

Honeywell

McDonald's HEMS II

End User Operations Manual

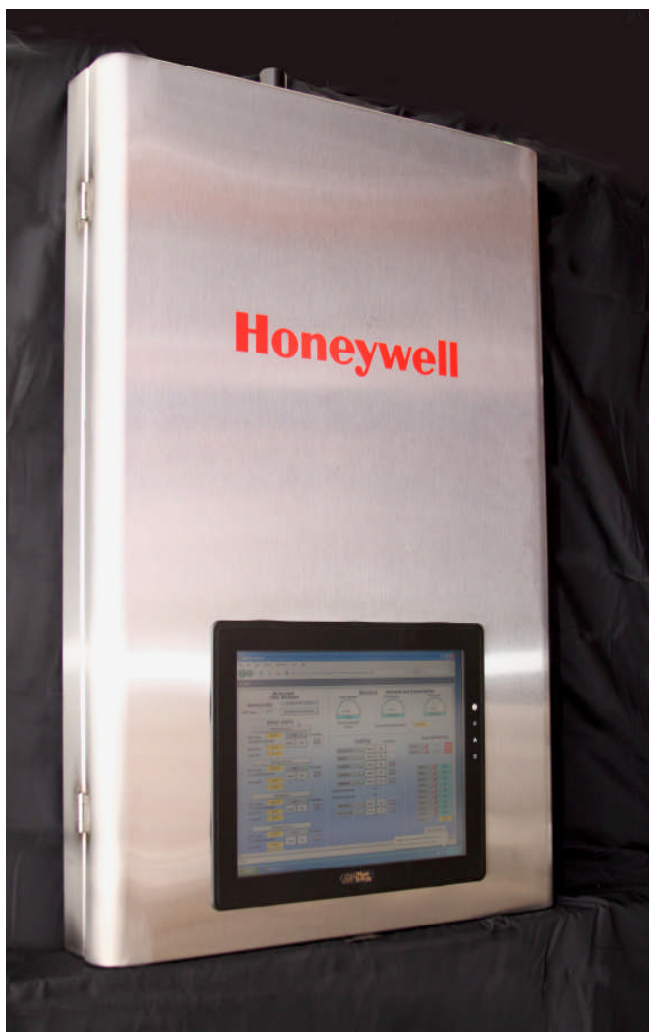


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Overview

McDonald's HEMS II Energy Management Control System & User Interface

The McDonald's HEMS II energy management and control system runs on a WEB -201™ (Java Application Control Engine). The WEB -201 is a compact, embedded controller/server platform. It combines integrated control, supervision, data logging, alarming, scheduling and network management functions with Internet connectivity and web serving capabilities in a small, compact platform. The WEB -201 makes it possible to control and manage external devices over your local network or the Internet and present real-time information to users in web-based graphical views.

The HEMS II system is complete in a 36" X 24" X 4" stainless steel panel with a local touch screen operator interface display. All system set points and changes can be made from this local display. With internet access provided to the HEMS II, all information and set points are available remotely from any PC browser interface.

The system is designed to monitor and/or control the following items:

- (3) Roof Top Mounted HVAC Units.
- Freezer/Cooler Temperatures and associated Door Opened/Closed status.
- Outdoor air temperature.
- HVAC Unit Space Temperatures, Discharge Air (supply) Temperatures and Room Temperature Set Points.
- Electrical Demand and Electrical Consumption.
- Parking Lot Lights, Exterior Signage Lights, Customer (Dining Area) Lights.
- Employee/Kitchen Lights and Play Place Lights (if present).
- Outdoor Light Level from a Photocell.

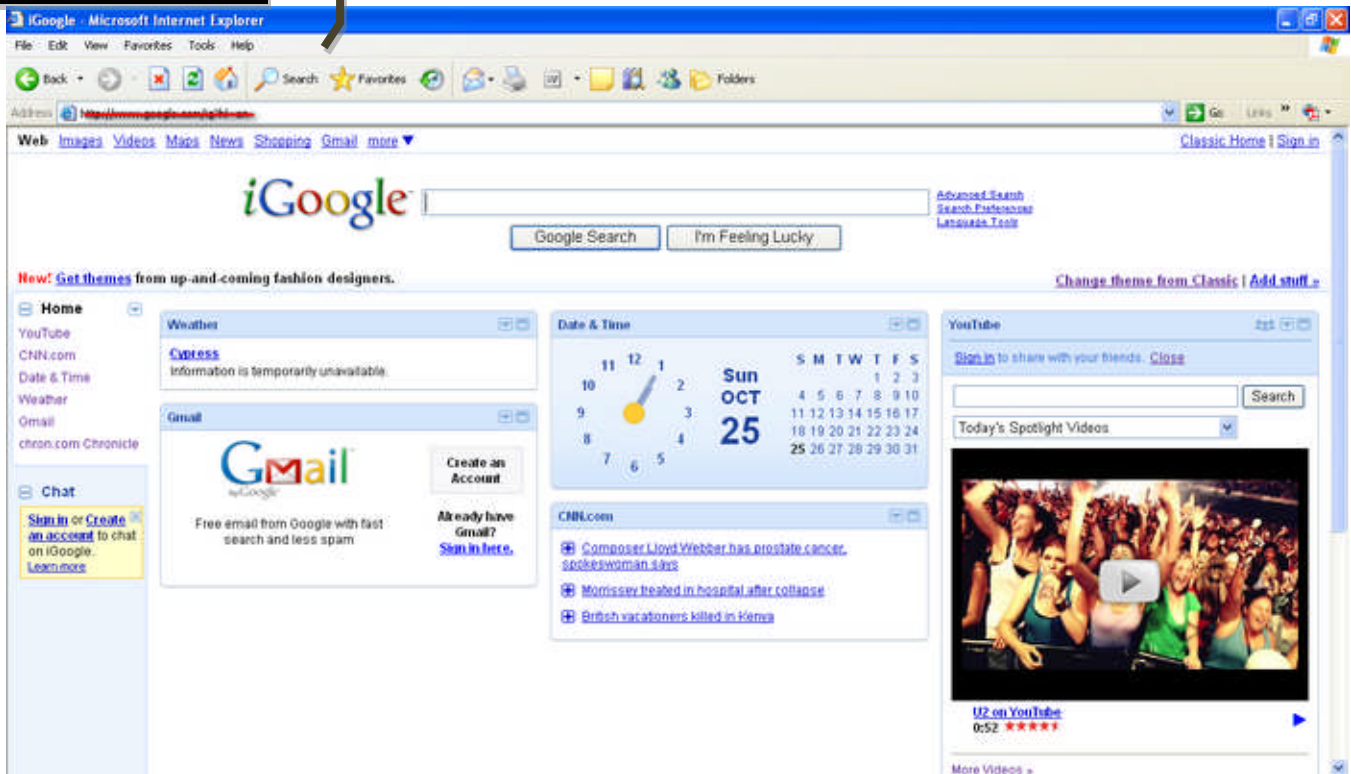
Your installed system may have additional points of control or monitoring that are not covered or included in this document.

Additional points could be:

- Drive through heater control.
- Kitchen equipment monitoring.
- Interface to your security system for status.
- Water heater control.
- Additional Roof Top Mounted HVAC/Units.
- Bulk CO2 levels near beverage and CO2 storage tanks.
- Or additional monitoring & control points that have been customized for your facility.

Navigation to Login Page from Local or Remote Personal Computer location

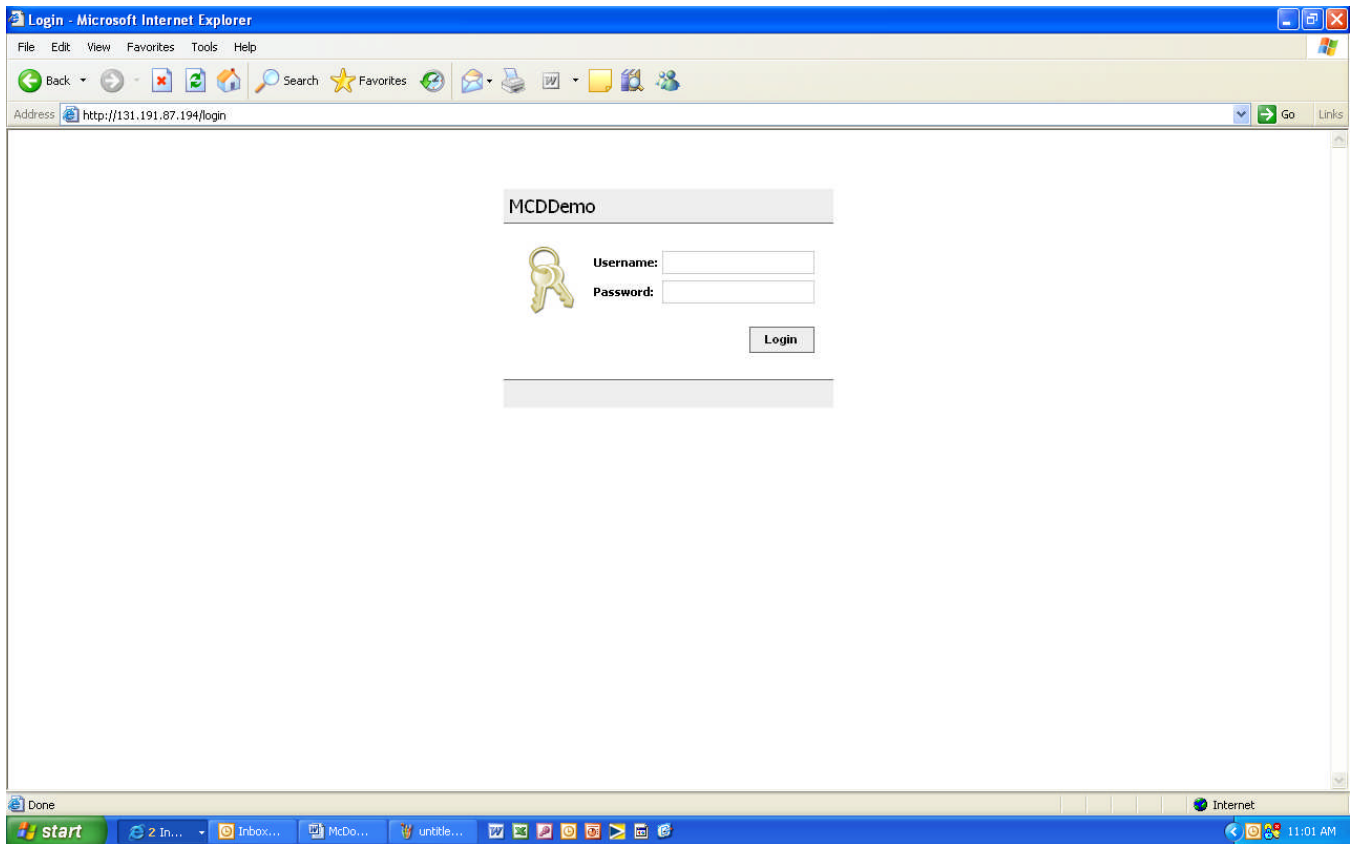
Open internet browser and enter store IP address here:



To begin: First open your internet browser and enter the WEBs Unit IP address in the "address bar". The WEBs Unit IP address will be furnished to you by the installer of the system. Additionally, you may consider installing a short cut icon on your personal computer Desk Top that will direct you to the IP address of your system.

Navigation to Login Page from Local or Remote Personal Computer location

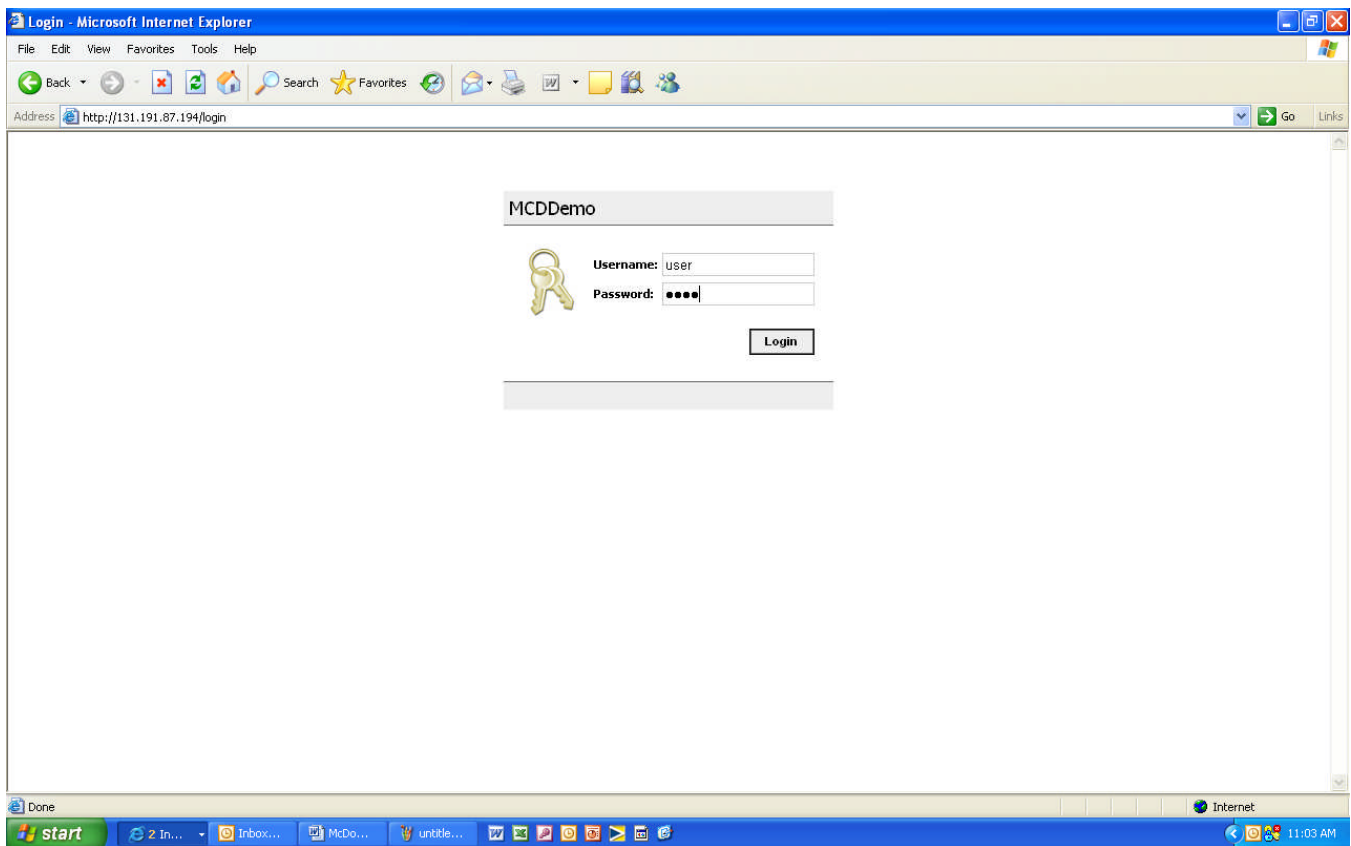
Login Page



The Login Page is where you enter your username (user) and password (pass). Then click the login icon. Please wait until the booting process completely loads, once it does, it will automatically route you to the Home Page. Note that the first time you access your system from any browser it could take several minutes to load the Home Page. Subsequent access to the system, from the same Personal Computer will load the Home Page must faster.

Below is the default Login Page from the Local Touch Screen located on the front of panel after unit has been powered “ON” or after the blank screen has been touched and unit returns to normal operation mode from power saving standby mode.

Login Page



The Login Page will be automatically populated with the Username & Password. Touch the Login icon once and the system will automatically route you to the Home Page.

Home Page

McDonalds Anywhere, USA

General Info 15-Feb-10 2:31 PM EST
OSA Temp **36 °F** [Operating Instructions](#)

HVAC UNITS

Kitchen Area
Rm Temp **67 °F** Fan
Occupied Setpoints **Auto** **On**
Heat STPt **70 °F** [Schedule](#)
Cool STPt **72 °F**

Dining Area
Rm Temp **70 °F** Fan
Occupied Setpoints **Auto** **On**
Heat STPt **70 °F** [Schedule](#)
Cool STPt **72 °F**

Playplace Area
Rm Temp **67 °F** Fan
Occupied Setpoints **Auto** **On**
Heat STPt **70 °F** [Schedule](#)
Cool STPt **72 °F**

Electrical Demand and Consumption

Peak Demand **0 Kw**
Demand Setpoint **87 Kw**
Energy Demand Limiting: **Inactive**

KWH Monthly **0 kW-hr**

KWH Yearly **253 kW-hr**

Lighting

	Auto	On	Schedule
Parking Lot	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Signage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Employee	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Customer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Playplace	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Photocell Parking **On**
Photocell Signage **On**

Alarms/Monitor

Freezer	<input checked="" type="checkbox"/>	-21 °F	Door Opened
Cooler	<input checked="" type="checkbox"/>	33 °F	Door Opened
CO2	<input checked="" type="checkbox"/>	15 PPM	Normal

[Alarm Silence](#)

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The Home Page will display your systems current conditions with any active alarms.

Home Page – continued

The screenshot shows the Honeywell HEMS II Home Page for a McDonald's store. The interface is divided into several sections:

- General Info:** Displays 'McDonalds Anywhere, USA', the date and time '15-Feb-10 2:31 PM EST', and the current Outside Air Temperature (OSA Temp) as 36 °F. A red arrow points to this section. There is also an 'Operating Instructions' button.
- HVAC UNITS:** This section is divided into three areas: Kitchen Area, Dining Area, and Playplace Area. Each area shows the room temperature (Rm Temp), occupied setpoints, heat setpoint (Heat STPt), and cool setpoint (Cool STPt). There are also buttons for 'Fan' and 'Schedule'.
- Electrical Demand and Consumption:** This section features three gauges: Peak Demand (0 Kw), KWH Monthly (0 kW-hr), and KWH Yearly (253 kW-hr). It also shows a Demand Setpoint of 87 Kw and Energy Demand Limiting as 'Inactive'.
- Lighting:** This section includes a 'Schedule' table for various areas: Parking Lot, Signage, Employee, Customer, and Playplace. Each area has a status indicator (Auto, On) and a 'Schedule' button. There are also buttons for 'Photocell Parking' and 'Photocell Signage'.
- Alarms/Monitor:** This section displays the status of various components: Freezer (-21 °F, Door Opened), Cooler (33 °F, Door Opened), and CO2 (15 PPM, Normal). There is an 'Alarm Silence' button.

The Honeywell logo is visible in the bottom right corner of the interface.

This area of Home Page shows the following:

1. Your store number and physical location.
2. Current outside air temperature. By touching or clicking on the CYAN colored area you will be directed to a trend log of accumulated outside temperature data. See page 18 of this document for more information on this.
3. Current time and date in the control system.
4. By touching or clicking on “Operating Instructions” icon you will be presented with a complete description and use of each section of displays and completed system electrical drawings and written sequence of operations. See pages 20-27 and 28-37 of this document for more information on this.

Home Page – continued

The screenshot shows a web-based control interface for a McDonald's location. The top navigation bar includes standard browser controls and a menu (File, Edit, View, Favorites, Tools, Help). The main content area is titled 'McDonald's Anywhere, USA' and features a 'General Info' section with 'OSA Temp' at 36 °F and a date/time stamp of 15-Feb-10 2:31 PM EST. Below this is the 'HVAC UNITS' section, which is organized into three areas: Kitchen Area, Dining Area, and Playplace Area. Each area displays room temperature, occupied setpoints, heat and cool setpoints, and fan status. The 'Electrical Demand and Consumption' section contains three gauges: Peak Demand (0 Kw), KWH Monthly (0 kW-hr), and KWH Yearly (253 kW-hr). A 'Demand Setpoint' is set at 87 Kw, and 'Energy Demand Limiting' is shown as 'Inactive' in a yellow box. The 'Lighting' section includes controls for Parking Lot, Signage, Employee, Customer, and Playplace, each with 'Auto' and 'On' options and a 'Schedule' icon. The 'Alarms/Monitor' section shows status for Freezer (-21 °F, Door Opened), Cooler (33 °F, Door Opened), and CO2 (15 PPM, Normal). An 'Alarm Silence' button is located at the bottom of this section. The Honeywell logo is visible in the bottom right corner of the interface.

This area of Home Page shows the following:

1. Current electrical peak demand and current electrical (KWH) consumption for the current month and current year. By touching or clicking on any CYAN colored area you will be directed to a trend log of accumulated electrical data. See page 18 of this document for more information on this.
2. Current electrical demand set point. See page 19 of this document for more information this.
3. Energy Demand Limiting: When active the box will say Active and the background will be RED. When Inactive the box will say Inactive and the background will be YELLOW. When Active the temperature set points for all HVAC Units will be automatically raised 3°F (when in cooling mode) or lowered 3°F (when in heating mode). HVAC Units automatically switch between Cooling/Heating modes to maintain room temperatures. Active condition exists when current electrical demand is within 2.5% of electrical demand set point.
4. By touching or clicking on Electrical icon you will be directed to another page for set point adjustments. See page 19 of this document for more information on this.

Home Page – continued

The screenshot shows the Honeywell HEMS II Home Page for McDonald's. The page is divided into several sections:

- General Info:** McDonald's Anywhere, USA. Date: 15-Feb-10 2:31 PM EST. OSA Temp: 36 °F. Operating Instructions button.
- HVAC UNITS:** Three areas: Kitchen Area, Dining Area, and Playplace Area. Each area shows Room Temp, Occupied Setpoints (Auto/On), Heat SIPT, and Cool SIPT. Fan and Schedule buttons are present for each area.
- Electrical:** Peak Demand: 0 Kw. Demand Setpoint: 87 Kw. Energy Demand Limiting: Inactive.
- Demand and Consumption:** KWH Monthly: 0 kW-hr. KWH Yearly: 253 kW-hr.
- Lighting:** Parking Lot, Signage, Employee, Customer, Playplace. Each has a Schedule button (Auto/On) and a Schedule icon. Photocell Parking and Photocell Signage buttons are also present.
- Alarms/Monitor:** Freezer: -21 °F, Door Opened (Red). Cooler: 33 °F, Door Opened (Red). CO2: 15 PPM, Normal (Green). Alarm Silence button (Red arrow points to it).

Honeywell

This area of Home Page shows the following:

1. Current freezer and cooler temperatures. By touching or clicking on any numeric value you will be directed to a trend log of accumulated freezer or cooler temperature data. See page 18 of this document for more information on this. RED bullet light (next to Freezer or Cooler) indicates an alarm condition. No alarm condition and the light will be GREEN. If freezer temperature is 25°F or greater for 5 minutes or more an alarm condition will exist. If cooler temperature is 42°F or greater for 5 minutes or more and alarm condition will exist. When in an alarm condition an internal panel alarm horn will sound continuously. Pressing the Alarm Silence icon causes the internal alarm horn to stop temporarily, yet will start up again if alarm condition exists after another 5 minutes.
2. Current status of freezer and cooler doors. RED bullet light (next to Freezer or Cooler) indicates an alarm condition. No alarm condition and the light will be GREEN. With freezer or cooler doors closed the nomenclature to the right will indicate Door Closed with a gray background color. With freezer or cooler doors open for more than 5 continuous minutes the nomenclature will read Door Opened with a RED background and the internal panel alarm horn will sound continuously. Pressing the Alarm Silence icon causes the internal alarm horn to stop temporarily, yet will start up again if alarm condition exists after another 5 minutes.
3. Current bulk CO2 reading in parts per million (PPM). RED bullet light (next to CO2) indicates an alarm condition. GREEN indicates unit is OK. When in alarm condition for more than five minutes (CO2 reading at 15,000 PPM or greater) an internal panel alarm horn will sound continuously and the NORMAL nomenclature to the right will change to ALARM with a RED background color. Pressing the Alarm Silence icon causes the internal alarm horn to stop temporarily, yet will start up again if alarm condition exists after another 5 minutes. CO2 point information and alarming is an option for the HEMS II panel and may or may not be included with your system based on what was ordered.

Home Page – continued

The screenshot shows a web-based control interface for a McDonald's location. The top navigation bar includes standard browser controls and a menu with options like File, Edit, View, Favorites, Tools, and Help. The main content area is titled 'McDonald's Anywhere, USA' and contains several functional panels:

- General Info:** Displays 'OSA Temp' at 36 °F and a timestamp of '15-Feb-10 2:31 PM EST'. An 'Operating Instructions' button is also present.
- HVAC UNITS:** This section is divided into three areas: Kitchen Area, Dining Area, and Playplace Area. Each area shows 'Rm Temp', 'Occupied Setpoints' (with 'Auto' and 'On' buttons), 'Heat STPt', and 'Cool STPt' (with a 'Schedule' icon).
- Electrical Demand and Consumption:** Features three gauges for 'Peak Demand' (0 Kw), 'KWH Monthly' (0 kW-hr), and 'KWH Yearly' (253 kW-hr). It also shows a 'Demand Setpoint' of 87 Kw and 'Energy Demand Limiting' as 'Inactive'.
- Lighting:** A table lists various zones with their status (Auto/On) and schedule icons. A red arrow points to this section. The zones include Parking Lot, Signage, Employee, Customer, and Playplace, each with 'Auto', 'On', and 'Schedule' controls. Below the table are 'Photocell Parking' and 'Photocell Signage' controls.
- Alarms/Monitor:** Displays status for 'Freezer' (-21 °F, Door Opened), 'Cooler' (33 °F, Door Opened), and 'CO2' (15 PPM, Normal). An 'Alarm Silence' button is located at the bottom.

The Honeywell logo is visible in the bottom right corner of the interface.

This area of Home Page shows the following:

1. Current Lighting controls. RED bullet lights next to a lighting zone name indicates the lighting zone is commanded OFF by the associated time of day schedule or photocell. GREEN indicates the lighting zone is commanded ON by the associated time of day schedule or photocell. The photocells and their set points are only associated with Parking Lot and Signage lighting zones.
2. By touching or clicking on **Lighting** icon you will be directed to another page for photocell set point adjustments. See page 19 of this document for more information on this.
3. Each individual lighting zone has a separate AUTO or ON icon. By touching or clicking on the AUTO icon, that icon will turn GREEN and the associated lighting zone will start and stop based on a time of day schedule. By touching or clicking on the ON icon that lighting zone will be on continuously.
4. Photocell for Parking and Signage indicate ON when outdoor light level is below the set point for each lighting zone and OFF when outdoor light level is higher than the set point for each lighting zone. See page 19 of this document for more information on this.
5. There is a separate time of day schedule associated with each lighting zone. Touching or clicking on the associated schedule icon and you will be automatically routed to another page for schedule adjustments. See pages 14-17 of this document for more information on this.
6. Schedule icons that show three people (in color) indicate that the schedule is currently in the Occupied Mode of operations. Schedule icons that show three people (in ghost white) indicate that the schedule is currently in the Unoccupied Mode of operation.

Home Page – continued

The screenshot displays the Honeywell HEMS II Home Page for McDonald's Anywhere, USA. The page is divided into several sections:

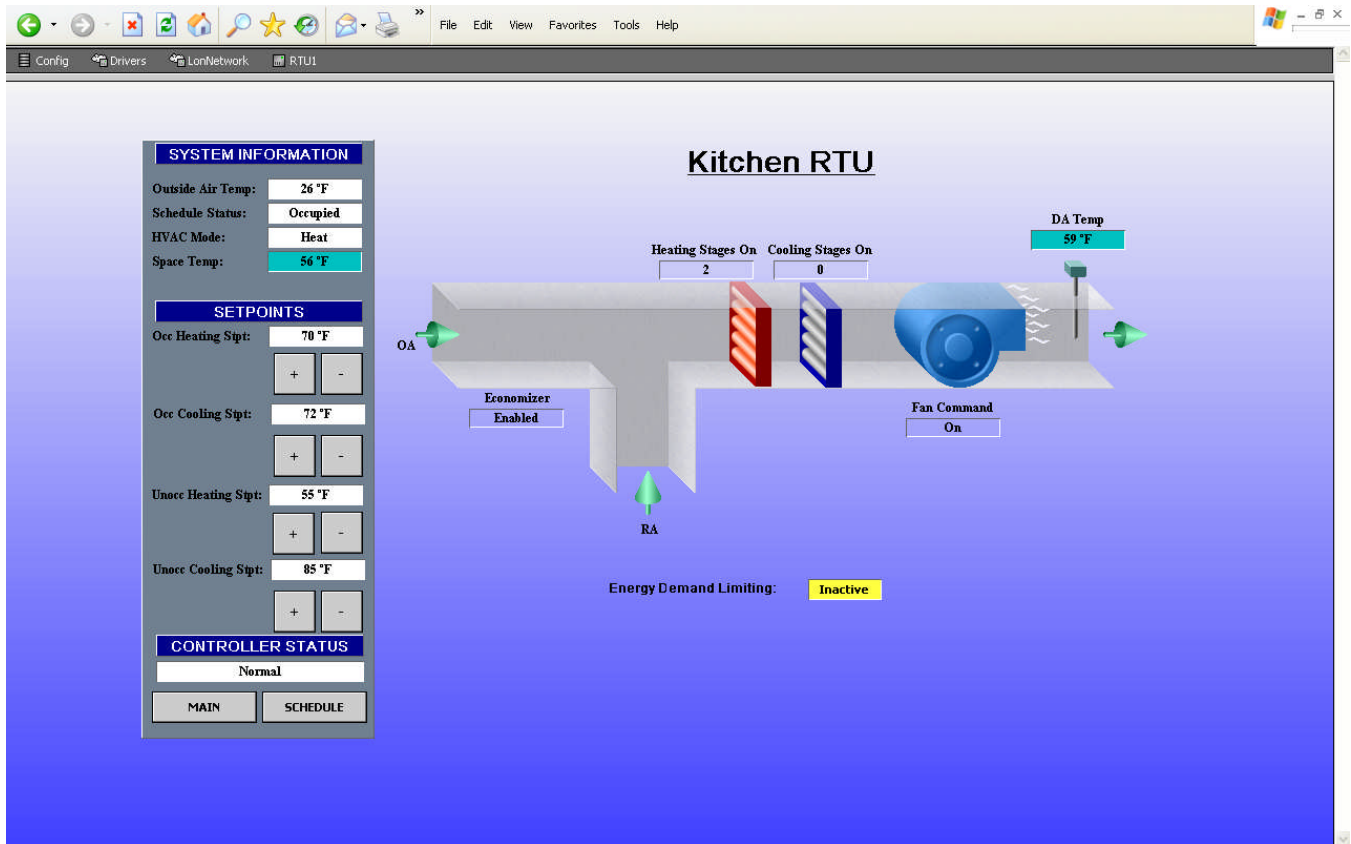
- General Info:** Shows OSA Temp at 36 °F and a date/time of 15-Feb-10 2:31 PM EST. There is an "Operating Instructions" button.
- HVAC UNITS:** This section is divided into three areas: Kitchen Area, Dining Area, and Playplace Area. Each area displays:
 - Rm Temp (e.g., 67 °F for Kitchen Area)
 - Occupied Setpoints (with "Auto" and "On" buttons)
 - Heat StPt (e.g., 70 °F)
 - Cool StPt (e.g., 72 °F)
 - Schedule icon (with three people icons)
 - Fan status (with "On" and "Off" buttons)Red arrows point to the "Auto" buttons for each area.
- Electrical Demand and Consumption:** Shows three gauges:
 - Peak Demand: 0 Kw
 - KWH Monthly: 0 kW-hr
 - KWH Yearly: 253 kW-hrBelow the gauges, it shows "Demand Setpoint: 87 Kw" and "Energy Demand Limiting: Inactive".
- Lighting:** Shows control icons for Parking Lot, Signage, Employee, Customer, and Playplace. Each has "Auto", "On", and "Schedule" buttons. Below are "Photocell Parking" and "Photocell Signage" buttons.
- Alarms/Monitor:** Shows status for Freezer (-21 °F, Door Opened), Cooler (33 °F, Door Opened), and CO2 (15 PPM, Normal). There is an "Alarm Silence" button.

The Honeywell logo is visible at the bottom right of the page.

This area of Home Page shows the following:

1. Current HVAC Units. RED bullet lights next to FAN indicate the HVAC Unit is commanded OFF by the associated time of day schedule. GREEN indicates the HVAC Unit is commanded ON by the associated time of day schedule.
2. By touching or clicking on Kitchen Area, Dining Area or Playplace Area icons you will be directed to another page for additional information and set point adjustments. See page 13 of this document for more information on this.
3. Each individual HVAC Unit has a separate AUTO or ON icon. By touching or clicking on the AUTO icon, that icon will turn GREEN and the associated HVAC Unit will start and stop based on a time of day schedule. By touching or clicking on the ON icon that HVAC Unit will be on continuously.
4. There is a separate time of day schedule associated with each HVAC Unit. Touch or Click on the associated schedule icon and you will be automatically routed to another page for schedule adjustments. See page 14-17 of this document for more information on this.
5. Schedule icons that show three people (in color) indicate that the schedule is currently in the Occupied Mode of operations. Schedule icons that show three people (in ghost white) indicate that the schedule is currently in the Unoccupied Mode of operation.
6. Each HVAC Unit shows the current Room Temperature and current Heating and Cooling set points. These set points are adjustable. Refer to page 13 of this document to make adjustments.

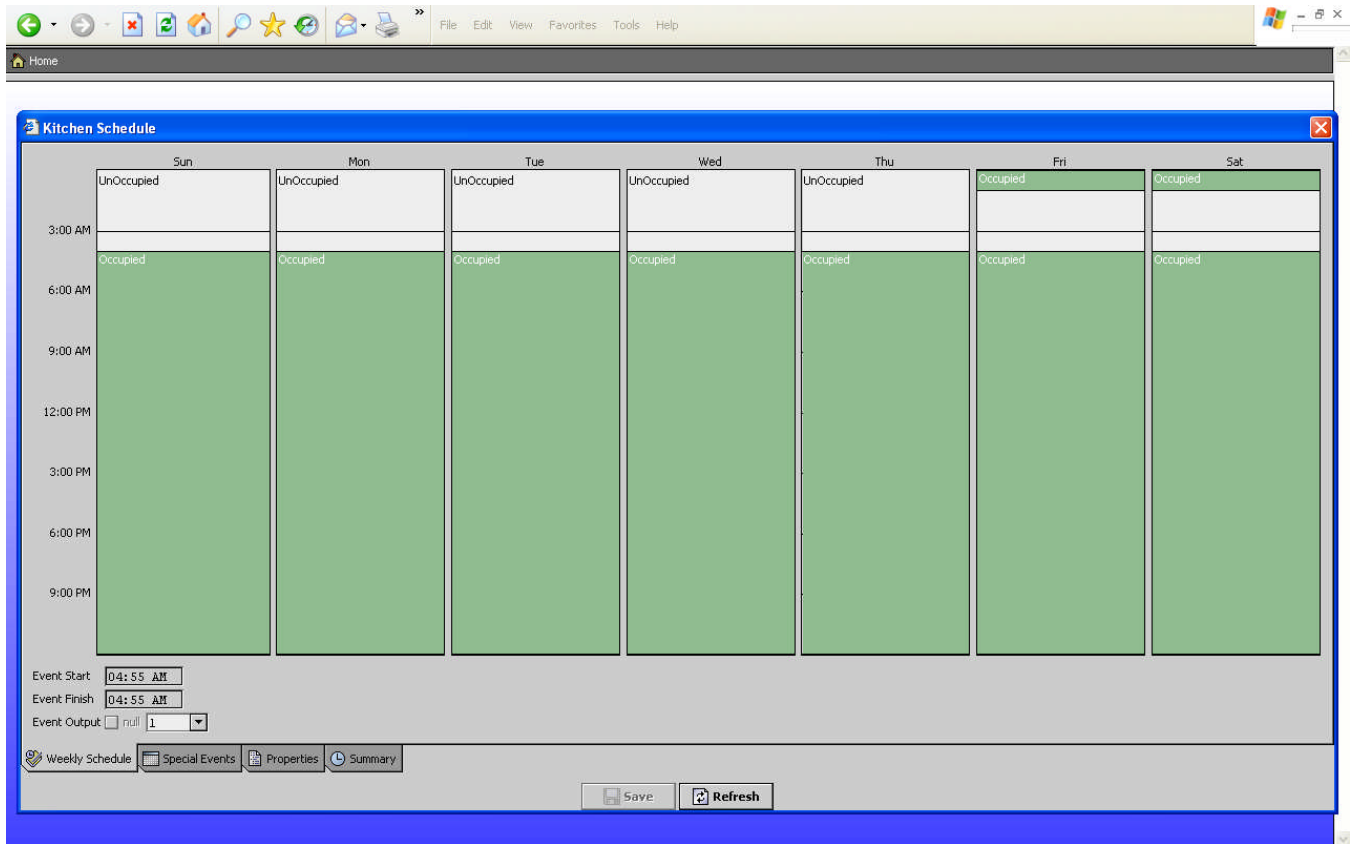
HVAC Units



This area of HVAC Unit page shows the following:

1. Each HVAC Unit has a page similar to above associated with it. The current view is that of the Kitchen HVAC Unit (Kitchen RTU – Roof Top Unit).
2. On the left side is the system information section that indicates current Outdoor Air Temperature, Schedule Status (Occupied or Unoccupied), Current HVAC Mode of Heat or Cool (this mode changes automatically based on space temperature verses space temperature set point), Current Space Temperature, Occupied Heating Set Point and associated raise and lower buttons, Occupied Cooling Set Point and associated raise and lower buttons, Unoccupied Heating Set Point and associated raise and lower buttons, Unoccupied Cooling Set Point and associated raise and lower buttons, Status of HVAC Unit controller and icons to return to Main (Home Page) or the associated Schedule for the selected HVAC Unit.
3. This graphic also shows the commanded status of the Economizer (Enabled or Disabled), Unit Fan (On or Off) and number of Heating (1-4) or Cooling Stages (1-4) commanded ON. Additionally the current Discharge Air (supply air to area served by the HVAC Unit) Temperature and state of Electrical Demand Limiting (Inactive or Active) are shown.
4. By touching or clicking on the CYAN colored background area of the Space Temperature or Discharge Air temperature you will be directed to a trend log of values for these points.
5. **Energy Demand Limiting:** When Active the box will say Active and the background will be RED. When Inactive the box will say Inactive and the background will be YELLOW. When Active the temperature set points for the HVAC Unit will be automatically raised 3°F (when in Cooling Mode) or lowered 3°F (when in Heating Mode). HVAC Units automatically switch between Cooling/Heating Modes to maintain room temperatures. Active condition exists when current electrical demand is within 2.5% of electrical demand set point.
6. The Occupied Cooling set point must ALWAYS be set 2-3°F higher than the Occupied Heating set point, otherwise a set point conflict will occur and the Controller Status indication will show ALARM state.

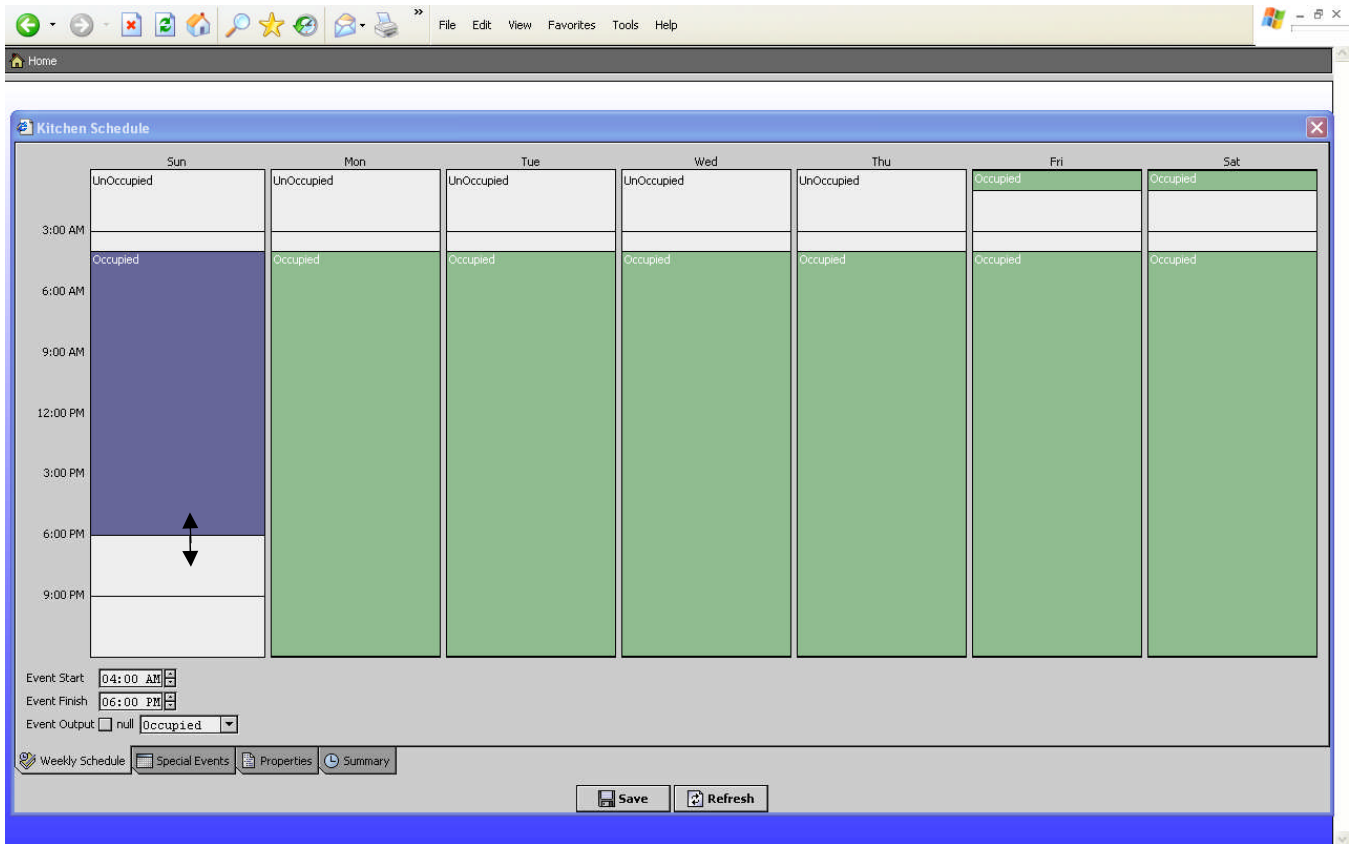
Time of Day Schedules & Holidays for HVAC Units and Lighting Zones



By touching or clicking on any HVAC Unit or Lighting Zone Schedule icon from the Home Page you will see the following:

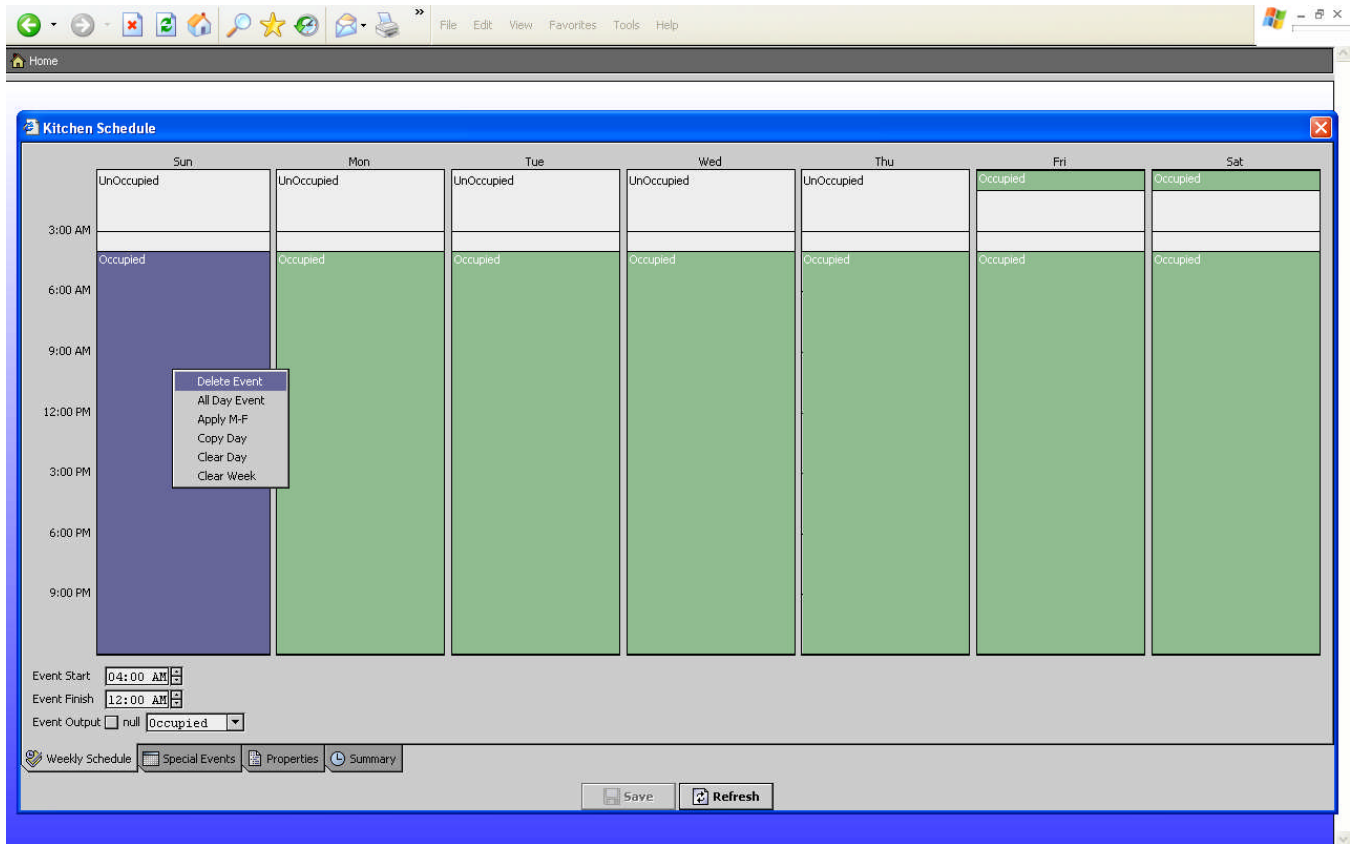
1. Each HVAC Unit and Lighting Zone has a separate and distinctive time of day schedule associated with it.
2. In this case you are looking at the Kitchen HVAC Unit schedule. The green areas indicate the Occupied Schedule and the gray areas indicate an Unoccupied Schedule. In this case the Kitchen unit is set to the Occupied Mode of operation from 4am to 12am Monday through Friday and on Saturdays and Sundays the Occupied Mode of operations is from 4am to 1am the next day. Otherwise the unit is in the Unoccupied Mode of operation. In Occupied Mode of operation the HVAC fan runs continuously to maintain room or area Occupied temperature set points. In the Unoccupied Mode the fan, heating and cooling stages all cycle to maintain Unoccupied temperature set points. See additional sections of this document for more information on this.
3. Adjustments are easily made. See next page.
4. For stores where the dining room is closed and yet the drive through is open 24 hours you will want to touch or click on the ON icon from the Home Page Schedule icon associated with the Dining Room HVAC Unit. This will keep the HVAC Unit fan operating continuously for make up air to your hood exhaust system.

Time of Day Schedules & Holidays for HVAC Units and Lighting Zones - continued



1. By touching or left clicking your mouse on any green area of the schedule that section will then turn blue and you can edit it.
2. Notice that Monday was touched or clicked on and the background color changed to blue for editing.
3. You can drag your finger or mouse (double arrow) to a new Occupied start and/or stop time. In the case above the start was retained at 4am and the stop time has now been set to 6pm. The same adjustments for any day can also be made by using the up and down arrow keys in the lower left hand corner of screen.

Time of Day Schedules & Holidays for HVAC Units and Lighting Zones- continued



1. By touching and holding your finger on any green area of the schedule or right clicking your mouse that section will then turn blue and you are presented with a drop down selection where you can: Delete the Event, Make an All Day Event, Apply the Schedule to M-F, Copy the Day to the next Day, Clear the Day or Clear the Week. This is very intuitive and easy to understand after just a few minutes.

Time of Day Schedules & Holidays for HVAC Units and Lighting Zones- continued

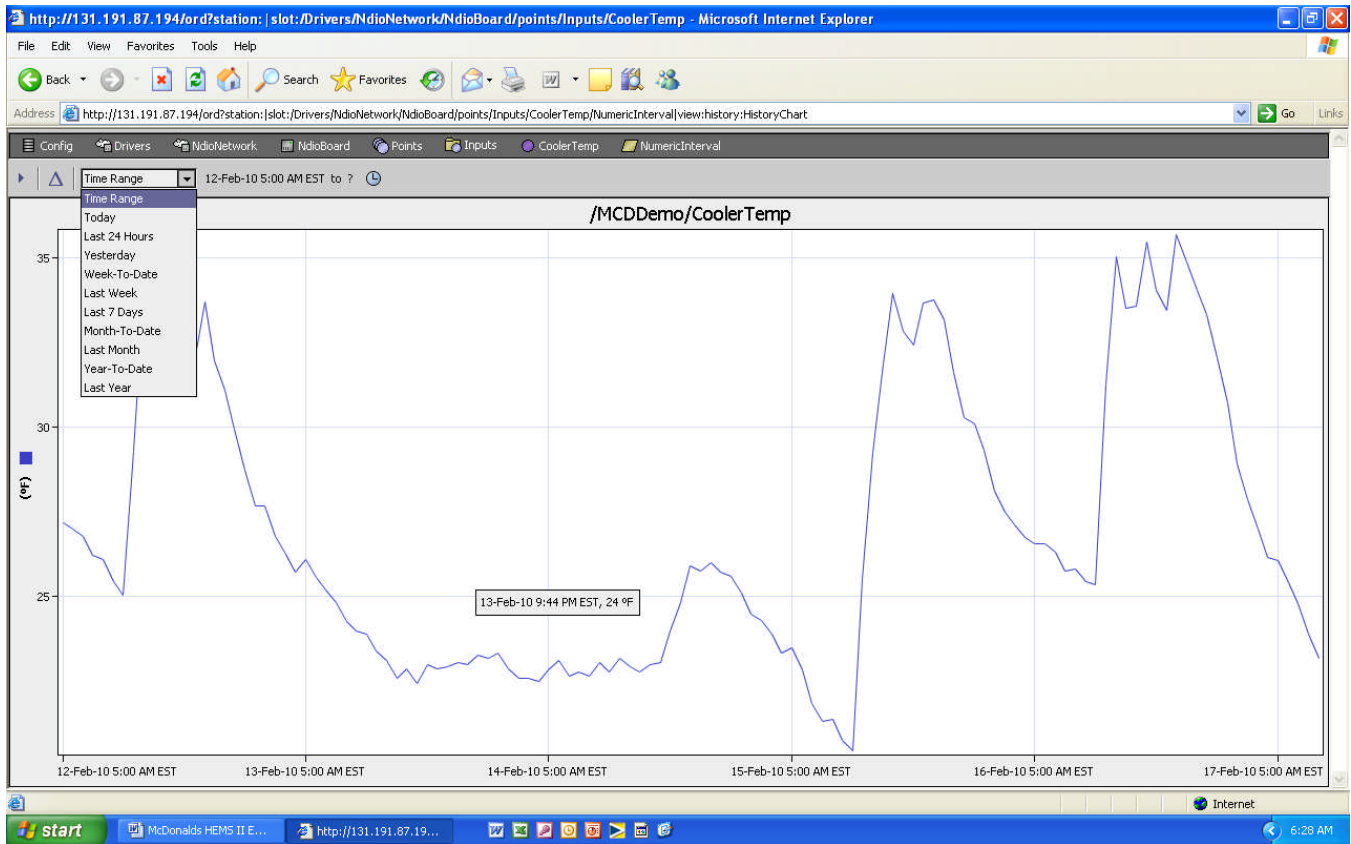
The screenshot displays a web application titled "Kitchen Schedule". At the top, there is a navigation bar with "Prev Page", "Prev Month", "Today", "Next Month", and "Next Page" buttons. Below this is a grid of monthly calendars for Oct 2010, Nov 2010, Dec 2010, Jan 2011, Feb 2011, and Mar 2011. The date 25th of Dec 2010 is highlighted in green. Below the calendar grid is a table with the following structure:

Name	Summary
Event	Date: Sat 25 Dec 2010

To the right of the table is a vertical time slot grid with labels: 3:00 AM, 6:00 AM, 9:00 AM, 12:00 PM, 3:00 PM, 6:00 PM, 9:00 PM. The grid is shaded blue and labeled "UnOccupied". Below the table and grid are buttons: Add, Edit, Priority, Rename, Delete. At the bottom left are tabs: Weekly Schedule, Special Events, Properties, Summary. At the bottom center are buttons: Save, Refresh.

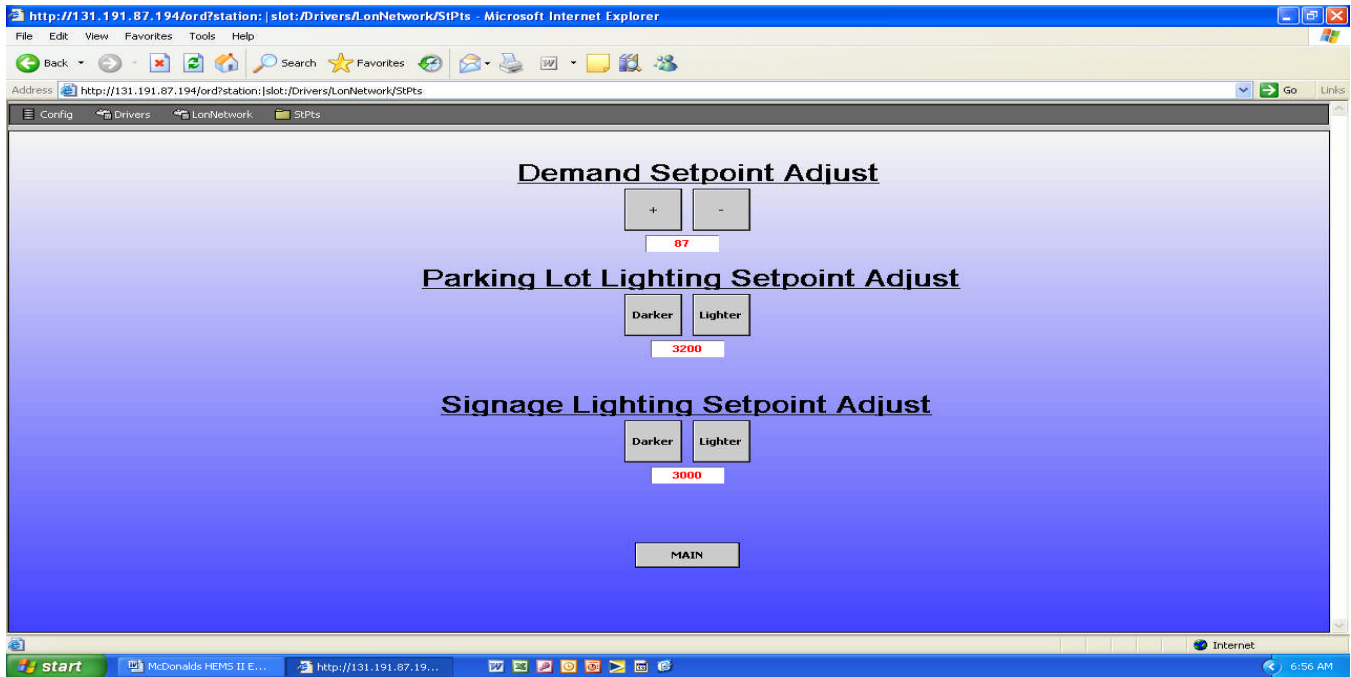
1. By touching or clicking on the Special Events tab at the bottom left of the screen to can add and edit special events. The example above shows that on Sat December 25th of 2010 (Christmas) the schedule has been set to Unoccupied for the complete day.
2. It is very easy and intuitive to add special events or holidays for any unit or lighting zone that has a schedule associated with it. Additionally, just like indicated on previous pages use your finger or mouse to adjust the time of day for these events, either in the box in the lower right hand corner or through the up/down arrow keys in the lower right hand corner.

Data Logging and Trended Points



1. The following points are all selectable from the Home and/or HVAC Unit graphic pages by touching or clicking on the numeric value (CYAN background color) shown for each: OSA Temperature (Outside Air Temperature), Peak Electrical Demand, KWH Monthly (monthly electrical consumption), KWH Yearly (yearly electrical consumption), Freezer (temperature), Cooler (temperature), Space Temp (space temperature for each area of building) and DA Temp (discharge or supply air temperature from each HVAC Unit).
2. The information above shows the Cooler temperature as an example. Note that in the upper left hand corner a time range can be selected from a drop down menu. You can elect to review the trend information by specifying a certain time range or values for Today, Last 24 Hours, Yesterday, Week-to-Date, Last Week, Last 7 days, Month-to-Date, Last Month, Year-To-Date (data may not be available for this time period) and Last Year (data may not be available for this time period). See item 5 below.
3. You can also place your finger or mouse at any point on the graphic line to see what an exact value was and the exact date and time that value was recorded.
4. Note that each point is trended or logged every 60 minutes, 24 hours per day, 365 days per year. The exception is Peak Demand which is recorded every 15 minutes, 24 hours per day, 365 days per year and KWH Monthly and KWH Yearly which are continuously recorded.
5. Also note that the WEBS controller has a limited amount of internal memory for holding and retaining logged or trended values. When this internal memory is full, older data values are overwritten by new recorded values. With this in mind you may not able to read data values from a long time ago. Typically the WEBS unit will retain the last 7-30 days of trended or logged data for each point. Honeywell offers a service that automatically retrieves and retains long term trended or logged data for you, as long as, a continuous internet connection to the WEBS unit is available. Consult with your Honeywell salesperson on the costs associated with additional service.

Electrical Demand Limiting and Lighting Photocell Adjustments



1. You reach this page by touching or clicking on the **Lighting** or **Electrical** icons on the Home page.
2. Demand set point is easily adjusted by touching or clicking on the plus or minus keys above. For retrofit sites a review of your past 12 months of utility bills will allow for a determination of what this value should be. Consult with your Honeywell sales person or local electrical utilities representative to help you make this initial setting. For new construction projects it may take 6 months to a year before this value can be accurately set based on a review of your utility bills. Once set there should be no need for further adjustment, unless there is a change in the way the utility company bills or charges you. When actual electrical demand is within 2.5% of the setting above the temperature set points for the HVAC unit will be automatically raised 3° (when in cooling mode) or lowered 3° (when in heating mode). HVAC units automatically switch between Cooling/Heating modes to maintain room temperatures.
3. Parking Lot Lighting and Signage Lighting controls operate the same, but each has a separate adjustable “turn on” set point based on outdoor light levels as sensed by one common outdoor photocell. Typically the values above are set at 3450; this has proven to be a good setting for lighting to turn on based on outdoor light levels. You may want your signage to turn on earlier than parking lot lights that is why there is a separate darker/lighter adjustment for each. Touching or clicking on darker or lighter will adjust the start point for each. Parking and Signage each have a separate (adjustable) time of day schedule associated with them. See icons on Home page and refer to Time of Day Schedules & Holidays section of this document for adjustments to these schedules. The Parking or Signage lights will start based on outdoor light level and adjustments above. In a non 24 hour store the associated schedule is used to enable or shut lights off when the store is closed and employees are all gone, no matter what the light level is outside. An **Example** may be as follows: Your employees show up for work at 4am – parking lot lights turn on by time of day schedule. At 5am your drive through opens – signage lights turn on by time of day schedule. When outdoor light level is high enough say at 6am the parking lot lights shut off by the photocell set point. As outdoor light level increases maybe the signage should shut off by the photocell set point (but it does not have to). As light level decreases late in the day or evening the parking and signage lights come back on by photocell. Store closes at Midnight and signage shuts off on schedule. Employees leave at 1am after clean up, parking lot lights and employee lights shut off by schedule.

Embedded Touch Screen Operating Instructions

McDonald's Anywhere, USA
General Info 02-Feb-10 4:48 PM EST
 OSA Temp 36 °F Operating Instructions

HVAC UNITS

Kitchen Area
 Rm Temp 66 °F Fan
 Occupied Setpoints Auto On
 Heat STPt 70 °F Schedule
 Cool STPt 73 °F

Dining Area
 Rm Temp 58 °F Fan
 Occupied Setpoints Auto On
 Heat STPt 70 °F Schedule
 Cool STPt 73 °F

Playplace Area
 Rm Temp 56 °F Fan
 Occupied Setpoints Auto On
 Heat STPt 70 °F Schedule
 Cool STPt 73 °F

Electrical Demand
 Peak Demand 0 Kw
 Demand Setpoint 83 Kw
 Energy Demand Limiting: Inactive

Lighting

	Auto	On	Schedule
Parking Lot	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Signage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Employee	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Customer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Playplace	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Photocell Parking		<input type="checkbox"/>	
Photocell Signage		<input type="checkbox"/>	

Panel Operation Guide

Table of Contents

- Page One: General Info and HVAC
- Page Two: Electrical Demand and Consumption
- Page Three: Lighting
- Page Four: Electrical and Lighting Setpoint Adjust
- Page Five: Alarms
- Page Six: Schedule Pop-Up
- Page Seven: RTU System Information

Field Installation Diagrams

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SOUND ENERGY SYSTEMS For Service Contact
 Sound Energy Systems
 253-475-3525

Embedded Touch Screen Operating Instructions

The screenshot shows a web-based interface for a McDonald's HVAC system. The interface is divided into several sections:

- General Info:** Displays the date and time (02-Feb-10 4:48 PM EST) and the Outside Air Temperature (OSA Temp) as 36 °F. There is a link for "Operating Instructions".
- Electrical Demand:** Features two gauges: "Peak Demand" (0 Kw) and "KWH Monthly" (0 kwh-hr). Below them is a "Demand Setpoint" of 83 Kw and an "Energy Demand Limiting" status of "Inactive".
- HVAC UNITS:** This section is organized by area:
 - Kitchen Area:** Room Temp 66 °F, Occupied Setpoints (Auto/On), Heat STPT 70 °F, Cool STPT 73 °F. A "Fan" icon is green.
 - Dining Area:** Room Temp 68 °F, Occupied Setpoints (Auto/On), Heat STPT 70 °F, Cool STPT 73 °F. A "Fan" icon is green.
 - Playplace Area:** Room Temp 66 °F, Occupied Setpoints (Auto/On), Heat STPT 70 °F, Cool STPT 73 °F. A "Fan" icon is green.
- Lighting:** A table with columns for "Auto" and "On" status, and a "Schedule" icon (represented by a group of people).

Area	Auto	On	Schedule
Parking Lot	Green	Red	Icon
Signage	Green	Red	Icon
Employee	Green	Red	Icon
Customer	Green	Red	Icon
Playplace	Green	Red	Icon
- Photocell:** Includes "Photocell Parking" (On) and "Photocell Signage" (On).

At the bottom left, there is a logo for "SOUND ENERGY SYSTEMS" and contact information: "For Service Contact Sound Energy Systems 253-475-3525".

Overlaid on the right side of the screen is a white box containing the following instructions:

- Outside air temperature display.
- Display of each areas current room temperature, temperature setpoint.
- Occupied Heating Setpoint.
- Occupied Cooling Setpoint.
- Fan running when icon is green, when icon is red the fan is off.
- Schedule icon when associated Air Handler is Occupied.
- "Auto": Air Handler follows schedule. "On": Air Handler runs indefinitely regardless of schedule.

At the bottom of the instruction box, there are links for "Table of Contents" and "Next Page".

Embedded Touch Screen Operating Instructions

The screenshot shows a Honeywell HEMS II touch screen interface. The main display is titled "Electrical Demand and Consumption" and features three gauges: "Peak Demand" (0 Kw), "KWH Monthly" (0 kW-hr), and "KWH Yearly" (253 kW-hr). Below these is a "Demand Setpoint" of 88 Kw and an "Energy Demand Limiting" status of "Inactive". The interface is divided into three sections: "Lighting", "Alarms/Monitor", and "Honeywell".

Lighting Section:

Area	Mode	Schedule	On/Off	Icon
Parking Lot	Auto	On	On	Lighting icon
Signage	Auto	On	On	Lighting icon
Employee	Auto	On	On	Lighting icon
Customer	Auto	On	On	Lighting icon
Playplace	Auto	On	On	Lighting icon
Photocell Parking			On	Lighting icon
Photocell Signage			On	Lighting icon

Alarms/Monitor Section:

Device	Status	Temperature/Level	Alert
Freezer	Red	-21 °F	Door Opened
Cooler	Red	33 °F	Door Opened
CO2	Green	15 PPM	Normal

Instructions Panel (Left):

- To access Electrical Setpoint Adjust, click here.
- Peak Demand:** Peak Electrical consumption within a 15 minute window.
- Text fields with cyan backgrounds are linked to the associated history, click to display.
- KWH Monthly:** Total accumulation for the current month.
- KWH Yearly:** Total accumulation for the current year.
- Status of Energy Demand Limiting program. When program is active Heating and Cooling Setpoints are in override to maximize energy savings.

Navigation:

- Table of Contents
- Next Page
- Previous Page

System Information:

- Done
- Unknown Zone

Embedded Touch Screen Operating Instructions

Schedule icon when associated Lighting Zone is Unoccupied.

To access Outside Light Level Adjust, click here.

Schedule icon when associated Lighting Zone is Occupied.

Lights are on when icon is green, when icon is red the lights are off.

“Auto”: Lighting Zone follows schedule. “On”: Lighting Zone is on indefinitely regardless of schedule.

Photocell is on when ambient light level darkens.

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Zone	Mode	Status	Icon
Parking Lot	Auto	On	Lightbulb
Signage	Auto	On	Lightbulb
Employee	Auto	On	Lightbulb
Customer	Auto	On	Lightbulb
Playplace	Auto	On	Lightbulb
Photocell Parking	On	On	Lightbulb
Photocell Signage	On	On	Lightbulb

Electrical Demand and Consumption

Peak Demand: 0 Kw
Demand Setpoint: 83 Kw
Energy Demand Limiting: Inactive

KWH Monthly: 0 kw-hr
KWH Yearly: 253 kw-hr

Lighting

Alarms/Monitor

Freezer: -21 °F Door Opened
Cooler: 33 °F Door Opened
CO2: 15 PPM Normal

Alarm Silence

Honeywell

Embedded Touch Screen Operating Instructions

Use plus or minus buttons to adjust setpoint.

Demand Setpoint Adjust

+ -

83

Parking Lot Lighting Setpoint Adjust

Darker Lighter

3280

Use darker or lighter buttons to adjust setpoint.

Signage Lighting Setpoint Adjust

Darker Lighter

3070

MAIN

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Done Unknown Zone

Embedded Touch Screen Operating Instructions

The screenshot displays a Honeywell HEMS II touch screen interface. The main content area is divided into several sections:

- Electrical Demand and Consumption:** Features three gauges for Peak Demand (0 Kw), KWH Monthly (0 kw-hr), and KWH Yearly (253 kw-hr). Below these is a Demand Setpoint of 83 Kw and an Energy Demand Limiting status of Inactive.
- Lighting:** A table with columns for device name, mode, and schedule. The devices listed are Parking Lot, Signage, Employee, Customer, and Playplace, all set to Auto mode and On schedule.
- Alarms/Monitor:** Shows the status of various sensors: Freezer (-21 °F, Door Opened), Cooler (33 °F, Door Opened), and CO2 (15 PPM, Normal). An Alarm Silence button is also present.

Annotations on the left side of the screen provide instructions:

- A text box states: "Status of monitored point in alarm, icon is green in normal condition." with an arrow pointing to a green status icon.
- Another text box states: "Alarm Silence disables audible alarm horn for one hour." with an arrow pointing to the Alarm Silence button.

Navigation links at the bottom of the screen include: [Table of Contents](#), [Next Page](#), and [Previous Page](#).

The Honeywell logo is visible in the bottom right corner of the interface.

Embedded Touch Screen Operating Instructions

The screenshot shows a web-based HVAC schedule editor. The interface includes a browser window with a menu bar (File, Edit, Go To, Favorites, Help) and a toolbar. The main window is titled "HVAC Schedule" and has tabs for "Weekly Schedule", "Special Events", "Properties", and "Summary". The "Weekly Schedule" tab is active, displaying a grid with days of the week (Sun to Sat) as columns and time slots (3:00 AM, 6:00 AM, 9:00 AM, 12:00 PM, 3:00 PM, 6:00 PM, 9:00 PM) as rows. The grid shows "UnOccupied" for Sunday and Saturday, and "Occupied" (green blocks) for Monday through Friday from 6:00 AM to 6:00 PM. Below the grid, there are input fields for "Event Start" (10:42 AM), "Event Finish" (10:42 AM), and "Event Output" (1). There are "Save" and "Refresh" buttons at the bottom of the editor. On the right side, a white box contains instructional text with arrows pointing to the interface elements.

HVAC schedule editor, use tabs at top left to change views.

Green blocks mark the Occupied settings.

Click and drag to expand the green area to change occupied times.

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Embedded Touch Screen Operating Instructions

SYSTEM INFORMATION

Outside Air Temp: 39 °F
Schedule Status: Occupied
HVAC Mode: Cool
Space Temp: 71 °F

SETPOINTS

Occ Heating Sppt: 70 °F
Occ Cooling Sppt: 73 °F
Unocc Heating Sppt: 55 °F
Unocc Cooling Sppt: 85 °F

CONTROLLER STATUS

Normal

MAIN SCHEDULE

DINING RTL

Heating Stages On: 0 Cooling Stages On: 0

Economizer Enabled

RA

ENERGY DEMAND LIMITING: Inactive

Text fields with cyan backgrounds are linked to the associated history, click to display.

Use plus or minus buttons to adjust setpoint.

Controller status, will show the alarm condition of the associated HVAC controller.

Use the "Main" and "Schedule" buttons to navigate between views.

Note: Occupied Heating Setpoint must be at least three degrees below Occupied Cooling Setpoint.

Note: Unoccupied Heating Setpoint must remain below Occupied Heating Setpoint.

Note: Unoccupied Cooling Setpoint must remain above Occupied Cooling Setpoint.

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Title

McDonald's Restaurant
for
Honeywell
Energy Management System II
Control Panel
Field Installation Diagrams

Engineered By:

Graham Wilson

Checked By:

Graham Wilson

Drawn By:

Graham Wilson

Revisions

NO.	DATE	DESCRIPTION

Date

10/7/2008

File Name

sh1

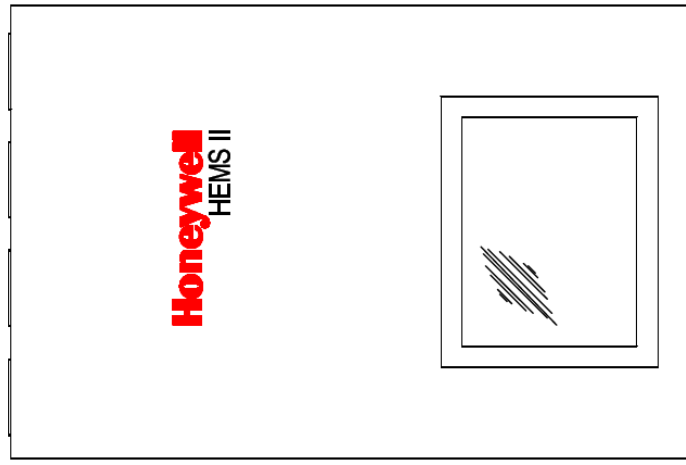
Job No.

958-

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McDonald's Restaurant for Honeywell Energy Management System II Control Panel Field Installation Diagrams



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SHT#	File	Drawing Title
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2	Endcourse Detail	
3	Sequence of Operation	
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5	Microprocessor Terminal Strip Wiring Diagram	
6	Back Top L08 Terminal Strip Wiring Diagram	
7	Lighting Control Options	
8	Backtop L08 System Diagrams	
9	Optional CO2 System, Power Monitoring, & Drive Thru Heater Details	
10	System Architecture	

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Title
McDonald's Restaurant
for
Honeywell
Energy Management System II
Control Panel
Field Installation Diagrams

Engineered By:
Graham Wilson

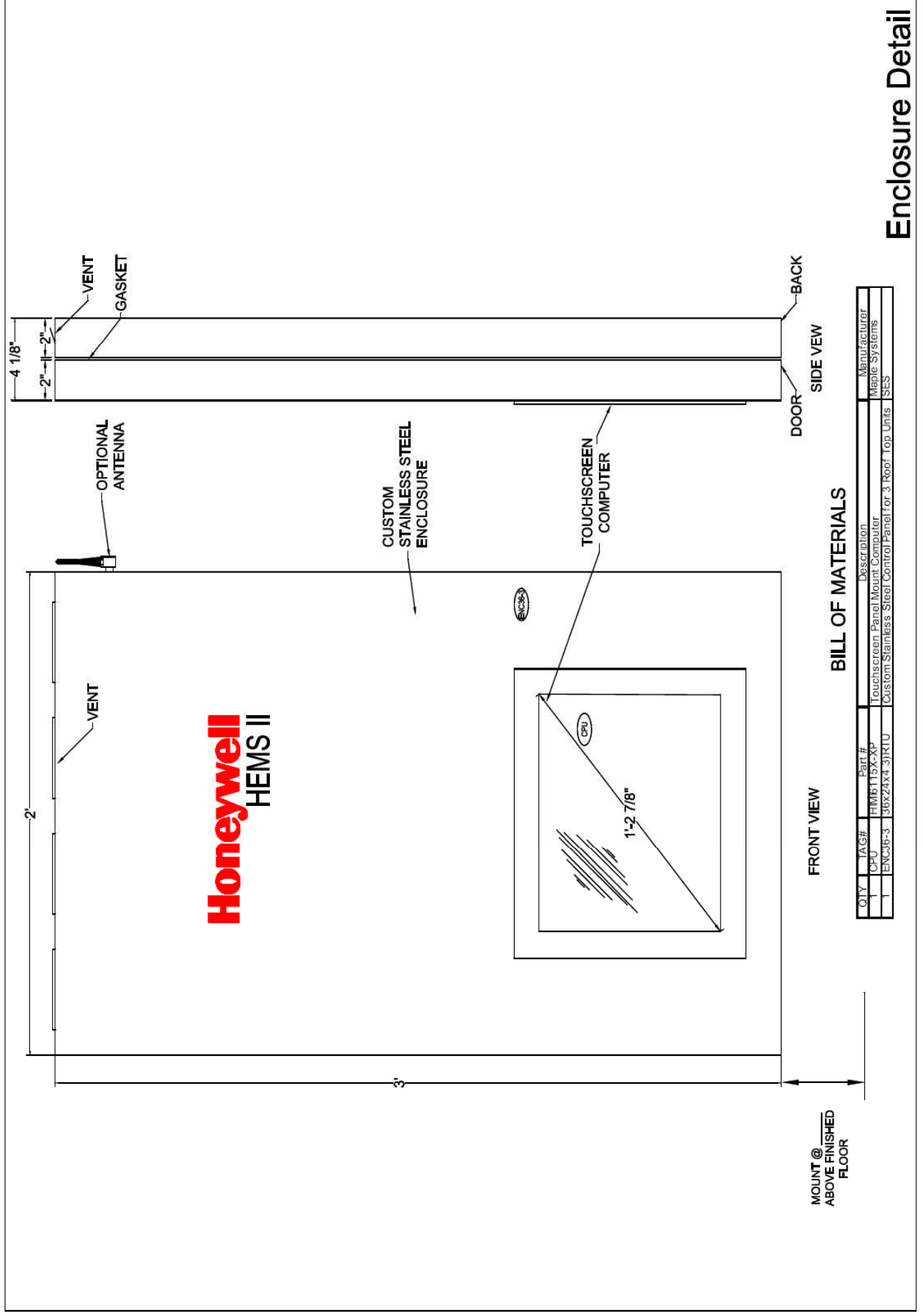
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REVISIONS

NO.	DATE	DESCRIPTION

Date 10/7/2009
File Name eh2
Job No. 958-
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BILL OF MATERIALS

QTY	JAG#	Part #	Description	Manufacturer
1		HMM6115X-XP	Touchscreen Panel Mount Computer	Maple Systems
1	ENC36-3	36x24x4-31RTU	Custom Stainless Steel Control Panel for 3 Roof Top Units	SES

Enclosure Detail

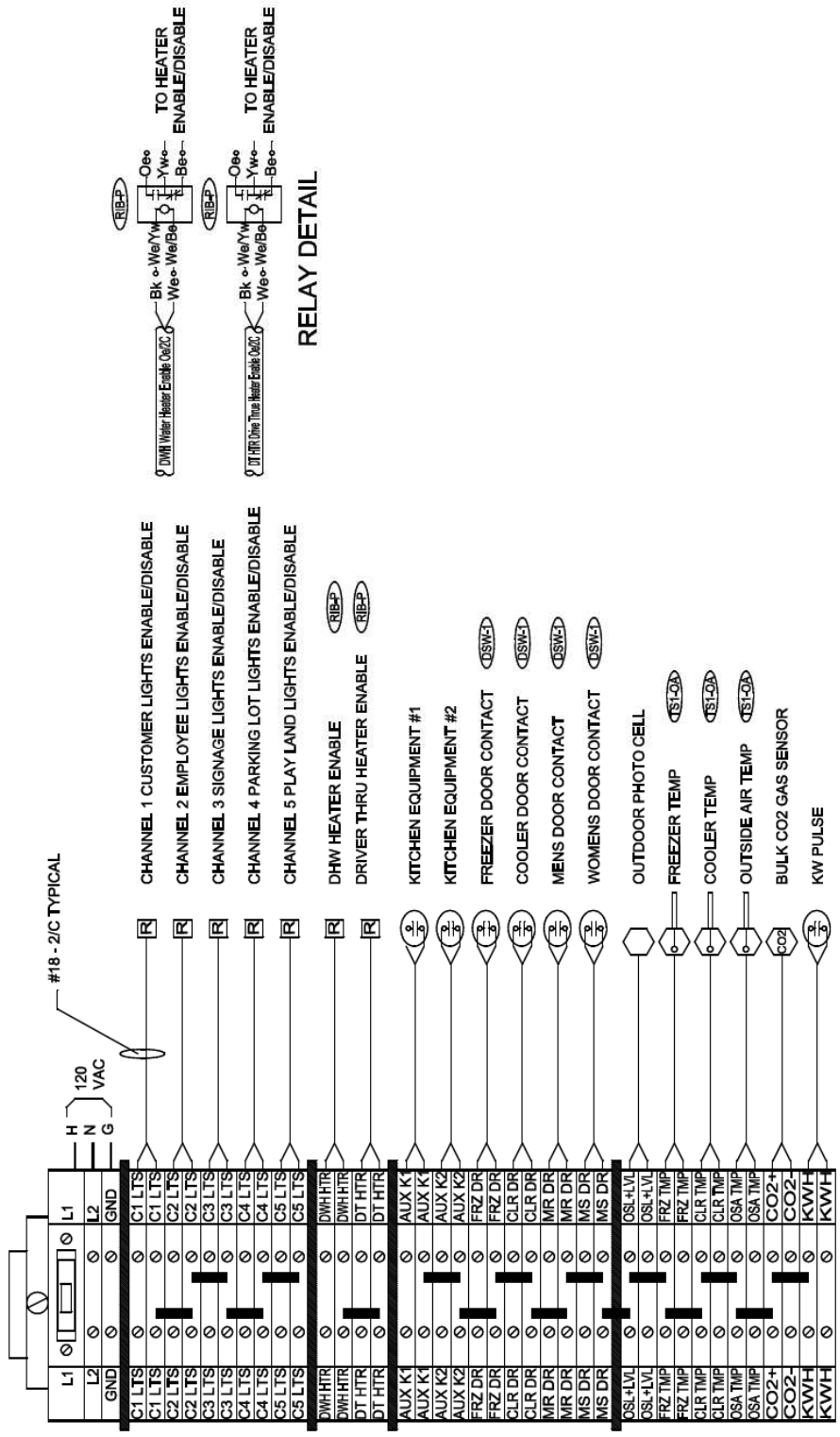
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for Honeywell Energy Management System III Control Panel Field Installation Diagrams
Engineered By: Graham Wilson
Checked By: Graham Wilson
Drawn By: Graham Wilson

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Date 10/17/2009
File Name sh15
Job No. 958-
Page No. 5 of 10



TERMINAL STRIP CONTINUOUS ON NEXT PAGE

BILL OF MATERIALS

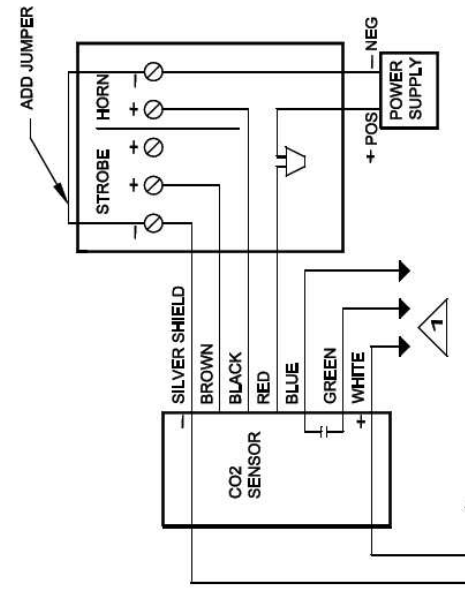
QTY	TAG#	Part #	Description	Manufacturer
2	RIB-P	RIB240TB	Relay In a Box 120vac/1 HP @ 120vac/24 vac/dc coil	Functional Devices
4	OSW-1	2505A	Door Switch w/Stainless Steel Armored Cable	GE
1	PCR-1	PSR-1	Photo Cell Resistor (1.5K-1M/9-100F-C)	Kele
3	TST-0A	TE-205-F-7	Outside Air Sensor (10k ohm Thermistor) w/air Shield	Mamac

Miscellaneous Terminal Strip Wiring Diagram

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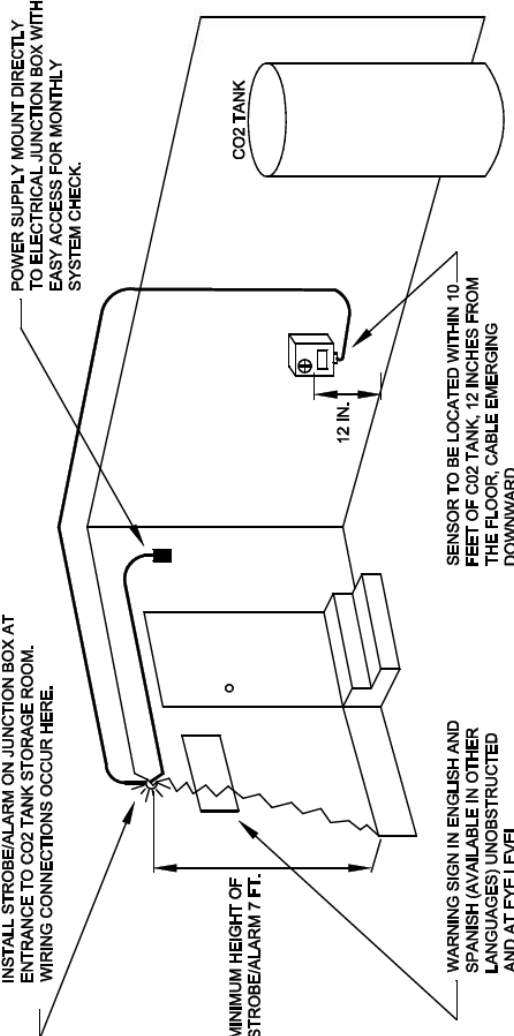
Title
McDonald's Restaurant
for
Honeywell
Energy Management System II
Control Panel
Field Installation Diagrams
Engineered By:
Graham Wilson
Checked By:
Graham Wilson
Drawn By:
Graham Wilson
Revisions

NO. DATE DESCRIPTION
Date 10/17/2009
File Name sh9
Job No. 958-
Page No. 9 of 10



1 THIRD RELAY IS CONNECTED TO SECONDARY DEVICE SUCH AS FIRE PANEL AT THE DISCRETION OF THE INSTALLER
WIRING FOR SYSTEM WITH 1 STROBE, 1 SENSOR AND 1 POWER SUPPLY.

SEE SHEET 9 FOR DDC CONNECTION



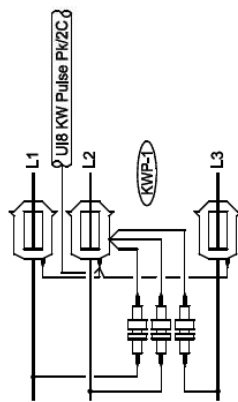
LOCATION OF CO2 SYSTEM COMPONENTS.

WIRE COLOR CODE FOR CO2 SENSOR

Wire Color	Function	rating
Red	12 Vdc +/-10%	
Shield (Bare Silver)	GROUND	
White	0-5 Vdc for 0-30,000 ppm CO2 to Honeywell Energy Management System	
Brown	12 Vdc output at 15,000 ppm CO2	1A at 24 Vdc
Black	12 Vdc output at 30,000 ppm CO2	2A at 30 Vdc
Green Blue	Dry contact (potential free) (between Green and Blue wires) at 30,000 ppm CO2	2A at 30 Vdc

WIRE COLOR CODE FOR POWER SUPPLY

Wire Color	Function	rating
Black	Power Supply - Primary	
Black	120/240 Vac Common	
Red	120/240 Vac Hot	
Black	Power Supply - Secondary	
Black	12 Vdc + Positive	
Red	- Negative	

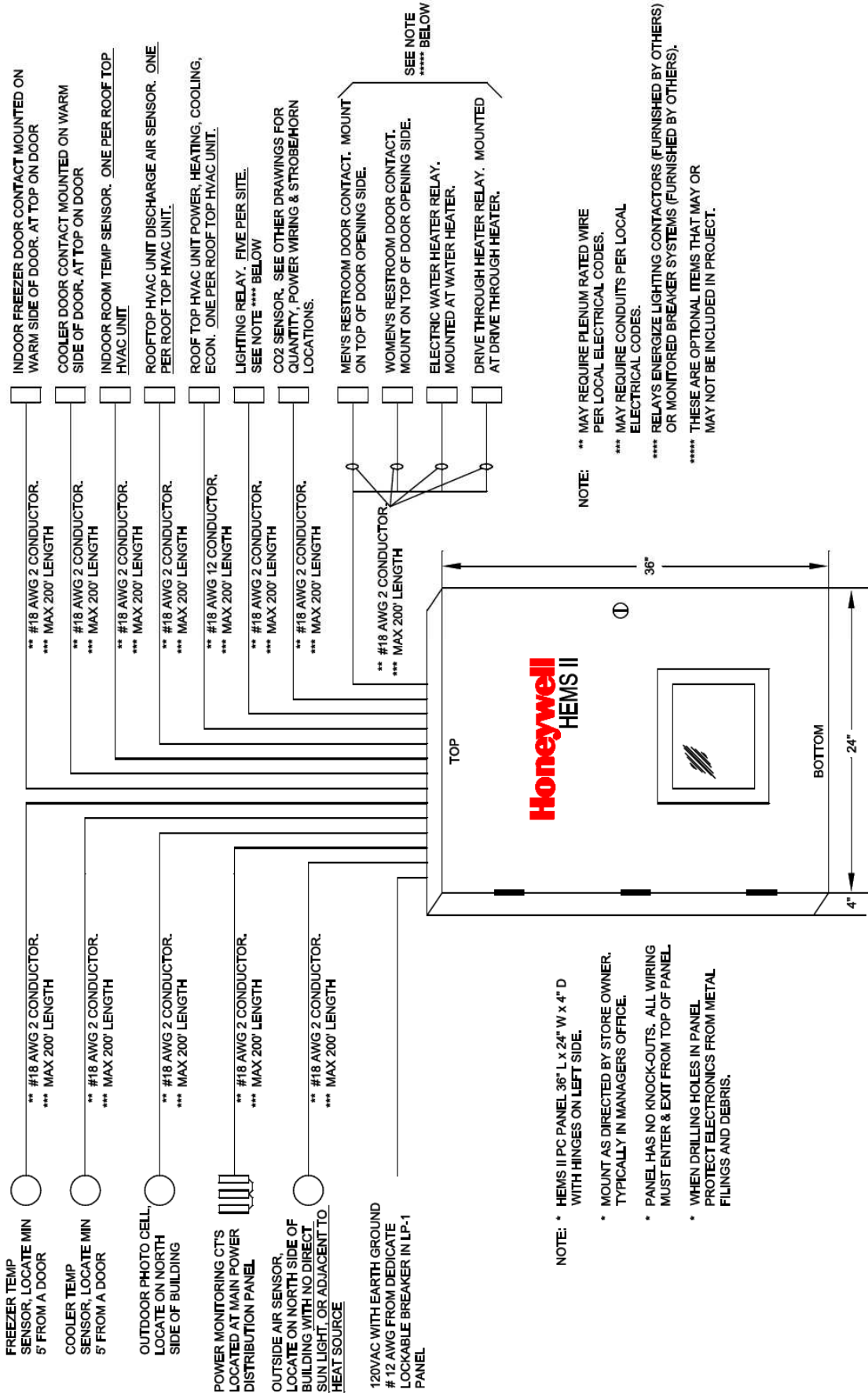


POWER MONITORING DETAIL
CT SIZE TO BE FIELD VERIFIED

BILL OF MATERIALS

QTY	TAG#	Part #	Description	Manufacturer
1	DD2	Y 2230A 11U5	CO2 Gas Monitor and Alarm System	Honeywell
1	KWP-1	H8053-2400-4	Power Monitor 3 CT 2400amp Pulse Output	Vers Industries

Optional CO2 System, Power Monitoring, & Drive Thru Heater Details



INDOOR FREEZER DOOR CONTACT MOUNTED ON WARM SIDE OF DOOR. AT TOP ON DOOR

COOLER DOOR CONTACT MOUNTED ON WARM SIDE OF DOOR. AT TOP ON DOOR

INDOOR ROOM TEMP SENSOR. ONE PER ROOF TOP HVAC UNIT

ROOFTOP HVAC UNIT DISCHARGE AIR SENSOR. ONE PER ROOF TOP HVAC UNIT.

ROOF TOP HVAC UNIT POWER, HEATING, COOLING, ECON. ONE PER ROOF TOP HVAC UNIT.

LIGHTING RELAY. FIVE PER SITE. SEE NOTE **** BELOW

CO2 SENSOR. SEE OTHER DRAWINGS FOR QUANTITY, POWER WIRING & STROBE/HORN LOCATIONS.

MEN'S RESTROOM DOOR CONTACT. MOUNT ON TOP OF DOOR OPENING SIDE.

WOMEN'S RESTROOM DOOR CONTACT. MOUNT ON TOP OF DOOR OPENING SIDE.

ELECTRIC WATER HEATER RELAY. MOUNTED AT WATER HEATER.

DRIVE THROUGH HEATER RELAY. MOUNTED AT DRIVE THROUGH HEATER.

SEE NOTE ***** BELOW

NOTE:

- ** MAY REQUIRE PLENUM RATED WIRE PER LOCAL ELECTRICAL CODES.
- *** MAY REQUIRE CONDUITS PER LOCAL ELECTRICAL CODES.
- **** RELAYS ENERGIZE LIGHTING CONTACTORS (FURNISHED BY OTHERS) OR MONITORED BREAKER SYSTEMS (FURNISHED BY OTHERS).
- ***** THESE ARE OPTIONAL ITEMS THAT MAY OR MAY NOT BE INCLUDED IN PROJECT.

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Title	
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for Honeywell Energy Management System II Control Panel Field Installation Diagrams	
Engineered By:	Graham Wilson
Checked By:	
Drawn By:	Graham Wilson
Revisions	
NO.	DATE DESCRIPTION
Date	10/7/2009
File Name	sh110
Job No.	958-
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System Architecture

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