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<tr>
<td>17850 - 56th Ave.</td>
<td></td>
</tr>
<tr>
<td>Surrey, BC, Canada</td>
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<tr>
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<table>
<thead>
<tr>
<th>Test Requirements</th>
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<table>
<thead>
<tr>
<th>Product Name</th>
<th>Model Number</th>
<th>Software Version</th>
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<tbody>
<tr>
<td>BACstat II</td>
<td>DNS-24, DNT-T103, DNT-T221</td>
<td>Release 2</td>
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<table>
<thead>
<tr>
<th>Product Name</th>
<th>Link to PICS on BMA Website</th>
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<tbody>
<tr>
<td>BACstat II</td>
<td>[<a href="http://www.bacnetassociation.org/delta_controls/BACstat">http://www.bacnetassociation.org/delta_controls/BACstat</a> II](<a href="http://www.bacnetassociation.org/delta_controls/BACstat">http://www.bacnetassociation.org/delta_controls/BACstat</a> II)</td>
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### Device Profiles

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<th>Profile</th>
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<tr>
<td>BACnet Application Specific Controller (B-ASC)</td>
<td>DNS-24, DNT-T103, DNT-T221</td>
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### BIBBs Supported

<table>
<thead>
<tr>
<th>Data Sharing</th>
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<tr>
<td>ReadProperty-B</td>
<td>DS-RP-B</td>
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<tr>
<td>ReadPropertyMultiple-B</td>
<td>DS-RPM-B</td>
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<tr>
<td>WriteProperty-B</td>
<td>DS-WP-B</td>
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<tr>
<th>Device and Network Management</th>
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<tr>
<td>Dynamic Device Binding-B</td>
<td>DM-DDB-B</td>
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<tr>
<td>Dynamic Object Binding-B</td>
<td>DM-DOB-B</td>
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<tr>
<td>DeviceCommunicationControl-B</td>
<td>DM-DCC-B</td>
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<tr>
<td>ReinitializeDevice-B</td>
<td>DM-RD-B</td>
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### Object Type Support

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<th>Analog Input</th>
<th>Analog Value</th>
<th>Device</th>
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</table>

### Data Link Layer Options

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<th>Media</th>
<th>Options</th>
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<tbody>
<tr>
<td>MS/TP master</td>
<td>9600, 19200, 38400, 76800</td>
</tr>
</tbody>
</table>

### Device Binding Support

- Static Binding is supported.

### Character Set Support

- ANSI X3.4
Region: Middle Atlantic
Station: Washington National, DC (DCA)

FREE Degree Day Report

Chart Value Settings
Range Begin: 2007
Range End: 2007
Base Year: 2006
Comp Year: 2007
Balance Point: 65

Average Daily Temperature
Washington National, DC (DCA)

Cumulative Heating Degree Days
65° balance point
Washington National, DC (DCA)

Cumulative Cooling Degree Days
65° balance point
Washington National, DC (DCA)

2007 Vs. 2006, HDD and CDD
65° balance point
Washington National, DC (DCA)

Weather data provided by AccuWeather.com
**Please note: When the monthly degree days in either the base year or the comparison year are less then 30, a percentage comparison is not calculated. HOWEVER, all total comparison percentages (month and year) do include all heating and cooling degree days. YTD means Year-To-Date.**

Degree Day Comparison Report Provided by EnergyCAP and weatherDataDepot
http://www.weatherdatadepot.com

Weather Information Provided by AccuWeather
http://www.accuweather.com
Schedule GS-4
LARGE GENERAL SERVICE
PRIMARY VOLTAGE

I. APPLICABILITY

Except as modified herein, this schedule is applicable only to a non-residential transmission or primary voltage Customer (as defined in Paragraph XI.) who elects to receive Electricity Supply Service and Electric Delivery Service from the Company and whose peak measured demand has reached or exceeded 500 kW during at least three billing months within the current and previous 11 billing months.

For a Customer served under this schedule whose peak measured demand has decreased to less than 500 kW, this schedule shall remain applicable to the Customer and the Customer shall not have the option to purchase electricity under Schedule GS-1, GS-2, or GS-2T until such time as the maximum measured demand has remained at less than 500 kW during all billing months within the current and previous 11 billing months.

At such time the Customer no longer meets the above applicability requirements, the Customer shall remain on this schedule for the period (not exceeding two additional billing months) required to achieve an orderly transfer to the applicable schedule.

For new service, this schedule is applicable when the anticipated kW demand meets the above criteria.

II. 30-DAY RATE

A. Distribution Service Charges

1. Basic Customer Charge
   Basic Customer Charge $127.60 per billing month.

2. Plus Distribution Demand Charge
   First 5000 kW of Distribution Demand @ $1.000 per kW
   Additional kW of Distribution Demand @ $0.755 per kW

3. Plus rkVA Demand Charge @ $0.15 per rkVA

(Continued)
II. 30-DAY RATE (Continued)

B. Electricity Supply Service Charges

1. On-Peak Electricity Supply Demand Charge

   a. All On-Peak Electricity Supply Demand for Primary Service Voltage @ $12.003 per kW

   b. All On-Peak Electricity Supply Demand for Transmission Service Voltage @ $11.715 per kW

2. Plus Off-Peak Electricity Supply Demand Charge

   All Off-Peak kW Demand @ $0.632 per kW

3. Plus Electricity Supply Adjustment Demand Charge

   First 5000 kW of Demand @ ($0.421) per kW
   Additional kW of Demand @ ($0.318) per kW

4. Plus Electricity Supply kWh Charge

   All On-peak kWh @ 0.404¢ per kWh
   All Off-Peak kWh @ 0.272¢ per kWh

5. Each Electricity Supply kilowatthour used is subject to Fuel Charge Rider A.

C. The minimum charge shall be as may be contracted for.

(Continued)
III. DETERMINATION OF ON-PEAK AND OFF-PEAK HOURS

The following on-peak and off-peak hours are applicable to the billing of all charges stated in this schedule.

A. On-peak hours are as follows:

1. For the period of June 1 through September 30, 10 a.m. to 10 p.m., Mondays through Fridays.

2. For the period of October 1 through May 31, 7 a.m. to 10 p.m., Mondays through Fridays.

B. All hours not specified in III.A. are off-peak.

IV. DETERMINATION OF DISTRIBUTION DEMAND

A. Distribution Demand shall be billed only where the normal service delivery voltage is less than 69 kV.

B. The Distribution Demand billed under Paragraph II.A.2. shall be such as may be contracted for but not less than the highest of:

1. The highest average kW measured at the location during any 30-minute interval of the current and previous 11 billing months.

2. 500 kW.

C. When the Customer's power factor is less than 85 percent, a minimum distribution demand of not less than 85 percent of the Customer's maximum kVA demand may be established.

V. DETERMINATION OF rkVA DEMAND

The rkVA of demand billed shall be the highest average rkVA measured in any 30-minute interval during the current billing month.

(Continued)
VI. DETERMINATION OF ON-PEAK ELECTRICITY SUPPLY DEMAND

The kW of demand billed under II.B.1. shall be the highest of:

A. The highest average kW measured in any 30-minute interval of the current billing month during on-peak hours.

B. Seventy-five percent of the highest kW of demand at this location as determined under VI.A., above, during the billing months of June through September of the preceding 11 billing months.

C. 100 kW.

VII. DETERMINATION OF OFF-PEAK ELECTRICITY SUPPLY DEMAND

The kW of demand billed under Paragraph II.B.2. shall be the off-peak demand which is in excess of 90% of the On-Peak Electricity Supply Demand determined under Paragraph VI.

VIII. DETERMINATION OF ELECTRICITY SUPPLY ADJUSTMENT DEMAND

This credit is required in order to achieve customer bill neutrality, arising from changes to the Distribution Demand Charge while maintaining the overall capped rates. The kW of demand billed under Paragraph II.B.3. shall be the Distribution Demand determined under Paragraph IV.

IX. METER READING AND BILLING

When the actual number of days between meter readings is more or less than 30 days, the Basic Customer Charge, the Distribution Demand Charge, the kVA Demand Charge, the On-Peak Electricity Supply Demand Charge, the Off-peak Electricity Supply Demand Charge, the Electricity Supply Adjustment Demand Charge, and the minimum charge of the 30-day rate will each be multiplied by the actual number of days in the billing period and divided by 30.

(Continued)
X. STANDBY, MAINTENANCE OR PARALLEL OPERATION SERVICE

A Customer requiring standby, maintenance or parallel operation service may elect service under this schedule provided the Customer contracts for the maximum kW which the Company is to supply. Standby, maintenance or parallel operation service is subject to the following provisions:

A. Suitable relays and protective apparatus shall be furnished, installed, and maintained at the Customer's expense in accordance with specifications furnished by the Company. The relays and protective equipment shall be subject, at all reasonable times, to inspection by the Company's authorized representative.

B. In case the Distribution Demand determined under Paragraph IV. exceeds the contract demand, the contract demand shall be increased by such excess demand.

C. The demand billed under II.A.2. and II.B.3. shall be the contract demand.

XI. DEFINITION OF TRANSMISSION, PRIMARY AND SECONDARY VOLTAGE CUSTOMER

A. A transmission voltage Customer is any Customer whose delivery voltage is 69 kV or above.

B. A primary voltage Customer is any Customer (a) served from a circuit of 69 kV or more where the delivery voltage is 4,000 volts or more, (b) served from a circuit of less than 69 kV where Company-owned transformation is not required at the Customer's site, (c) where Company-owned transformation has become necessary at the Customer's site because the Company has changed the voltage of the circuit from that originally supplied, or (d) at a location served prior to October 27, 1992 where the Customer's connection to the Company's facilities is made at 2,000 volts or more.

C. A secondary voltage Customer is any Customer not defined in XI.A. or XI.B. as a transmission or primary voltage Customer.
XII. TERM OF CONTRACT

The contract shall be open order unless (a) standby, maintenance or parallel operation service is provided, or (b) the Customer or the Company requests a written contract. In such cases, the term of contract for the purchase of electricity under this schedule shall be as mutually agreed upon, but for not less than one year. During the minimum term of applicability, the Customer may be billed under the corresponding Unbundled Rate Schedule GS-4U, if applicable.
Current Energy Use Based on 24/7 Run Schedule

Based on Degree Day Weather Data:

- Heating = 68% of Total Year
- Cooling = 32% of Total Year

* Assumed Set Point of 65°F

Average Electric Heating Units (Drawing E 3.3)

| 140 x  | 1.50 kW |
| 33 x   | 3.00 kW |
| 16 x   | 2.50 kW |

189 units 349 kW

Average Horsepower per fan = 0.05 kW
Total Electric for Cooling = 189*0.05 = 9.45kW

Building Demand = 656.1 kVA

* Assume 81% Occupancy

147 Rooms Filled of 181

Total Heating Energy Use = (0.81)(358.45 kW) = 290.34 kW
Total Cooling Energy Use = (0.81)(9.45 kW) = 7.65 kW

Total Heating Energy Use per Day = (0.81)(0.68*24 Hrs)(358.45 kW) = 3,939.19 kWh
Total Cooling Energy Use per Day = (0.81)(0.32*24 Hrs)(358.45 kW) = 1,853.74 kWh

Peak Time: 6/1 to 9/30 Monday through Friday from 10:00am to 10:00pm
10/1 to 5/31 Monday through Friday from 7:00am to 10:00pm
$0.404 per kWh
261 Peak Days

Off-Peak Time: 1/1 to 12/31 Evenings and Weekends
$0.272 per kWh
104 Off-Peak Days

Energy Cost Calculations

Peak Time Cost - Heating

\[
\text{Cost} = (290.34 \times \left(\frac{12 \text{ hrs}}{1 \text{ Day}}\right) \times \left(\frac{99 \text{ Days}}{1 \text{ Year}}\right) + \left(\frac{18 \text{ hrs}}{1 \text{ Day}}\right) \times \left(\frac{171 \text{ Days}}{1 \text{ Year}}\right)) = 0.68
\]

= 720,832.48 kWh
= $2,912.16
Energy Calculations
Appendix E

Peak Time Cost - Cooling

\[
= (7.65) \times \left\{ \frac{(12 \text{ hrs})}{1 \text{ Day}} \times \frac{(30 \text{ Days})}{1 \text{ Year}} + \frac{(18 \text{ hrs})}{1 \text{ Day}} \times \frac{(173 \text{ Days})}{1 \text{ Year}} \right\} \times 0.32
\]

\[
= 8942.91 \text{ kWh}
\]

\[
= $36.13
\]

Off-Peak Time Cost - Heating

\[
= (290.34) \times \left\{ \frac{(24 \text{ hrs})}{1 \text{ Day}} \times \frac{(104 \text{ Days})}{1 \text{ Year}} + \frac{(12 \text{ hrs})}{1 \text{ Day}} \times \frac{(90 \text{ Days})}{1 \text{ Year}} + \frac{(18 \text{ hrs})}{1 \text{ Day}} \times \frac{(173 \text{ Days})}{1 \text{ Year}} \right\} \times 0.66
\]

\[
= 1,008,691.63 \text{ kWh}
\]

\[
= $2,743.64
\]

Off-Peak Time Cost - Cooling

\[
= (7.65) \times \left\{ \frac{(12 \text{ hrs})}{1 \text{ Day}} \times \frac{(104 \text{ Days})}{1 \text{ Year}} + \frac{(12 \text{ hrs})}{1 \text{ Day}} \times \frac{(90 \text{ Days})}{1 \text{ Year}} + \frac{(18 \text{ hrs})}{1 \text{ Day}} \times \frac{(173 \text{ Days})}{1 \text{ Year}} \right\} \times 0.32
\]

\[
= 26,592.65 \text{ kWh}
\]

\[
= $72.33
\]

Total kWh = 1,765,059.67
Total Cost = $5,764.27
New Energy Use Based on Adjustable Run Schedule

Based on Degree Day Weather Data:

- Heating = 68% of Total Year
- Cooling = 32% of Total Year

* Assumed Set Point of 65°F

Average Electric Heating Units (Drawing E 3.3)

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Horsepower</th>
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<tbody>
<tr>
<td>140</td>
<td>1.50 kW</td>
</tr>
<tr>
<td>33</td>
<td>3.00 kW</td>
</tr>
<tr>
<td>16</td>
<td>2.50 kW</td>
</tr>
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</table>

Total Heating Units = 349 kW

Total Electric for Cooling = 189 * 0.05 = 9.45 kW

Building Demand = 656.1 kVA

* Assume GS - 4 Determined by Virginia Dominion Power

* Assume 81% Occupancy

147 Rooms Filled of 181

Total Heating Energy Use = (0.81)(358.45 kW) = 290.34 kW

Total Cooling Energy Use = (0.81)(9.45 kW) = 7.65 kW

Total Heating Energy Use per Day = (0.81)(0.68 * 24 Hrs)(358.45 kW) = 3,939.19 kWh

Total Cooling Energy Use per Day = (0.81)(0.32 * 24 Hrs)(358.45 kW) = 1,853.74 kWh

Peak Time 6/1 to 9/30 Monday through Friday from 10:00am to 10:00pm
10/1 to 5/31 Monday through Friday from 7:00am to 10:00pm
$0.404 per kWh
261 Peak Days

Off-Peak Time 1/1 to 12/31 Evenings and Weekends
$0.272 per kWh
104 Off-Peak Days

Trace Schedule for Hotel Occupancy Rate:

- 12 am - 9 am = 100%
- 9 am - 11 am = 20%
- 11 am - 5 pm = 0%
- 5 pm - 12 am = 100%
The Residence Inn is slated for mainly long term business people. Average hours of commute are between 7 am and 9 am.

Adjusted Schedule for Hotel Occupancy Rate:
- 12 am - 9 am = 85% * Assumes leaving at 7:30 am
- 9 am - 11 am = 0%
- 11 am - 5 pm = 0%
- 5 pm - 12 am = 100%

Energy Cost Calculations

"Over-ride" Heating Usage = All Off-Peak Time from 10:00pm to 7:00am

\[
\text{Cost} = (290.54) \times \left[ \left( \frac{7 \text{ hrs}}{1 \text{ Day}} \right) \left( \frac{366 \text{ Days}}{1 \text{ Year}} \right) \right] \times 0.68 = 648,571.54 \text{ kWh} = \$1,764.11
\]

"Over-ride" Cooling Usage = All Off-Peak Time from 10:00pm to 7:00am

\[
\text{Cost} = (7.65) \times \left[ \left( \frac{7 \text{ hrs}}{1 \text{ Day}} \right) \left( \frac{366 \text{ Days}}{1 \text{ Year}} \right) \right] \times 0.32 = 8,046.41 \text{ kWh} = \$21.89
\]

User Controlled Heating Usage = All Peak Time = 5.65 hrs total of Day

\[
\text{Cost} = (290.54) \times \left[ \left( \frac{5.65 \text{ hrs}}{1 \text{ Day}} \right) \left( \frac{366 \text{ Days}}{1 \text{ Year}} \right) \right] \times 0.68 = 407,158.80 \text{ kWh} = \$1,644.92
\]

User Controlled Cooling Usage = All Peak Time = 5.65 hrs total of Day

\[
\text{Cost} = (7.65) \times \left[ \left( \frac{5.65 \text{ hrs}}{1 \text{ Day}} \right) \left( \frac{366 \text{ Days}}{1 \text{ Year}} \right) \right] \times 0.32 = 5,051.36 \text{ kWh} = \$20.41
\]

**Total kWh =** 1,068,828.11

**Total Cost =** $3,451.33
S5 Communication bus
Cat5 preferred, refer to block cabling diagram for specific conductor requirement.

Line voltage
Thermostat Wire, Both low and nominal voltage systems to follow UL and local codes.

Drawn By:  
Date:  
Project:  
File Name:  

Design Notes:
1. A spare pair of conductors from the data jack is not viable. A dedicated CAT5 cable would be required if the data jack is used or a spare phone pair of conductors can be used.
2. The thermostat location shown will not provide acceptable passive infrared room coverage. Note that the thermostat should be relocated, coverage angle is 178°. Alternately, use a remote PIR as shown.
3. Remote Passive IR sensors are added where the thermostat does not provide adequate coverage. Location of remote IR sensor is flexible, however locate to provide maximum room coverage. Coverage angle is 178°.
4. A B573 can support up to 80 room gateway devices (40 per Com 1 and 40 per Com 2) and must have an Ethernet connection in the IDF closet, a static IP address required for each B573.

Residence Inn Alexandria
INNCOM Device Count
Room Types
Wayne Hakenjos
30 Nov 2007

Device Count Per Room
<table>
<thead>
<tr>
<th>Unit Type</th>
<th>Keys</th>
<th>S241</th>
<th>E528</th>
<th>K594</th>
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<tr>
<td>Studio</td>
<td>140</td>
<td>140</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>1 Bedroom</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td></td>
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<tr>
<td>2 Bedroom</td>
<td>8</td>
<td>16</td>
<td>8</td>
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<tr>
<td>Total</td>
<td>181</td>
<td>189</td>
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Total Device Count
<table>
<thead>
<tr>
<th>Unit Type</th>
<th>S241</th>
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<td>1 Bedroom</td>
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<td>2 Bedroom</td>
<td>8</td>
<td>16</td>
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<tr>
<td>Total</td>
<td>181</td>
<td>189</td>
<td>181</td>
</tr>
</tbody>
</table>
Design Notes:
1. A spare pair of conductors from the data jack is not viable. A dedicated CAT5 cable would be required if the data jack is used or a spare phone pair of conductors can be used.
2. The thermostat location shown will provide acceptable passive infrared room coverage. Note that the thermostats can be relocated; however, note that coverage angle is about 178°. Thermostat must be positioned to provide IR coverage.
3. Remote Passive IR sensors are added where the thermostat does not provide adequate coverage. Location of remote IR sensor is flexible; however, locate to provide maximum room coverage. Coverage angle is 178°.
4. A B573 can support up to 80 room gateway devices (40 per Com 1 and 40 per Com 2) and must have an Ethernet connection in the IDF closet, static IP address required for each B573.
Design Notes

1. A spare pair of conductors from the data jack is not viable. A dedicated CAT5 cable would be required if the data jack is used or a spare phone pair of conductors can be used.

2. The thermostat locations shown provide acceptable passive infrared room coverage. Note that the thermostats can be relocated, however note that coverage angle is about 178°.

3. Remote Passive IR sensors are added where the thermostat does not provide adequate coverage. Location of remote IR sensor is flexible, however locate to provide maximum room coverage. Coverage angle is 178°.

4. A B572 Floor Bridge can support up to 80 room gateway devices (40 per Com 1 and 40 per Com 2) and must have an Ethernet connection in the IDF closet, static IP address required for each B572.