

**CORRECTIONAL SERVICE CANADA
FACILITIES BRANCH
ELECTRONIC SECURITY SYSTEMS**

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DESIGN REQUIREMENTS

**FOR THE OPERATOR GRAPHICAL USER INTERFACE FOR THE
LIVING UNIT POWER AND LIGHT SYSTEM**

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TABLE OF ABBREVIATIONS

Abbreviation	Expansion
API	Application Programming Interface
ATP	Acceptance Test Procedure
BIFMA	Business & Industrial Furniture Manufacturers Association
CA	Contract Authority
CCDA	Command Control and Data Acquisition
CCTV	Closed Circuit Television
CD	Commissioner's Directive
CER	Common Equipment Room
COTS	Commercial-Off-The- Shelf
CSA	Canadian Standards Association
CSC	Correctional Service Canada
DCMS	Door Control and Monitoring System
DES	Director Engineering Services
EIA	Electronic Industries Association
FAAS	Facility Alarm Annunciation System
FAR	False Alarm Rate
FDS	Fence Disturbance Detection System
FIU	FAAS Interface Unit
GFE	Government Furnished Equipment
IVRMS	Inmate Voice Recording and Management System
IP	Internet Protocol
MCCP	Main Communications and Control Post
MDS	Motion Detection System
MTBF	Mean Time Between Failure
MTTR	Mean Time to Repair
NAR	Nuisance Alarm Rate
NTP	Network Time Protocol
PA	Public Address
PC	Personal Computer
Pd	Probability of Detection
PIDS	Perimeter Intrusion Detection System
PIU	Perimeter Intrusion Detection System Integration Unit
PLC	Programmable Logic Controller
RFP	Request for Proposal
RTEO	Regional Technical and Engineering Officer
PPA	Portable Personal Alarm

Abbreviation	Expansion
PPAL	Portable Personal Alarm Locatable
SCC	Security Control Centre
SIO	Security Intelligence Officer
SOR	Statement / Observation Report
SOW	Statement of Work
STR	Statement of Technical Requirements
TCP/IP	Transport Control Protocol/Internet Protocol
TER	Telecommunications Equipment Room
UI	User Interface
UPS	Uninterruptible Power Supply
V&C	Visits and Correspondence
VDU	Video Display Unit
VIRS	Visits Intercept and Recording System
VMS	Video Management System

TABLE OF DEFINITIONS

#	Term	Example	Description	Function
1	Administrative User Interface		Monitor and Software that supports task specific User Interaction for System Administrators, located in a secure area	Provides Administrative Personnel with the ability to map enrolled users to the functional domains that they are allowed to access and change
2	Application	Cell Call Management, PA Management	Software that is used to deliver Application Support functionality for a sub-system	Software that provides the Operator Interface and supporting logic that allows a sub-system (Control Domain) to be managed
3	CCTV Monitor	PIDS or Range CCTV Monitor	Computer Monitor Hardware	Displays CCTV images for Operator viewing
4	Client		Rack mounted computer located in a secure area away from a Control Post or Control Desk.	Runs software and supports one or more Application
5	Configuration Data	Site floor plans showing quantity of cameras, doors, cells etc. Camera locations. Number of User Interfaces required in a Post.	Site and System specific information typically supplied by CSC that defines how a sub-system Application is to be set-up for a site, location within a site, or post.	The configuration data provides the information that a sub-system application requires to tailor it to meet site, location within a site, or post user requirements.
6	Configuration User Interface		Monitor and Software that supports task specific User Interaction, located in a secure area	Allows suppliers or qualified personnel to add, delete and modify Application Configuration
7	Contract Authority		Public Works and Government Services Canada (PW&GSC) is responsible for all contractual matters associated with the system design and implementation.	
8	Contractor		The company selected as the successful bidder.	
9	Control Console	MCCP Console, Living Unit Control Post Console	Console, typically located in a Control Post. Serves as the physical support infrastructure for Operator User Interfaces	Contains User Interfaces or Control Panels used by staff to execute their management responsibilities and interact with the Domains over which they have Control
10	Control Desk	Living Unit Control Desk	Desk, typically located in a Control Post or Office. Serves as the physical support infrastructure for Operator User Interfaces	Equipped with User interfaces used by staff to execute their management responsibilities and interact with the Domains over which they have Control

#	Term	Example	Description	Function
11	Control Domain	Cell Call, Guard Tour, Public Address	A group of Physical and Virtual devices or objects, often supported by specialized hardware and software, that performs a set of related functions	Collect information, or activate capabilities in their operational domain
12	Control Panel	PACP, Fire Alarm	Hardware and Software device that provides an Operator Interface (I/O device), located in a Control Post	Allows Operators to manage one or more Domain
13	Control Post	Living Unit Control Post/MCCP	Room or area, typically located in a secure area in an institution	Room used by staff to execute their management responsibilities and interact with the Domains over which they have Control
14	Custom Equipment		Equipment designed and/or manufactured specifically for a specific contract.	
15	Design Authority		Director, Electronic Security Systems (DES) Correctional Service of Canada (CSC) is responsible for all technical aspects of the system design and implementation.	
16	Device	CCTV Camera, Managed Door, Call Origination Device	A specialized device, typically consisting of hardware and software	Provides data collection or activate functions associated with a specific system or sub-system
17	Enrolment User Interface		Monitor and Software that supports task specific User Interaction, located in a secure area	Allows Designated Personnel to enroll and delete Users from the Command, Control and Data Acquisition System.
18	Maintenance User Interface		Monitor and Software that supports task specific User Interaction, located in the CER or Maintenance Service Provider Office	Provides Maintenance Personnel with the ability to interact with one or more Systems to carry out their day to day tasks to troubleshoot and maintain Systems and Subsystems
19	Notification	Notification that a door is opened, or a door is closed, or a sensor is in alarm	A notification is a message that can be shown on a User Interface and/or logged in a database that represents a change in state or a command initiated by an operator.	

#	Term	Example	Description	Function
20	Off-the Shelf		Equipment currently on the market with available field reliability data, manuals, engineering drawings and parts price list.	
21	Operator User Interface	PIDS Display, Door Control and Monitoring System Display	Computer Monitor and Software that supports User Interaction (I/O device)	Provides an Operator with the ability to interact with one or more Systems to carry out their day to day tasks at a Control Console or Control Desk
22	Project Officer		A CSC employee or a contracted person designated by DES to be responsible for the implementation of the project.	
23	Reporting User Interface		Monitor and Software that supports task specific User Interaction, located in a secure area	Provides Management Personnel with the ability to access preconfigured reports and to create custom reports
24	Server	Network Video Recorder	Rack mounted computer that runs software and is located in an equipment room such as a CER or TER	Runs software that is used to deliver services that support Command and Control Applications to connect to sub-systems
25	State		The state of a device as reported to a sub-system or system	This is a logical representation of the state of a device that is being monitored or managed
26	Sub-system	Cell Call, Guard Tour	A group of Physical and Virtual devices or objects, often supported by specialized hardware and software, that perform a specific set of related functions	Collects information, or activates capabilities in their operational domain
27	System	PIDS	A group of Physical and Virtual devices or objects, often supported by specialized hardware and software, including devices from sub-systems that perform a more general set of related functions	Collects information, or activates capabilities in their operational domain
28	Touch Screen User Interface	Door Control and Monitoring System User Interface	Typically an LCD Monitor with touch screen technology	Allows an Operator to view and interact with the Systems presented on the Monitor

#	Term	Example	Description	Function
29	Workstation		Rack mounted computer located in a secure area away from a Control Post or Control Desk	Runs software that is used to deliver Command and Control Capabilities

1 INTRODUCTION

- .1 The intent of the User Interface for the Power and Light System is to enable Operational Staff in the living unit control post to turn on and off the power and lights in living units.

2 SCOPE

- .1 This standard defines the functionality and operational processes intended to be provided through the User Interface for the system used in the management and control of the Power and Light System used in the living unit control posts at Federal Correctional Institutions. The standard does not specify the actual data involved in the processes, but describes in detail the Human Machine Interface. This system shall share displays with the Door Control and Monitoring System in the Control Posts, if they are from the same supplier.

3 AUDIENCE

- .1 The intended audience includes potential developers, suppliers or those that configure the software application that will provide both the Human Machine Interface for the functionality described in the balance of the standard as well as the logic that will integrate and manage the other components of the system as required. This standard must be read in conjunction with the Standard for the Configuration of a Living Unit Control Post as this document will define the scale of the system and provide ranges and parameters that will be needed in defining the logic that underlies the User Interface.

4 GENERAL

- .1 The primary purpose of the Range Office is to monitor and control as applicable one or more ranges from a living unit control post. The functions of the living unit control post vary from institution to institution.
- .2 The living unit control post can support monitoring and/or control of:
 - .1 DCMS for cell doors, for exit doors, windows, doors in residential units
 - .2 Security Patrol System
 - .3 Inmate Cell Call System
 - .4 Power and Light System for cells, power to TV and control of other lights
 - .5 CCTV
 - .6 Other systems as they are implemented
- .3 The User Interface must be designed in such a way that it supports multiple management domains in a seamless and transparent manner as the system is expanded, supporting the representation of one domain through all domains that must be managed on the same User Interface.
- .4 The living unit control post is comprised of two main components from a UI perspective:
 - .1 Two status displays for the Security Patrol, and control systems for functions such as cell call
 - .2 Four status displays for DCMS for monitoring and/or control of access points managed by that living unit control post (including cell doors, doors and windows) and for control of power and light
- .5 This document covers the control systems for power and light.
- .6 The Status Display displays the Power and Light application. The existing Interior Security System (known as FAAS) will collect, record, and display alarm signals in the MCCP for alarms that are escalated to the MCCP.
- .7 This capability may be called upon to meet operational requirements or to meet situations in which a User Interface fails or for the aggregation of Control Post functionality as posts are reconfigured to accommodate staffing requirements. The definition of how User Interfaces in control posts provide redundancy within a control post and at another control post must be flexible and must be defined in configuration information.
- .8 Commands originating from Operator actions at the User Interface and events that represent a change of state at a device will typically result in a message that will be "logged" by the underlying data logging services of the Service Delivery Platform on which this application runs. This data can and will be accessed at a later date for evidentiary use, assessment, and follow-up.

5 DESIGN REQUIREMENTS

5.1 General

- .1 The cell power and light control consists of a User Interface presented on individual Touch Screen Video Displays in each Living Unit Control Post . In general, there are two UIs for each range
- .2 The Power and Light System shares the UI with the DCMS.
- .3 The status of the doors are always shown on the UI, whether the system selected for use in sending commands to devices is the Power and Light System or the Door Control and Monitoring System.

5.1.1 User Interface

- .1 The User Interface must use iconography and guidelines provided or approved by CSC.
- .2 The preferred display layout will be based on a simplified floor plan of the whole or part of a unit based on screen space. Icons must be used instead of text where possible.

5.2.1 Human Factors

- .1 The UI for the living unit control post must conform to accepted principles of good human factors design and be implemented according to the standards listed below:

ES/STD-0900	Standard for Design of Icons for User Interfaces
ES/STD-0901	Standard for Design of the Look and Feel of the User Interface
ES/STD-0902	Standard for Design of the Framework of the User Interface

5.3.1 Requirements from other systems not managed but this UI

- .1 No requirements at this time.

6 OPERATIONAL REQUIREMENTS

6.1 Operational functions or tasks

- .1 This is a list of the operational functions that the monitoring and control display in the range office must cover for cell light and cell power:

6.1.1 Control of lights and power at range office control post

- .1 Lights
 - .1 Turn on and turn off regular lights in one cell
 - .2 Choose a group of cells to turn on or turn off regular lights
 - .3 Turn on and turn off night lights in one cell
 - .4 Choose a group of cells to turn on or turn off night lights
 - .5 Enable and disable the light switch in the cells that inmates use to turn on and off their lights
 - .6 Choose a group of cells to enable or disable the light switch in the cells
 - .7 Turn on and off other lights (including night lights)
 - .8 Choose a group of lights to turn on and off (including night lights)
 - .9 Turn on and turn off lights to a range using range icon
 - .10 Turn on and turn off night lights to a range using range icon
- .2 Power
 - .1 Turn on and turn off power in one cell
 - .2 Turn on and turn off power in two connected cells
 - .3 Choose a group of cells to turn power on or off
 - .4 Turn on and turn off power to a range
 - .5 Turn on and turn off power a location that is not a cell
 - .6 Choose several locations to turn power on and off to that is not a cell
- .3 TV
 - .1 Turn on and turn off one TV
 - .2 Choose more than one TV to turn power on or off
- .4 Alarms and fault states

6.2 List of commands that are to be confirmed

- .1 At the range office, the following commands are to be confirmed with respect to power and light.

Command	Confirmation Mechanism
None	

6.3 List of system alarms and alarm handling attributes

- .1 These are the alarms and alerts that are generated, displayed and managed at the Range Office UI.

Alarm or alert	Source	Category	Audible alarm and displayed locally	Displayed and listed at MCCP	Audible alarm at MCCP
GUI failure (either of GUI or one of the cell call system managed at that GUI)	External	Minor – Priority 8	Yes, alarm sound 4c at pre-configured backup monitor	Yes	Yes, Sound 4c

- .2 Once a system alarm is generated, the alarm must be acknowledged. When the device returns to its pre-alarm state, the status of the device is also returned to its normal state. None of these alarms are cleared or reset at the SIO UI. The MCCP would restore the V&C control post when appropriate.
- .3 Acknowledging an alarm using the Alarm Acknowledge Icon, acknowledges all unacknowledged alarms listed at the UI.
- .1 Where there is an alarm from a device managed or monitored by that UI:
 - .2 the device shows an alarm state and flashes
 - .3 the detailed status window pops up with the details of the alarm that are determined to be displayed for that device at that control post in that window (ie determined by configuration data), Alarm icon flashes cycling between 1,2 and 3 bars on icon. Flashes of map icon and detailed status icon are in synchrony.
 - .4 there is an audible alarm
 - .5 when Acknowledge Alarm icon chosen, the map icon stops flashing and the Alarm icon in the detailed status window shows the Alarm icon with no bars, and the audible alarm ceases.
- .4 There are no alarms for power, lights or TV for tamper or fault

6.4 List of devices and states for those devices

- .1 See section 9 for a diagram of the icons.

Device	State	Visual indication of state
Light bulb	Off	Icon is white
	On	Icon is yellow
	Nightlight	Icon is grey with muted yellow center
Lights disabled from inmate control	Inmate control disabled with lights on	Light bulb icon is on with a red X through it
	Inmate control disabled with lights on	Light bulb icon is off with a red X through it
	Inmate control disabled with nightlight on	Light bulb icon is the nightlight state with a red X through it
Power	On	Black plug

	Off	Black plug with red X through it
TV	Power to TV is on	TV icon has a white interior
	Power to TV is off	TV icon has a black interior
All	Selected	Icon flashes alternatively with current state (and colour) and blue until command selected, or 10 seconds has passed, when icon reverts to previous state

- .2 Power and light can control the range lights, inmate power and light, and power to the TVs.
- .3 The light icons are combined with the power icons to show the various combinations that are managed in different kinds of living units.

7 OPERATIONAL SEQUENCES

- .1 These show the operational sequences to be implemented by the range office system to control power and lights. The UI layouts that show visually how these actions are to be implemented are provided in Section 8.
- .2 It is likely that these control systems will share a monitor with other systems. There are specific maps default maps that apply to each system, and when that system is selected from the Selection tray, the default map for that system for that control post is presented. When another system is selected, the default map for that system is presented.
- .3 If the range icon is used to select the range lights, and both night lights and regular lights are on in the range, selecting lights off will turn off both the regular lights and the night lights.
- .4 In some cases, range lights have no local switch and are only controlled from the range office control post.
- .5 In some cases, there are miscellaneous lights which cannot be disabled. This is captured in configuration data.
- .6 If a locked out cell is selected, lights commands are not available - night light automatically turns on as part of lockout command (but not cell lockdown command).
- .7 When the range is selected, light commands are not sent to any locked out cells.
- .8 If the lights are disabled, the officer can still turn the lights on, turn the night light on, or turn the lights off. The lights remain disabled for inmate control.
- .9 In some cases, the power to two cells is connected, and enabling or disabling power in one of the cells also enables or disables the power in the other cell. Where power to two cells is connected, when the power and light icon is chosen in one cell and flashes blue alternately with its current status, the power and light icon for the other cell also flashed blue alternately with its current status to indicate that the command will be sent to both cells.

7.1.1 Light control

- .1 Turn on lights on and turn off in a single cell, night light on – light is off and lights are enabled, power is enabled; TV is off

Action	Selection Tray	Command Tray			Map View	Detailed Status Window	Comments
		Selected	Avail	Not Avail			
1	Select power and light system	Power and light is selected; DCMS		-	- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off		NOTE: if the overview map is displayed, may need to choose detailed map
2	Choose cell	Power and light is selected; DCMS		- Light on -Night light -Light disable -Power off	- Light off -Light enable -Power on -TV on -TV off	Icon flashes to indicate cell chosen	Cell identifier displayed with name of inmate, picture of inmate and icon of current power and light status – lights off and enabled, power enabled
3	Select Lights on command	Power and light is selected; DCMS	-Light on		-Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off	Icon changes to show current status	As above, reflecting current status - lights on and enabled, power enabled
4	Choose the same cell	Power and light is selected; DCMS		- Light off -Night light -Light disable -Power off	-Light on -Light enable -Power on -TV on -TV off	Icon flashes to indicate cell chosen	As above
5	Select Lights off command		-Light off		-Light on -Night light -Light enable -Light disable - Power on -Power off -TV on -TV off	Icon changes to show current status	As above, reflecting current status - lights off and enabled, power enabled
6	Command completed	Power and light is selected; DCMS			- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off		Pops out after 10 seconds

- .2 Turn on lights and turn off lights to a group of cells – some cells have lights on, some have lights off, some have night lights on.

Action	Selection Tray	Command Tray			Map View	Detailed Status Window	Comments	
		Selected	Avail	Not Avail				
1	Select power and light system	Power and light is selected; DCMS		-	- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off		NOTE: if the overview map is displayed, may need to choose detailed map	
2	Choose cell with light off	Power and light is selected; DCMS		- Light on -Night light -Light disable -Power off	- Light off -Light enable -Power on -TV on -TV off	Icon flashes to indicate cell chosen	Cell identifier displayed with name of inmate, picture of inmate icon of current power and light status – lights off & enabled, power enabled	
3	Choose other cells, some with light on, and some with night light	Power and light is selected; DCMS		- Light on -Light off -Night light -Light disable -Power off	- Light enable -Power on -TV on -TV off	Icons flashes to indicate cells chosen; all icons flash together at same rate	List of cells selected presented	NOTE: since the cells chosen have a range of states, all commands that could apply to any cell are available
3	Select Lights on command	Power and light is selected; DCMS	-Light on		-Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off	Icon changes to show current status	List of cells with change to status listed; including cells where the command was not applied	Only cells to which lights on command apply has the command applied
4	Choose another group of cells	Power and light is selected; DCMS		- Light on -Light off -Night light -Light disable -Power off	-Light enable -Power on -TV on -TV off	Icon flashes to indicate cell chosen	First choice shows status for cell, subsequent choices show only the list	The change to command icons available takes place in real time as the cells are selected
5	Select Lights off command		-Light off		-Light on -Night light -Light enable -Light disable - Power on -Power off -TV on -TV off	Icon changes to show current status	As above, reflecting current status - lights off and enabled, power enabled	Only cells to which lights on command apply has the command applied
6	Command completed	Power and light is selected; DCMS			- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off		Pops out after 10 seconds	

					-TV on -TV off			
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.3 Enable and disable the light switch in the cells that inmates use to turn on and off their lights, and turn on their night lights

Action	Selection Tray	Command Tray			Map View	Detailed Status Window	Comments	
		Selected	Avail	Not Avail				
1	Select power and light system	Power and light is selected; DCMS		-	- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off		NOTE: if the overview map is displayed, may need to choose detailed map	
2	Choose cell that has lights enabled and lights off	Power and light is selected; DCMS		- Light on -Night light -Light disable -Power off	- Light off -Light enable -Power on -TV on -TV off	Icon flashes to indicate cell chosen	Cell identifier displayed with name of inmate, picture of inmate and icon of current power and light status – lights off and enabled, power enabled	
3	Select Lights disable command	Power and light is selected; DCMS	-Light disable	-	-Light on -Night light -Light off -Light enable -Power on -Power off -TV on -TV off	Icon changes to show current status	As above, reflecting current status - lights off and disabled, power enabled	
4	Choose the same cell	Power and light is selected; DCMS		- Light off -Night light -Light enable -Power off	-Light on -Light disable -Power on -TV on -TV off	Icon flashes to indicate cell chosen	As above	
5	Select Night light command		-Night light	-	-Light on -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off	Icon changes to show current status	As above, reflecting current status – lights disabled, night light, power enabled	
6	Choose a cell with lights on and cell lights disabled	Power and light is selected; DCMS		- Light off -Night light -Light disable -Power off	-Light on -Light enable -Power on -TV on -TV off	Icon flashes to indicate cell chosen	Cell identifier displayed with name of inmate, picture of inmate and icon of current power and light status – lights on and disabled, power enabled	When lights are enabled or disabled, the light remains in its current state
7	Select Light Enable	Power and light is	-Light enable		-Light on -Night light	Icon changes to show	As above, reflecting	

		selected; DCMS			-Light off -Light disable - Power on -Power off -TV on -TV off	current status	current status – lights enabled and on, power enabled	
8	Command completed	Power and light is selected; DCMS			- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off		Pops out after 10 seconds	

.4 Choose a group of cells to enable or disable the light switch in the cells

Action		Selection Tray	Command Tray			Map View	Detailed Status Window	Comments
			Selected	Avail	Not Avail			
1	Select power and light system	Power and light is selected; DCMS		-	- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off			NOTE: if the overview map is displayed, may need to choose detailed map
2	Choose cell with light off	Power and light is selected; DCMS		- Light on -Night light -Light disable -Power off	- Light off -Light enable -Power on -TV on -TV off	Icon flashes to indicate cell chosen	Cell identifier displayed with name of inmate, picture of inmate and icon of current power and light status – lights off and enabled, power enabled	
3	Choose other cells, some with light on, and some with night light, with lights enabled	Power and light is selected; DCMS		- Light on -Light off -Night light -Light enable -Light disable -Power off	- Light enable -Power on -TV on -TV off	Icons flashes to indicate cells chosen; all icons flash together at same rate	List of cells selected presented	NOTE: since the cells chosen have a range of states, all commands that could apply to any cell are available
4	Select Light Disable command	Power and light is selected; DCMS	-Light disable		-Light on -Night light -Light off -Light enable -Power on -Power off -TV on -TV off	Icon changes to show current status	List of cells with change to status listed;	Only cells to which lights on command apply has the command applied
5	Choose another group of cells, some with lights disabled and one with lights enabled	Power and light is selected; DCMS		- Light on -Light off -Night light -Light enable -Light disable -Power off	-Power on -TV on -TV off	Icons flashes to indicate cells chosen; all icons flash together at same rate	First choice shows status for cell (as in step 2) subsequent choices show only the list	The change to command icons available takes place in real time as the cells are selected
6	Choose the light that is enabled (within 10 seconds of the last light chosen)	Power and light is selected; DCMS	-	- Light on -Light off -Night light -Light enable -Power off	-Light disable -Power on -TV on -TV off	Icons flashes to indicate cells chosen; all icons flash together at same rate Icon for light enabled not longer flashes	As above, with the cell with lights enabled no longer part of the list	NOTE: Choosing and already chosen object de-selects it. Command availability changes

7	Select Light enable command		-Light enable	-	-Light on -Night light -Light off -Light disable - Power on -Power off -TV on -TV off	Icon changes to show current status	As above, reflecting current status - lights off and enabled, power enabled	Cell lights remain in same state as before.
8	Command completed	Power and light is selected; DCMS			- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off		Pops out after 10 seconds	

.5 Turn on and off other lights (including night lights)

Action	Selection Tray	Command Tray			Map View	Detailed Status Window	Comments	
		Selected	Avail	Not Avail				
1	Select power and light system	Power and light is selected; DCMS		-	- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off		NOTE: if the overview map is displayed, may need to choose detailed map	
2	Choose a light that is off	Power and light is selected; DCMS		- Light on	- Light off -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off	Icon flashes to indicate light chosen	Light identifier presented with icon of current light status – light off	Fewer commands apply to lights that are not cell lights
3	Select Lights on command	Power and light is selected; DCMS	-Light on	-	-Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off	Icon changes to show current status	As above, reflecting current status - light on	
4	Choose a night light that is on	Power and light is selected; DCMS		- Light off	-Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off	Icon flashes to indicate light chosen	Light identifier presented with icon of current light status – light on	
5	Select Lights off command	Power and light is selected; DCMS	-Light off		-Light on -Night light -Light enable -Light disable - Power on -Power off -TV on -TV off	Icon changes to show current status	As above, reflecting current status - lights off and enabled, power enabled	
6	Command completed	Power and light is selected; DCMS			- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off		Pops out after 10 seconds	

.6 Choose a group of lights to turn on and off (including night lights)

Action	Selection Tray	Command Tray			Map View	Detailed Status Window	Comments	
		Selected	Avail	Not Avail				
1	Select power and light system	Power and light is selected; DCMS		-	- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off		NOTE: if the overview map is displayed, may need to choose detailed map	
2	Choose light that is off	Power and light is selected; DCMS		- Light on	- Light off -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off	Icon flashes to indicate light chosen	Light identifier presented with icon of current light status – light off	
3	Choose other lights including night light that is on	Power and light is selected; DCMS		- Light on -Light off	- Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off	Icons flashes to indicate lights chosen; all icons flash together at same rate	List of lights presented	NOTE: since the cells chosen have a range of states, all commands that could apply to any cell are available
3	Select Lights on command	Power and light is selected; DCMS	-Light on		-Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off	Icon changes to show current status	List of cells with change to status listed; including cells where the command was not applied	Only cells to which lights on command apply has the command applied
4	Choose night light and other lights where lights are on	Power and light is selected; DCMS		- Light on	- Light off -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off	Icons flashes to indicate lights chosen; all icons flash together at same rate	List of lights presented	
5	Select Lights off command		-Light off		-Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off	Icon changes to show current status	List of cells with change to status listed	
6	Command completed	Power and light is			- Light on -Night light -Light off		Pops out after 10 seconds	

		selected; DCMS			-Light enable -Light disable - Power on -Power off -TV on -TV off			
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.7 Turn on and turn off lights to a range (including night lights)

Action	Selection Tray	Command Tray			Map View	Detailed Status Window	Comments	
		Selected	Avail	Not Avail				
1	Select power and light system	Power and light is selected; DCMS		-	- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off		NOTE: Command can be applied from overview map	
2	Choose icon representing lights for a range where lights are on; night lights off	Power and light is selected; DCMS		-Night light -Light off	-Light on -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off	Range icon flashes to indicate range chosen. All light icons that would be affected by the command flash at the same frequency	List of lights that are affected are listed with icon showing current status – lights on	Can turn lights on, lights off, or night lights for a range
3	Select Light off		-Light off		-Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off	Icons show change in status	List of lights that are affected are listed with icon showing current status – lights on	NOTE if lights are on and night lights are on, then light off command turns both off
4	Choose icon representing lights for a range where lights are off	Power and light is selected; DCMS		-Night light -Light on	-Light off -Light enable -Light disable - Power on -Power off -TV on -TV off	Range icon flashes to indicate range chosen. All light icons that would be affected by the command flash at the same frequency	List of lights that are affected are listed with icon showing current status – lights on	
5	Select Night Light command	Power and light is selected; DCMS	-Night light		-Light on -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off	Icons change to show current status	List of lights that are affected are listed with icon showing current status – night light	
4	Command completed	Power and light is selected; DCMS		-	- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off		Pops out after 10 seconds	

					-TV on -TV off			
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.8 Turn on and turn off lights to more than one range (including night lights) – lights are off, night lights are on

Action	Selection Tray	Command Tray			Map View	Detailed Status Window	Comments	
		Selected	Avail	Not Avail				
1	Select power and light system	Power and light is selected; DCMS		-	- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off		NOTE: Command can be applied from overview map	
2	Choose icon representing lights for a range where lights are off, night lights are on	Power and light is selected; DCMS		-Light on -Light off	-Night light -Light enable -Light disable - Power on -Power off -TV on -TV off	Range icon flashes to indicate range chosen. All light icons that would be affected by the command flash at the same frequency	List of lights that are affected are listed with icon showing current status – lights off night lights on	Can turn lights on, lights off, or night lights for a range
3	Choose another range icon where lights are off, night lights are on	Power and light is selected; DCMS		As above	-As above	As above	List of lights that are affected are listed with icon showing current status – lights off night lights on	
4	Select Light on	Power and light is selected; DCMS	-Light on	-	-Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off	Icons show change in status	List of lights that are affected are listed with icon showing current status – lights on	Turning lights on for the range automatically turns night lights off Can still turn night lights on
5	Command completed	Power and light is selected; DCMS			- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off		Pops out after 10 seconds	

7.2 Power control

.1 Turn on power and turn off power to a single cell; lights enabled and on

Action	Selection Tray	Command Tray			Map View	Detailed Status Window	Comments
		Selected	Avail	Not Avail			
1	Select power and light system	Power and light is selected; DCMS		-	- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off		NOTE: if the overview map is displayed, may need to choose detailed map
2	Choose cell	Power and light is selected; DCMS		- Light off -Night light -Light disable -Power off	- Light on -Light enable -Power on -TV on -TV off	Icon flashes to indicate cell chosen	Cell identifier displayed with name of inmate, picture of inmate and icon of current power and light status – lights off and enabled, power enabled
3	Select Power Off command	Power and light is selected; DCMS	-Power off	-	-Light on -Night light -Light off -Light enable -Light disable - Power on -TV on -TV off	Icon changes to show current status	As above, reflecting current status - lights on and enabled, power enabled
4	Choose the same cell	Power and light is selected; DCMS		- Light off -Night light -Light disable -Power on	-Light on -Light enable -Power off -TV on -TV off	Icon flashes to indicate cell chosen	As above
5	Select Power on command		-Power on	-	-Light on -Night light -Light off -Light enable -Light disable -Power off -TV on -TV off	Icon changes to show current status	As above, reflecting current status - lights off and enabled, power enabled
6	Command completed	Power and light is selected; DCMS			- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off		Pops out after 10 seconds

.2 Turn on power and turn off power to two connected cells; lights are on and enabled, power is on

Action	Selection Tray	Command Tray			Map View	Detailed Status Window	Comments	
		Selected	Avail	Not Avail				
1	Select power and light system	Power and light is selected; DCMS		-	- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off		NOTE: if the overview map is displayed, may need to choose detailed map	
2	Choose cell	Power and light is selected; DCMS		- Light off -Night light -Light disable -Power off	- Light on -Light enable -Power on -TV on -TV off	Icon flashes to indicate cell chosen; if power is connected, power and light icon for connected cell turns blue and does not flash	Cell identifier displayed with name of inmate, picture of inmate and icon of current power and light status – lights off and enabled, power enabled	Note: Connected cell does not flash as a light command sent to that cell would only affect that cell.
3	Select Power Off command	Power and light is selected; DCMS	-Power off		-Light on -Night light -Light off -Light enable -Light disable - Power on -TV on -TV off	Both icons change to show current status	Cell identifiers displayed; reflecting current status - lights on and enabled, power enabled	
4	Choose the same cell	Power and light is selected; DCMS		- Light off -Night light -Light disable -Power on	-Light on -Light enable -Power off -TV on -TV off	Icon flashes to indicate cell chosen; if power is connected, power and light icon for connected cell turns blue and does not flash	Cell identifier displayed with name of inmate, picture of inmate and icon of current power and light status – lights off and enabled, power enabled	
5	Select Light off command		-Light off		-Light on -Night light -Light off -Light enable -Light disable -Power off -TV on -TV off	Icon changes to show current status; connected cell no longer blue	As above, reflecting current status - light off and enabled, power disabled	Once a light command is selected, the interconnected cell for power no longer shows blue
6	Command completed	Power and light is selected; DCMS			- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off		Pops out after 10 seconds	

					-TV on -TV off			
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- .3 Turn on power and turn off power to a group of cells
 - .1 Similar to turning on and off flights to a group of cells; the commands that are available and unavailable depend on what the state of the lights are.
- .4 Turn on and off power to a range
 - .1 Similar to turning on and off lights to a range
- .5 Turn on and turn off power to a location that is not a cell
 - .1 Similar to turning on and off power to a location that is not a cell
- .6 Choose several locations to turn power on and off that is not a cell
 - .1 Similar to turning on and off power to a group of locations that are not cells

7.1.2 TV on and off

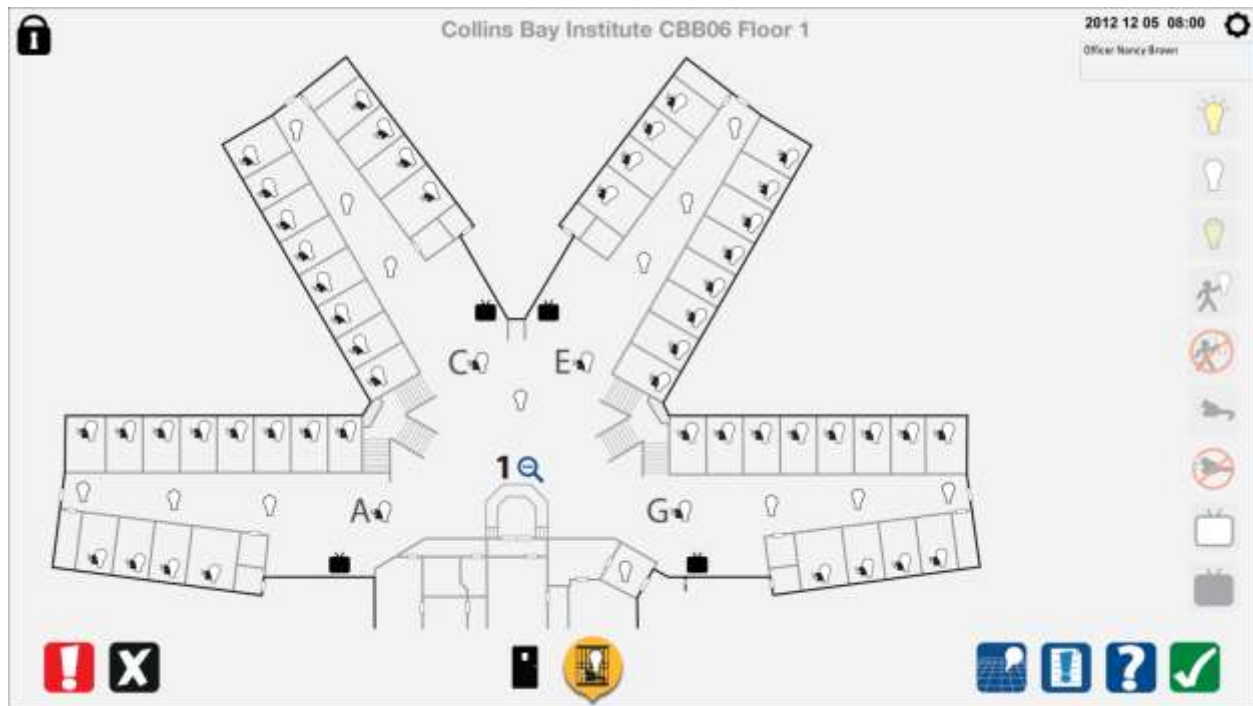
.1 Turn the power on and off to one TV

Action	Selection Tray	Command Tray			Map View	Detailed Status Window	Comments
		Selected	Avail	Not Avail			
1	Select power and light system	Power and light is selected; DCMS		-	- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off		NOTE: if the overview map is displayed, may need to choose detailed map
2	Choose a TV with power off	Power and light is selected; DCMS		- TV on	- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV off	Icon flashes to indicate chosen	TV identifier displayed with current status
3	Select TV on command	Power and light is selected; DCMS	-TV on	-	-Light on -Night light -Light off -Light enable -Light disable - Power on -TV off	Icon changes to show current status	As above, reflecting current status
4	Choose the same TV	Power and light is selected; DCMS		- TV off	-Light on -Night light -Light off -Light enable -Light disable - Power on -TV on	Icon flashes to indicate cell chosen	TV identifier displayed with current status
5	Select TV off command		-TV off	-	-Light on -Night light -Light off -Light enable -Light disable -Power off -TV on -TV off	Icon changes to show current status	As above, reflecting current status - lights off and enabled, power enabled
6	Command completed	Power and light is selected; DCMS			- Light on -Night light -Light off -Light enable -Light disable - Power on -Power off -TV on -TV off		Pops out after 10 seconds

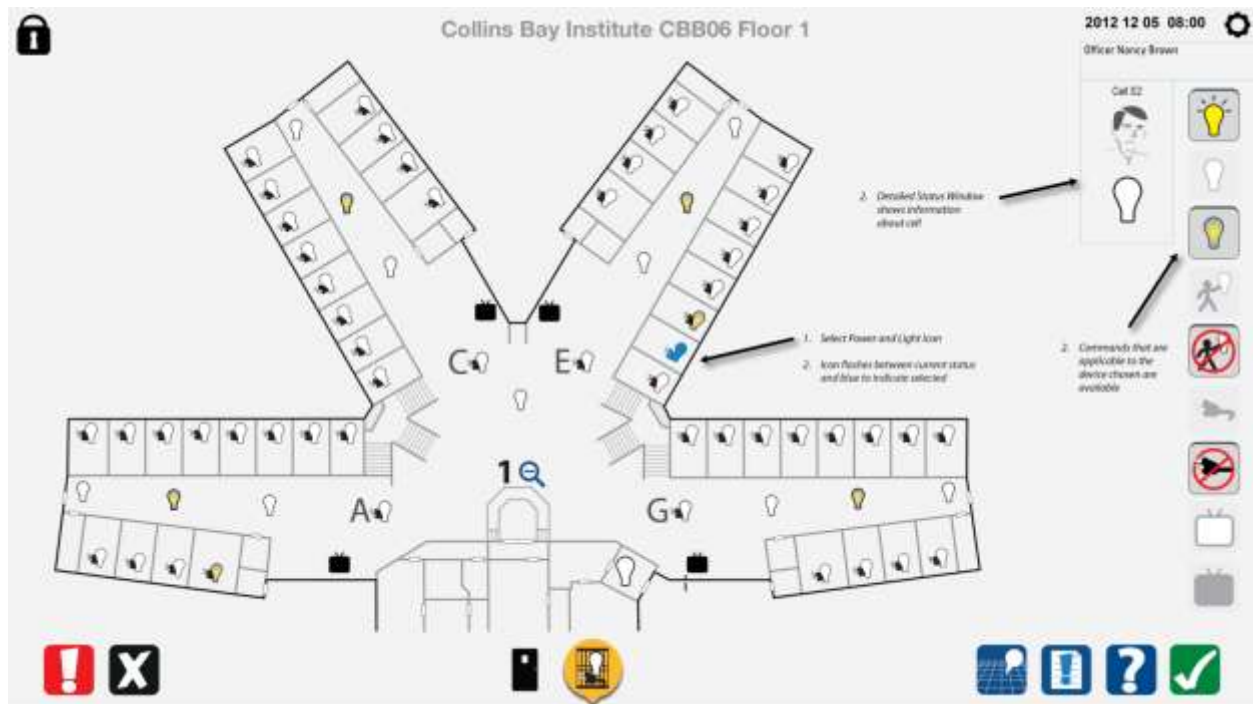
8 VISUAL LAYOUTS OF UI FOR POWER & LIGHT FOR THE RANGE OFFICE

- .1 The following provide some samples of how the operational sequences would be displayed on the UI. NOTE: when an action causes the state to change in different locations simultaneously on the UI, actions that take place at the same time have the same number. Where actions are serial, the numbering of the steps increments. Where several items happen at the same time, the same number is given to those items.
- .2 Usually the Power and Light system is configured on the same displays as the DCMS and normally the door icons are always shown on the UI. The power and light icons are only shown when the Power and Light System Icon is selected and then they are shown together with the door icons.
- .3 For illustrative purposes, the door symbols for the DCMS are not shown on these UIs.
- .4 These are examples of the Power and Light functionality:
 - .1 :Power and Light in steady state
 - .2 Turn a single light on in a cell
 - .3 Turn a single light on in a cell – command completed
 - .4 Choose a group of cell lights to turn on the night light
 - .5 Choose a group of cell lights to turn on the night light – command completed
 - .6 Choose a light, not a cell light, to turn on
 - .7 Choose a light, not a cell light, to turn on – command completed
 - .8 Use range command to turn on hall lights in range
 - .9 Use range command to turn on hall lights in range – command completed
 - .10 Use range command to turn on all the cell lights in range
 - .11 Use range command to turn on all the cell lights in range – command completed
 - .12 Use range command to disable the lights in range
 - .13 Use range command to disable the lights in range – command completed
 - .14 Enable light in a single cell
 - .15 Enable light in a single cell – command completed
 - .16 Use range command to turn lights on in the range with a locked-out cell
 - .17 Use range command to turn lights on in the range with a locked-out cell – command completed
 - .18 Disable power in a single cell
 - .19 Disable power in a single cell – command completed
 - .20 Enable power in a single cell
 - .21 Enable power in a single cell – command completed
 - .22 Enable power in a single cell that is joined
 - .23 Enable power in a single cell that is joined – command completed
 - .24 Disable power in a single cell that is joined
 - .25 Disable power in a single cell that is joined – command completed
 - .26 Disable power in a range'
 - .27 Disable power in a range – command completed
 - .28 TV On
 - .29 TV on – command completed
 - .30 TV Off
 - .31 TV off – command completed
 - .32 TV Group off
 - .33 TV group off – command completed

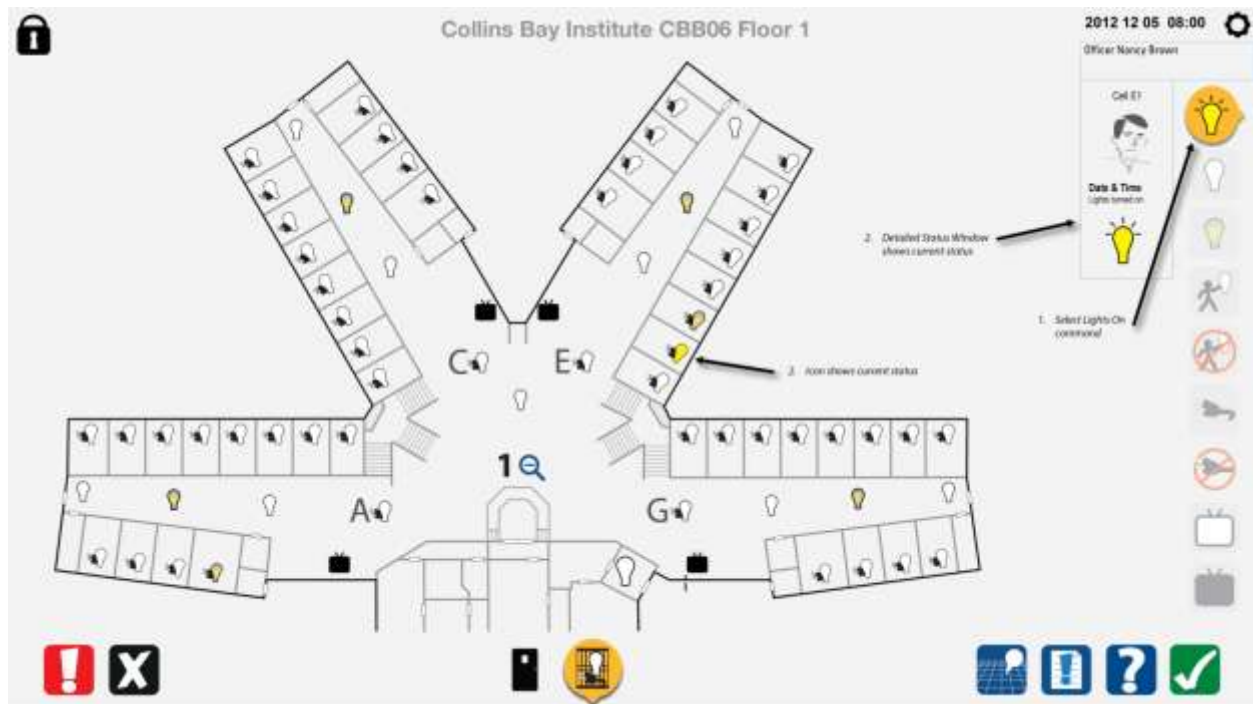
8.1 Power and Light in steady state



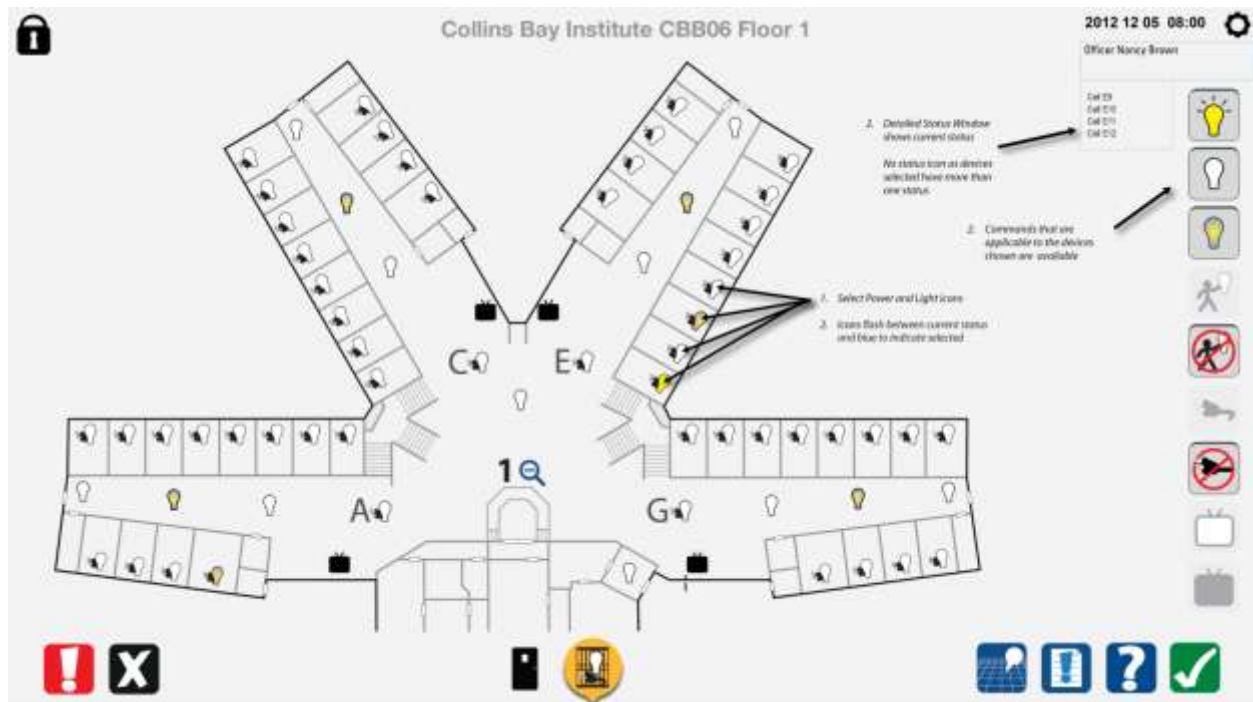
8.2 Turn a single light on in a cell



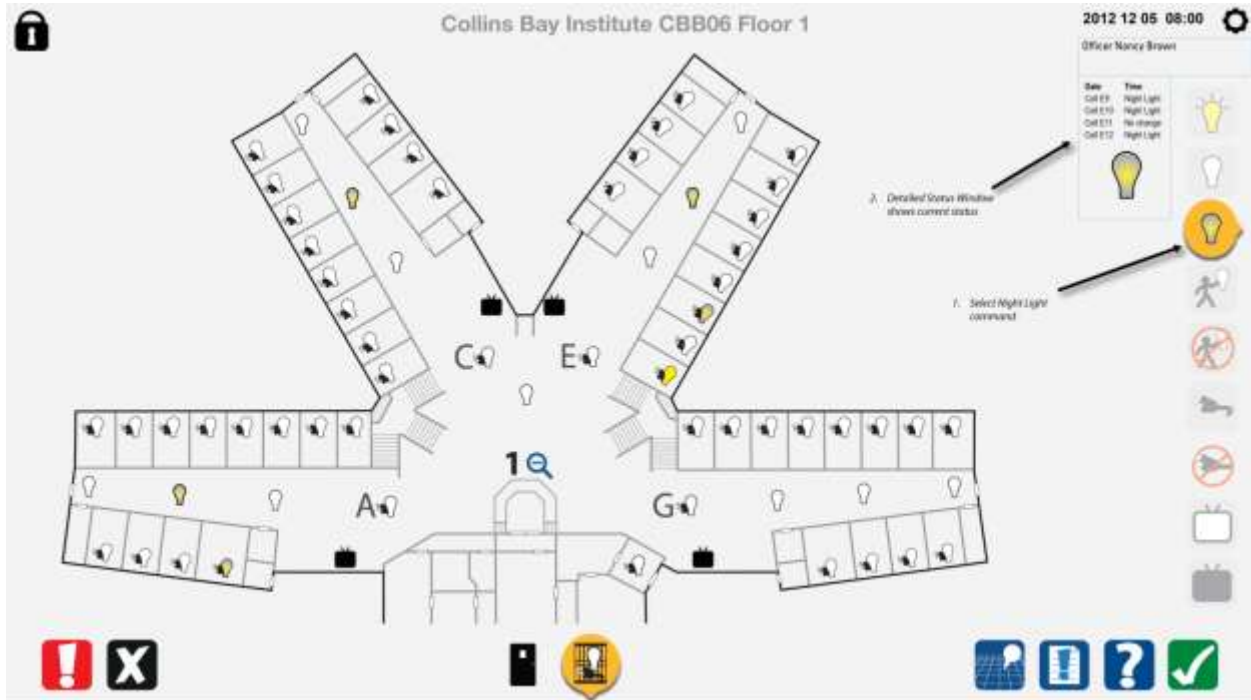
8.3 Turn a single light on in a cell – command completed



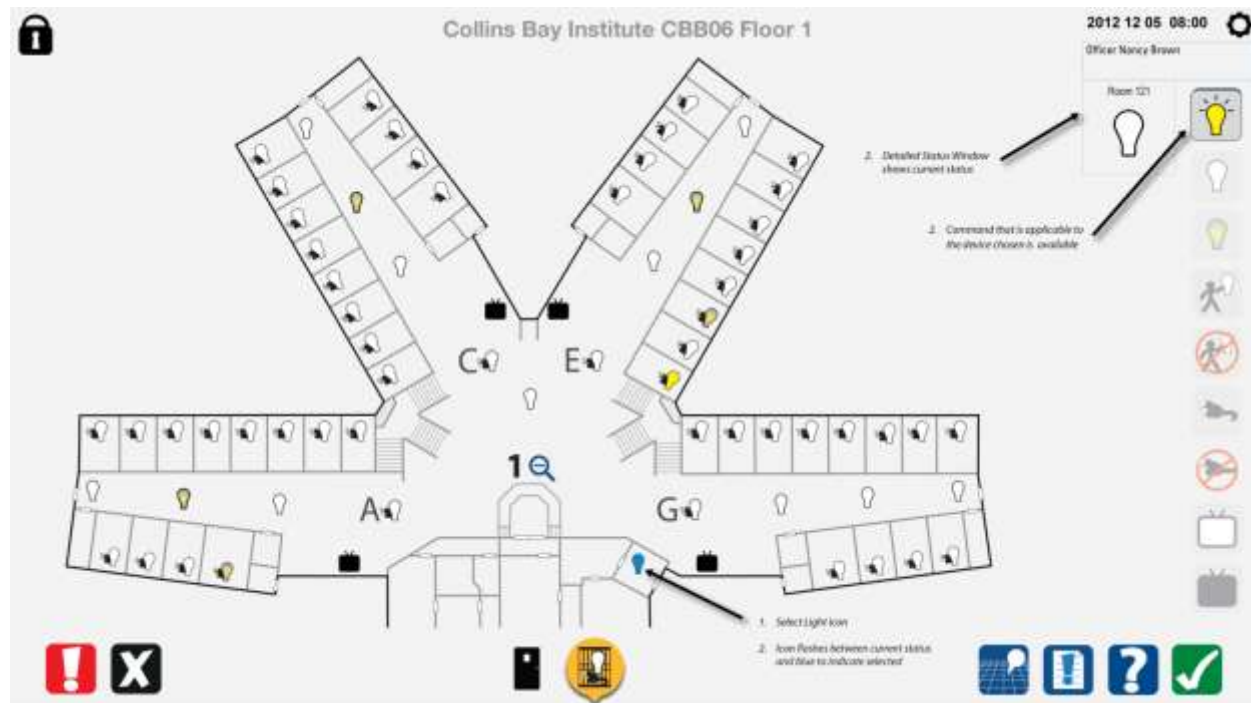
8.4 Choose a group of cell lights to turn on the night light



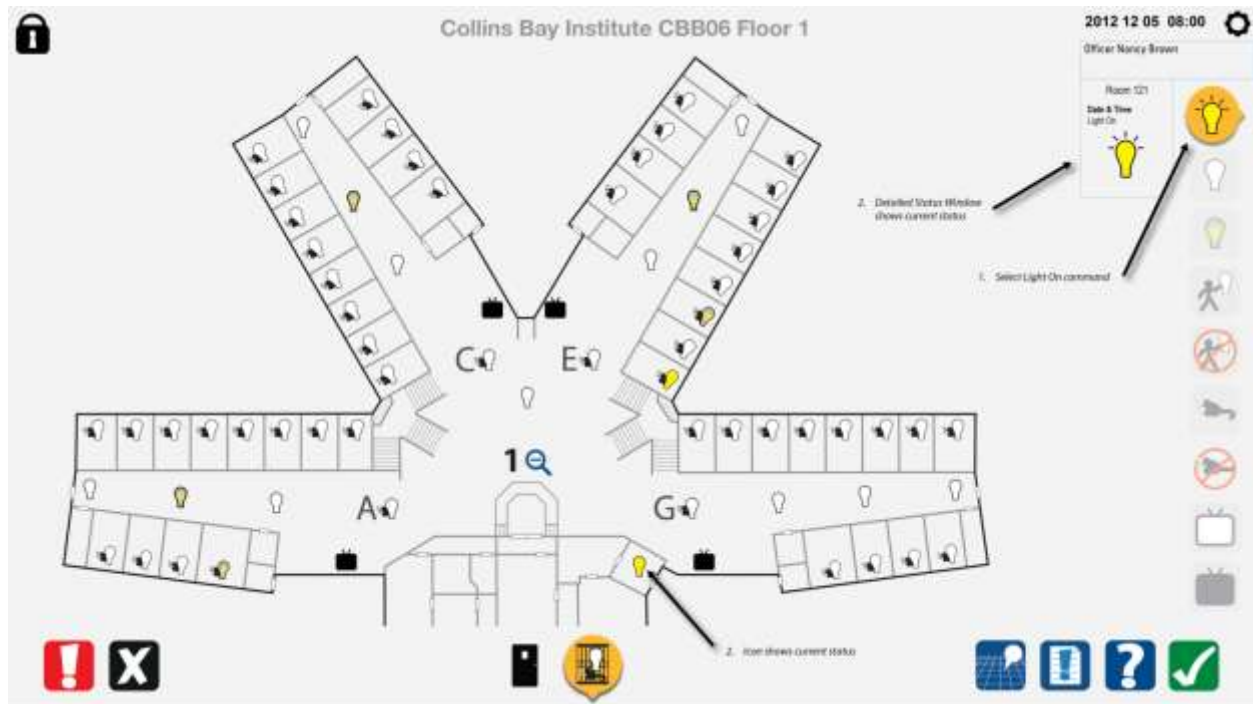
8.5 Choose a group of cell lights to turn on the night light – command completed



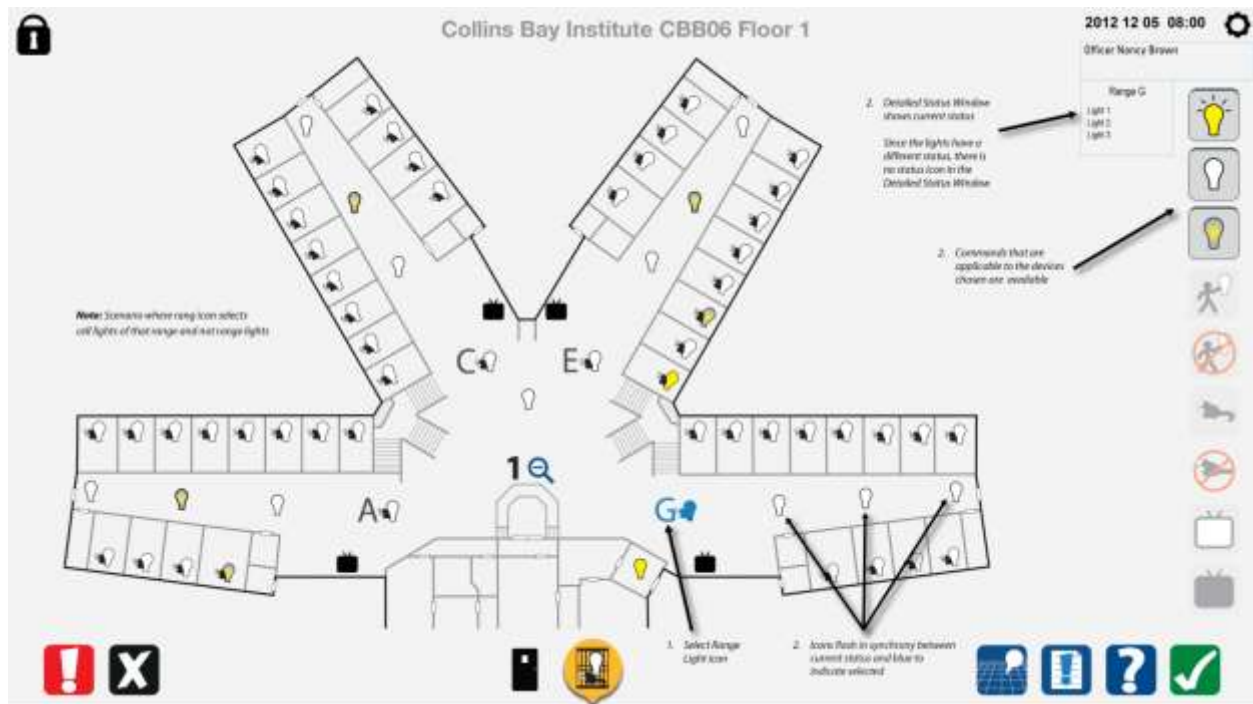
8.6 Choose a light, not a cell light, to turn on



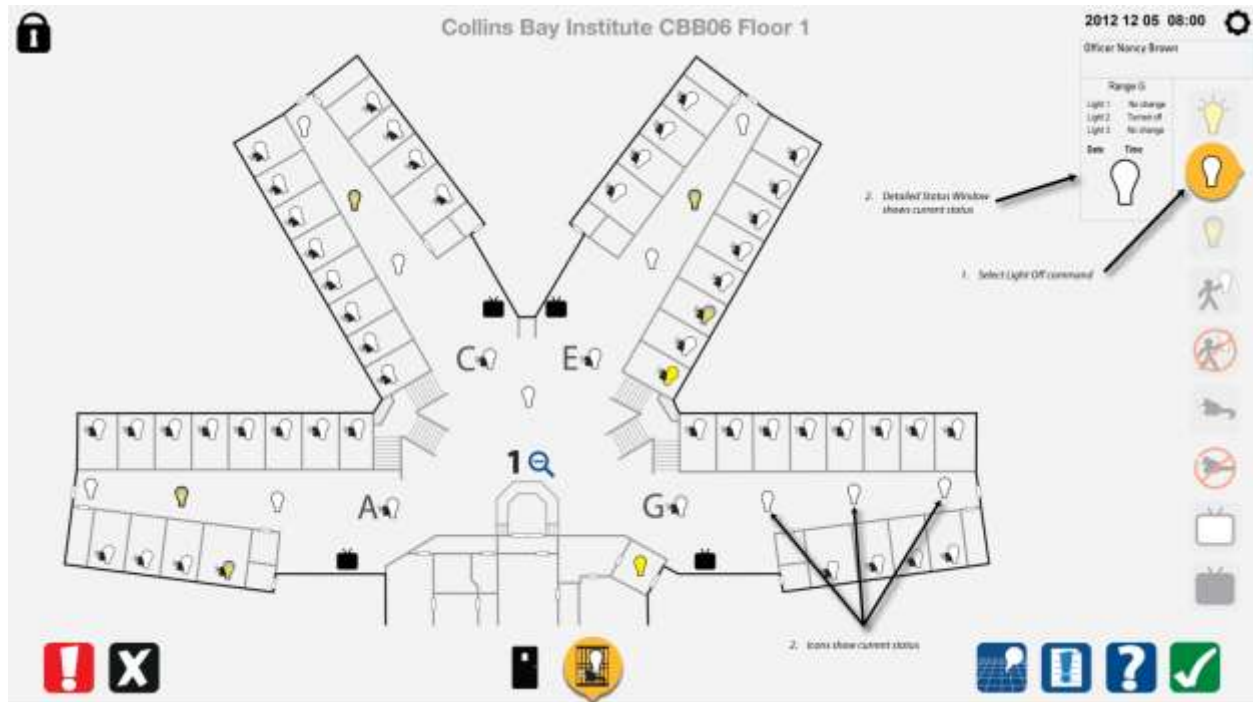
8.7 Choose a light, not a cell light, to turn on – command completed



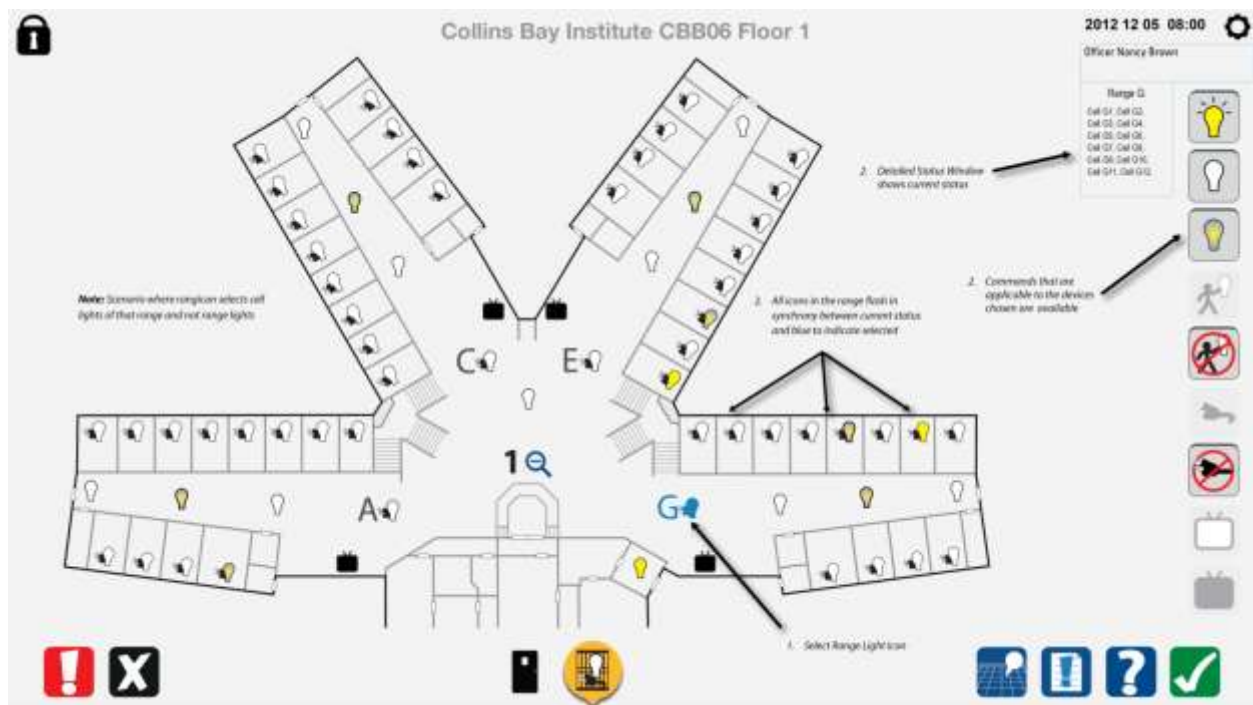
8.8 Use range command to turn on hall lights in range



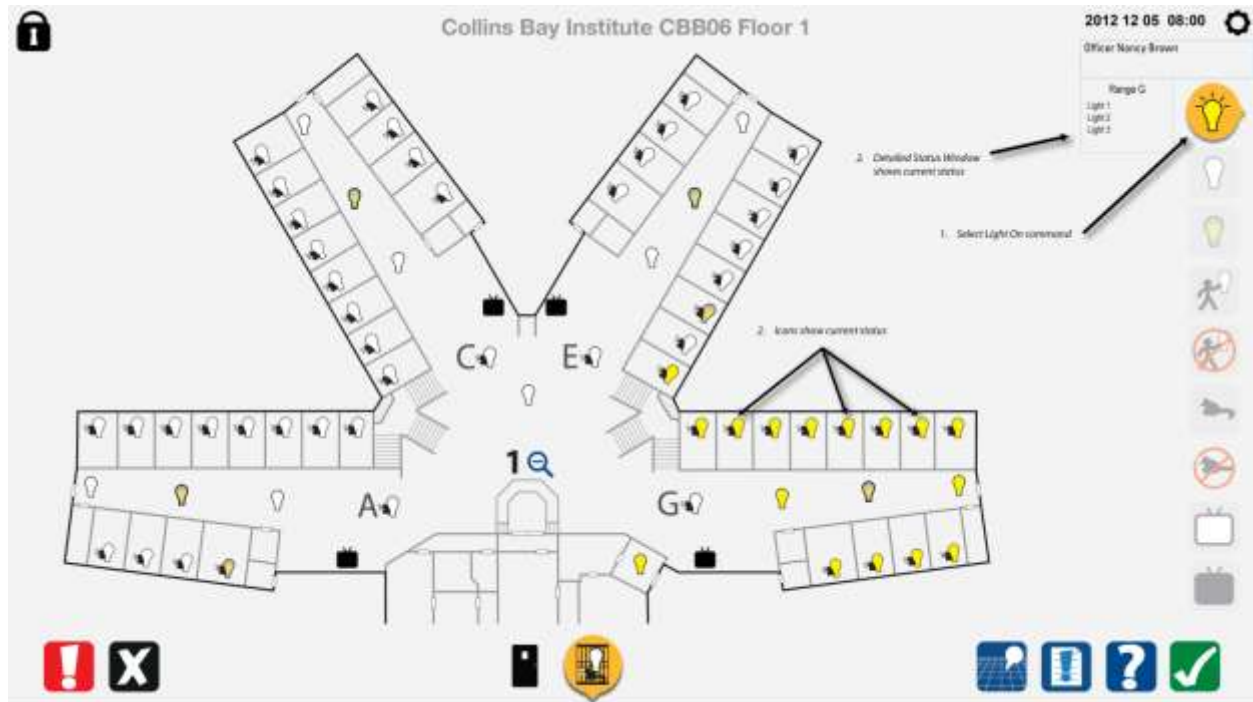
8.9 Use range command to turn on hall lights in range – command completed



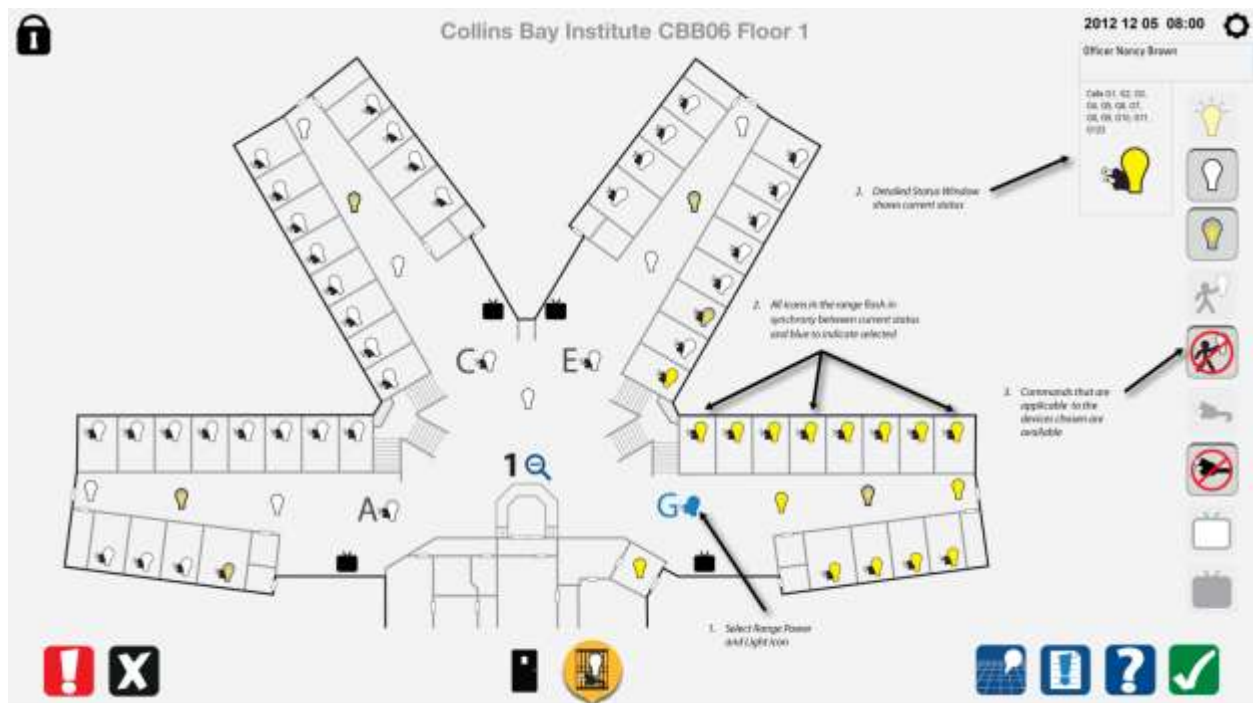
8.10 Use range command to turn on all the cell lights in range



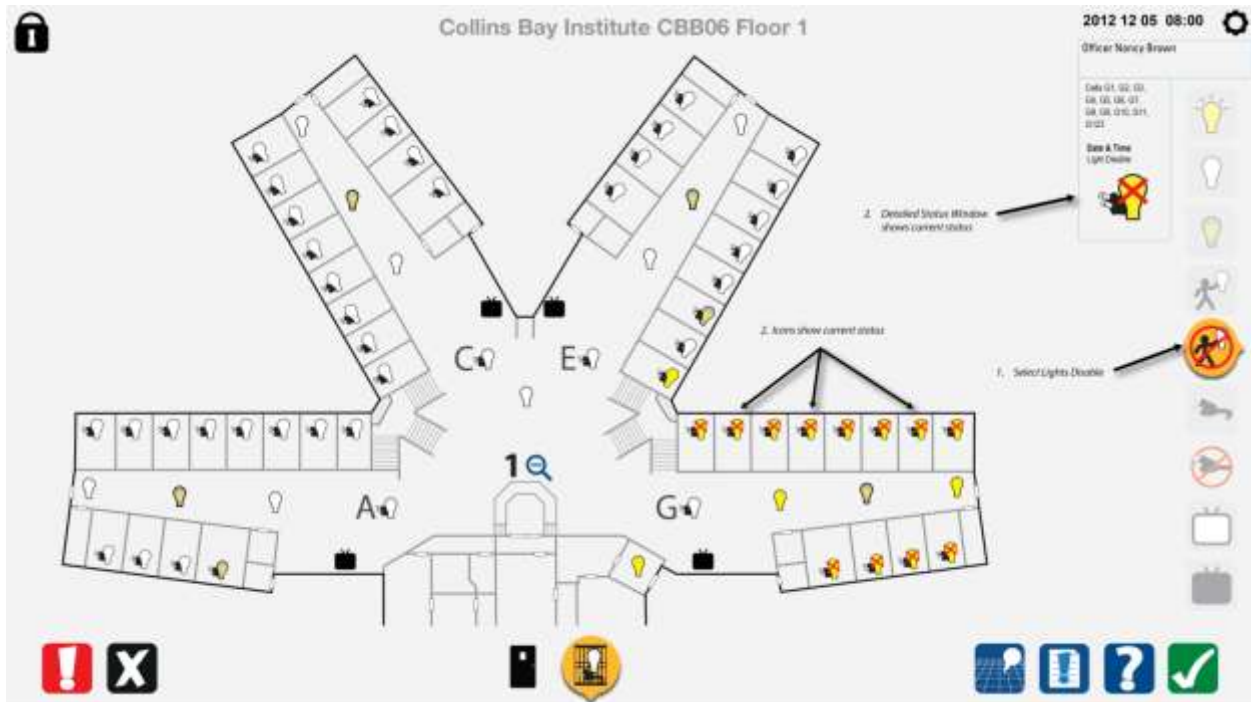
8.11 Use range command to turn on all the cell lights in range – command completed



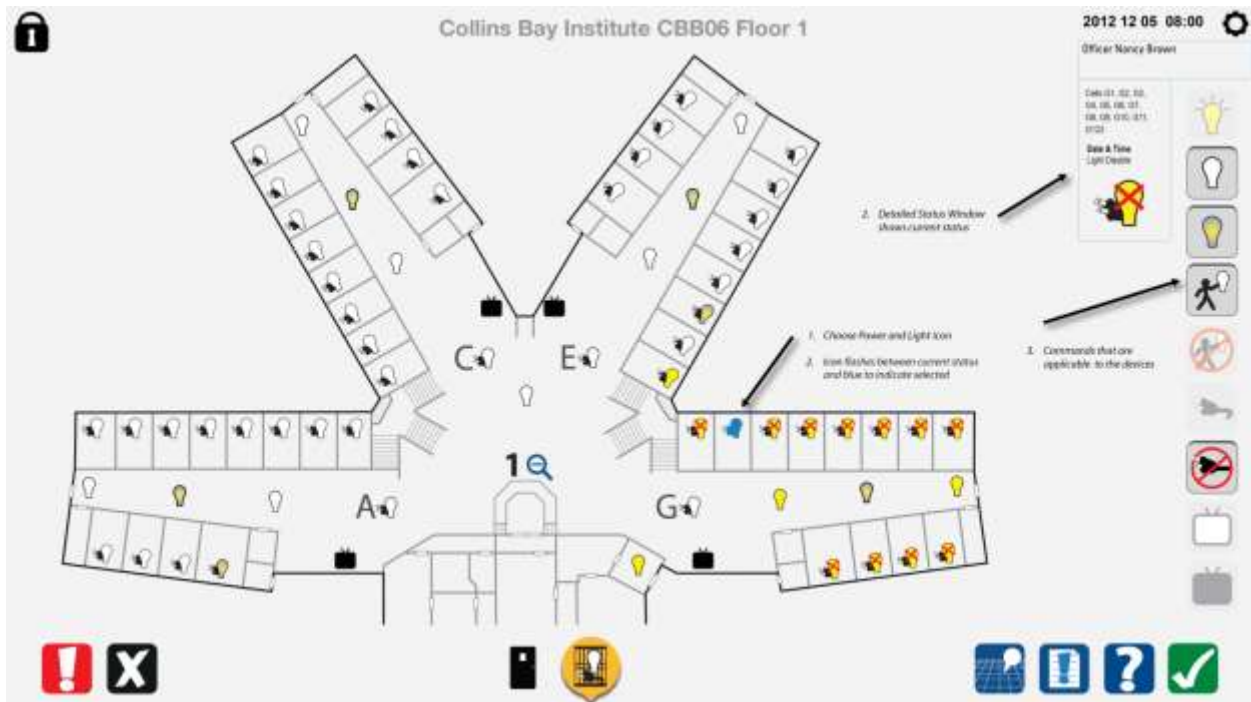
8.12 Use range command to disable the lights in range



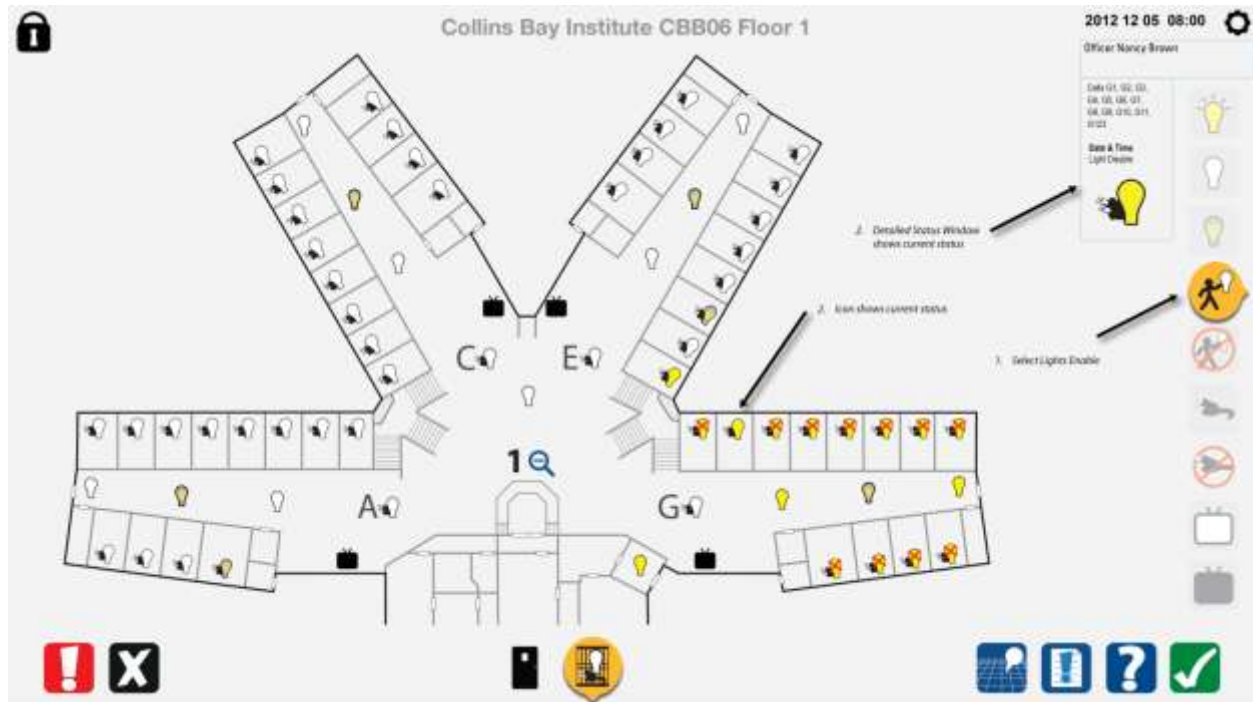
8.13 Use range command to disable the lights in range – command completed



8.14 Enable light in a single cell

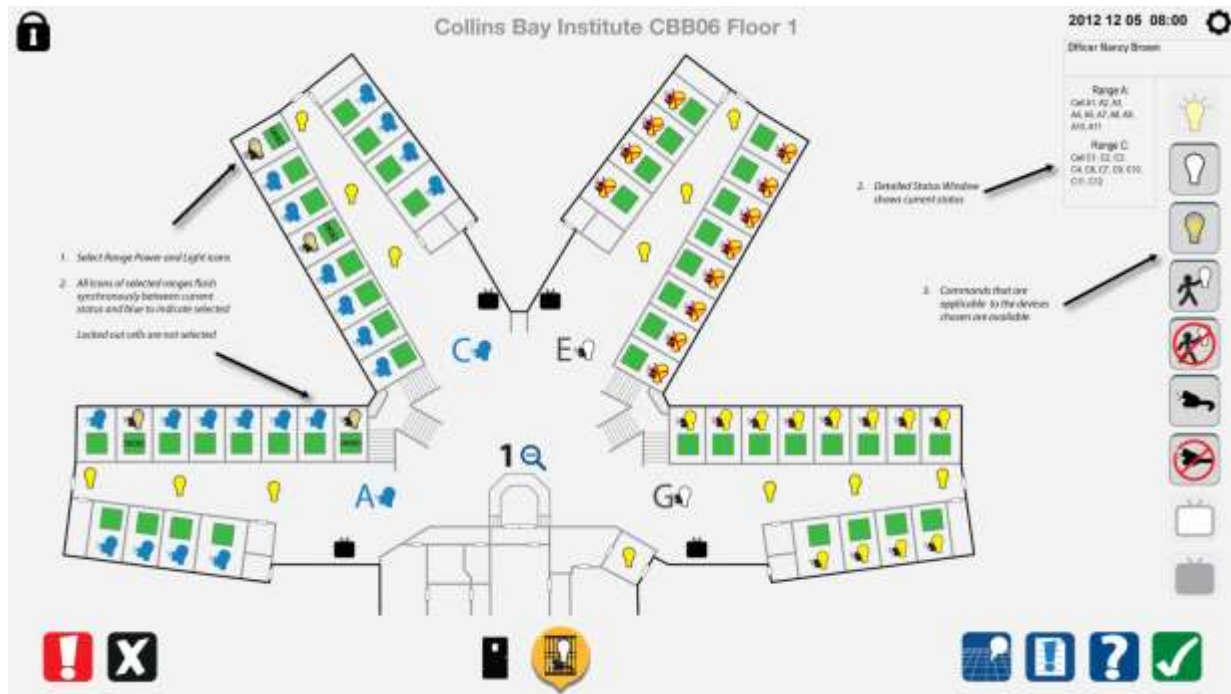


8.15 Enable light in a single cell – command completed

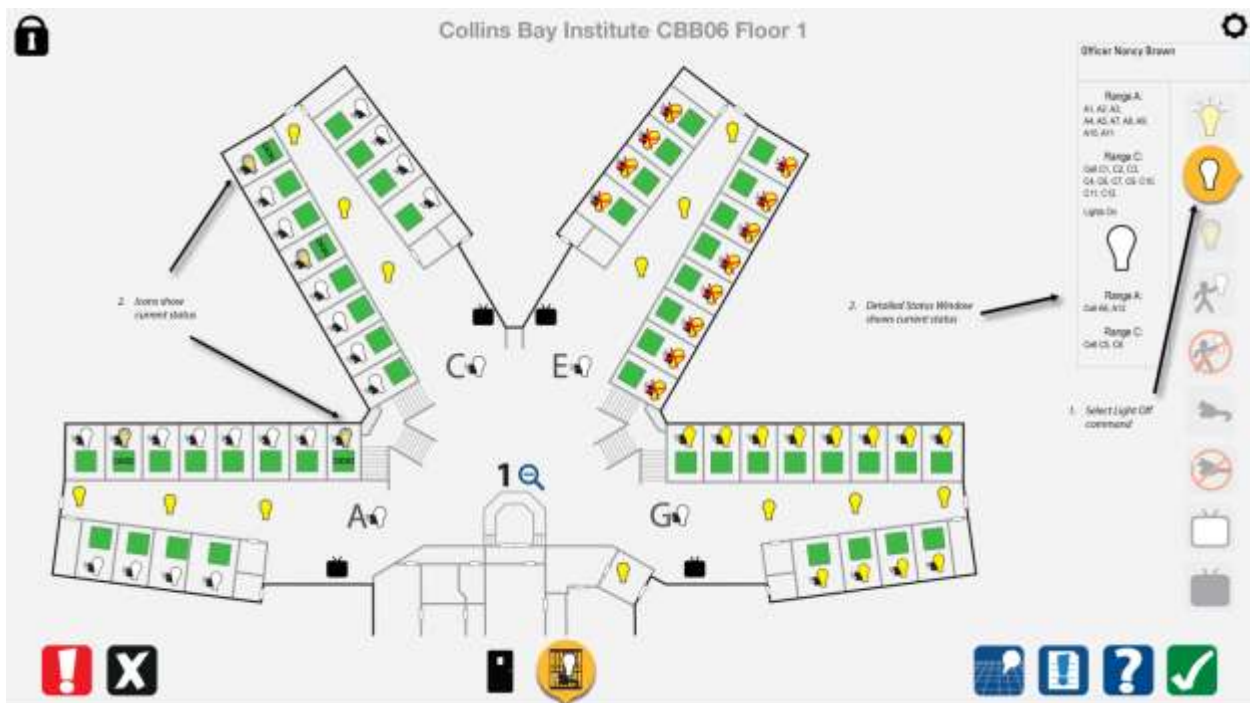


8.16 Use range command to turn lights on in the range with a locked-out cell

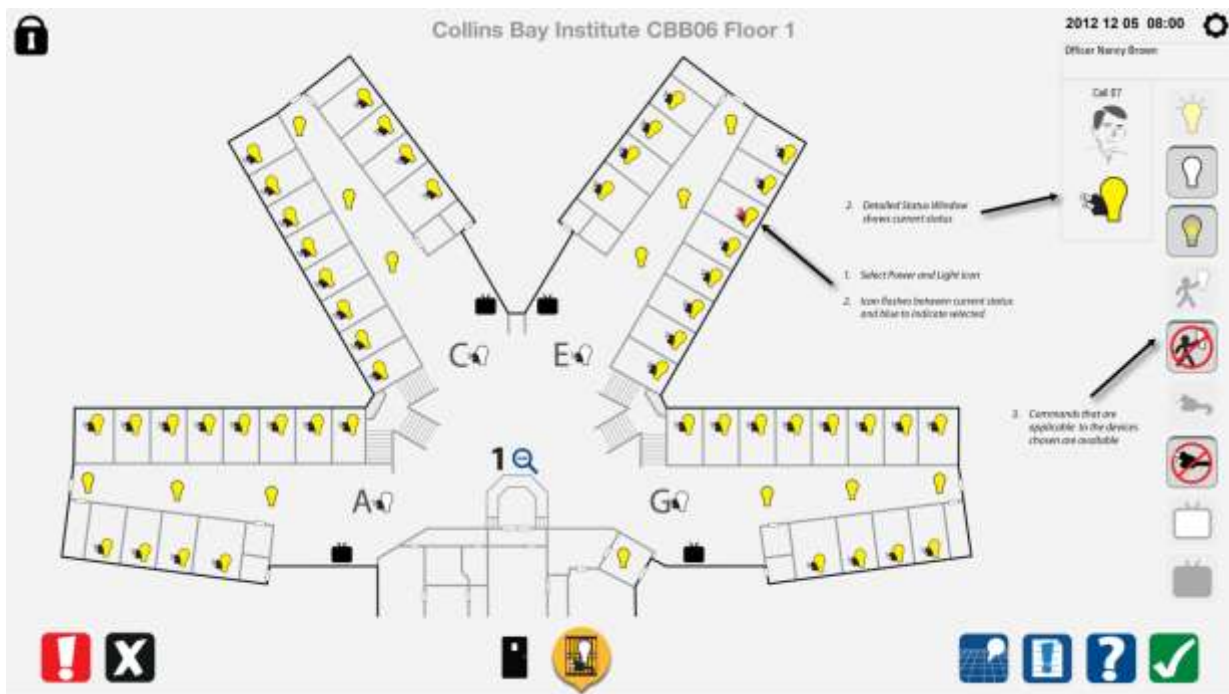
- 1 Normally, this would be what the UI would look like with both DCMS and the Power and Light system selected. Both sets of icons are shown here to illustrate the locked out cell.



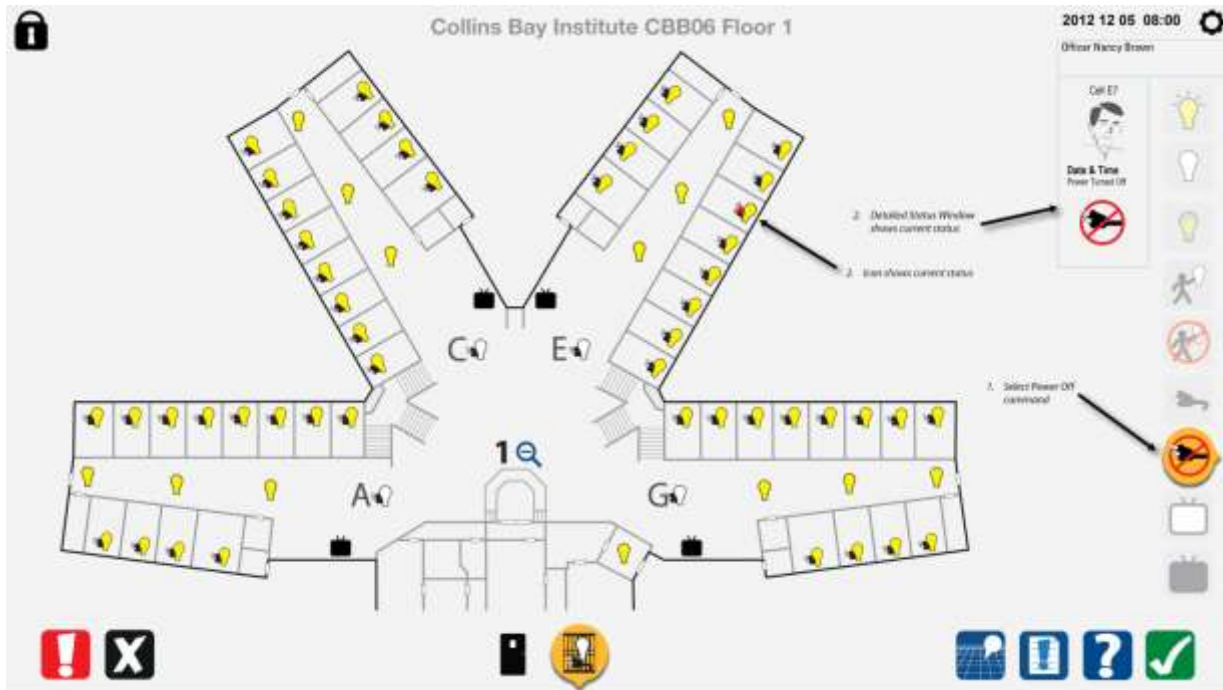
8.17 Use range command to turn lights on in the range with a locked-out cell – command completed



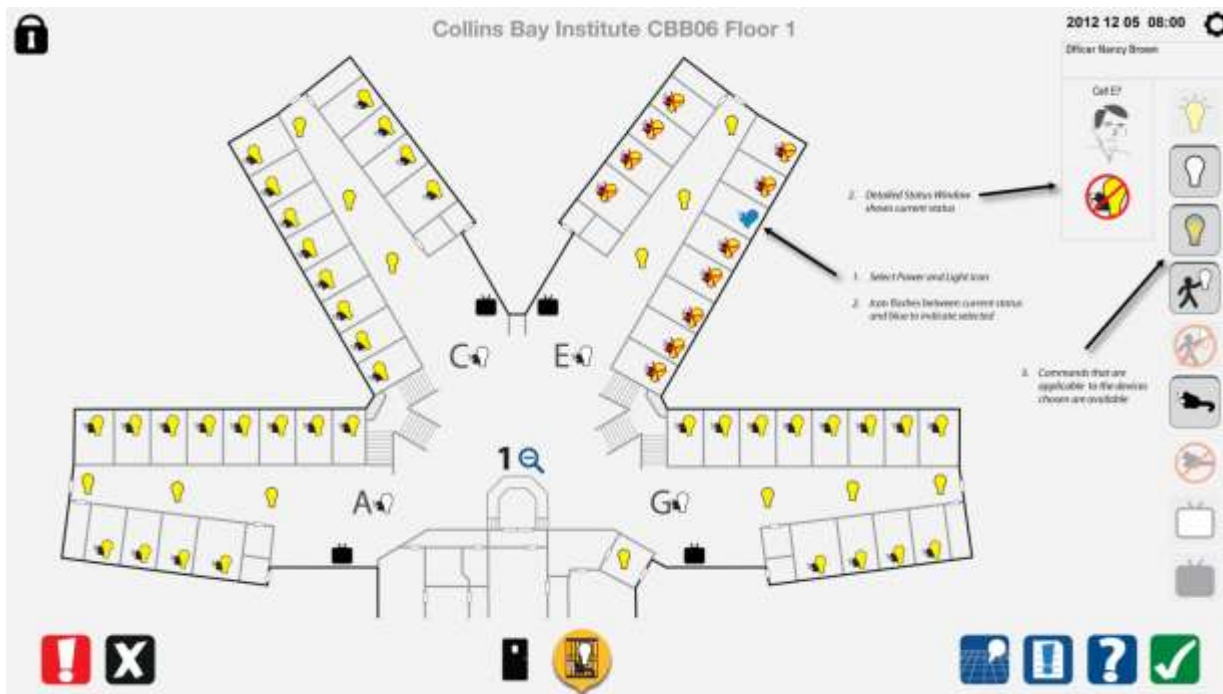
8.18 Disable power in a single cell



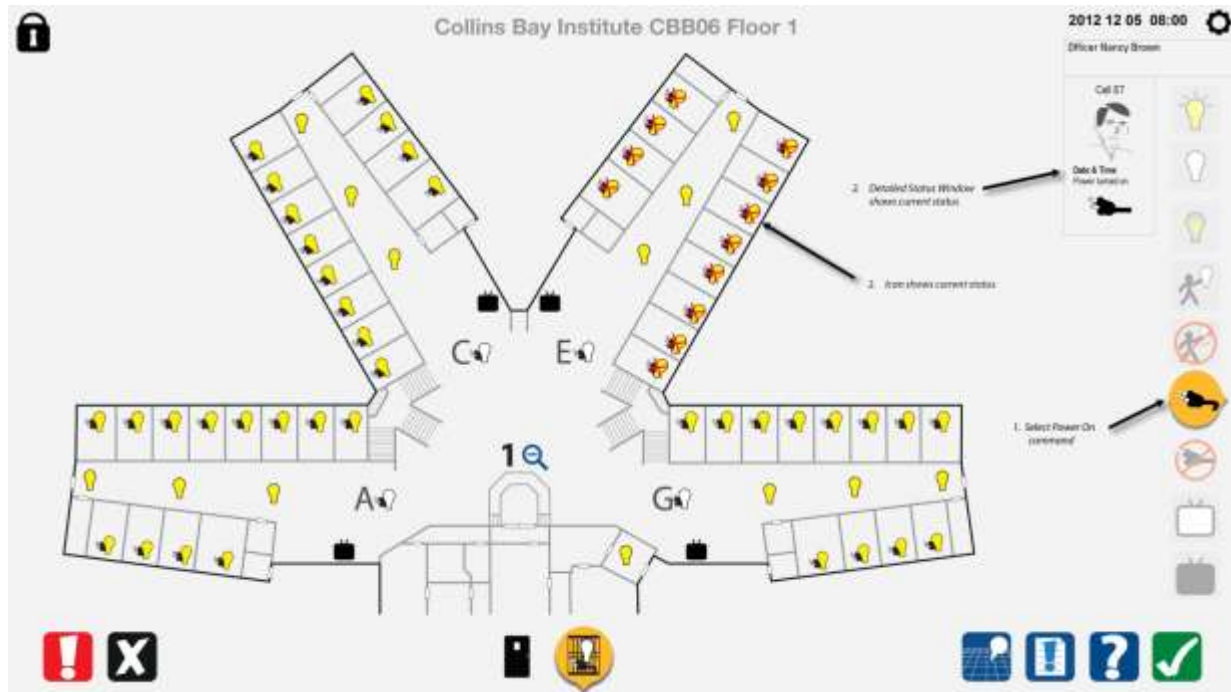
8.19 Disable power in a single cell – command completed



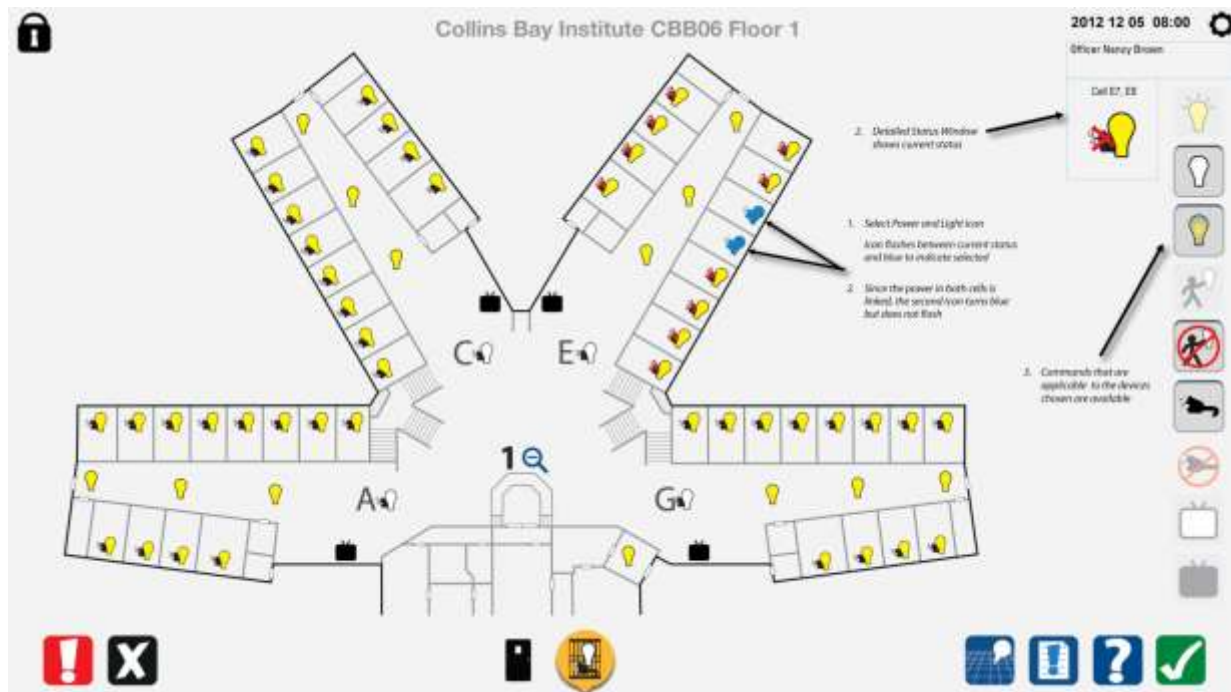
8.20 Enable power in a single cell



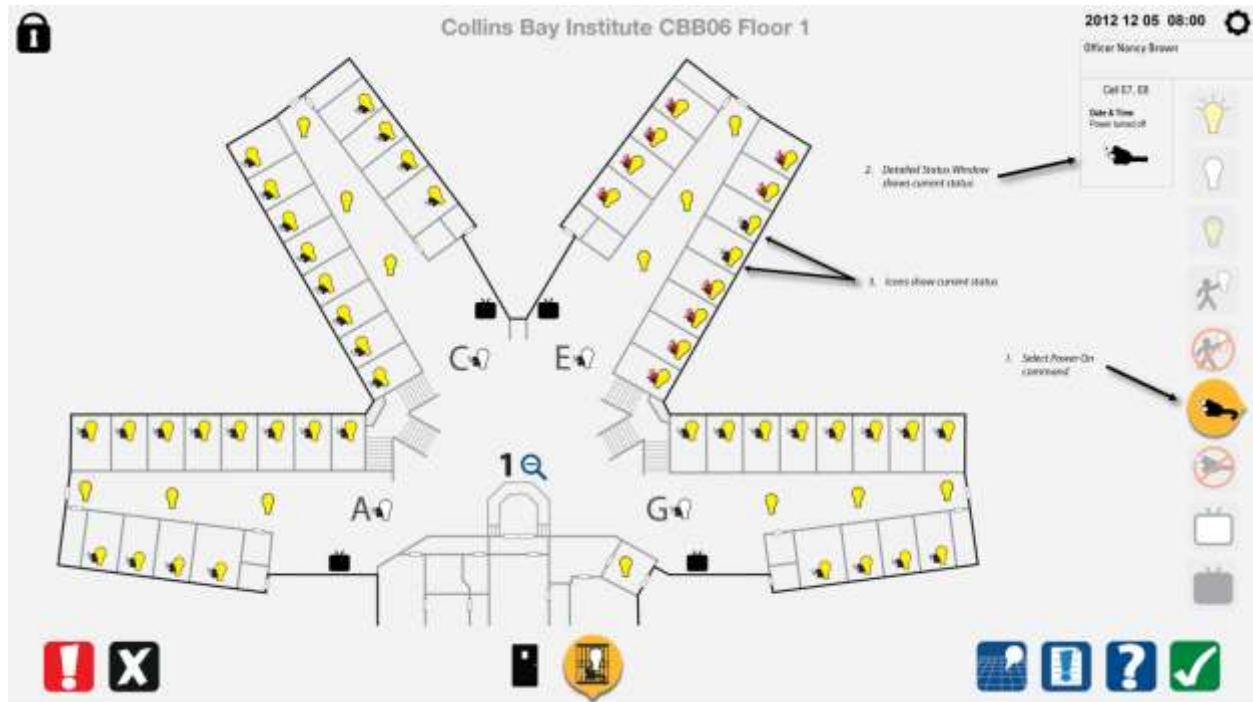
8.21 Enable power in a single cell – command completed



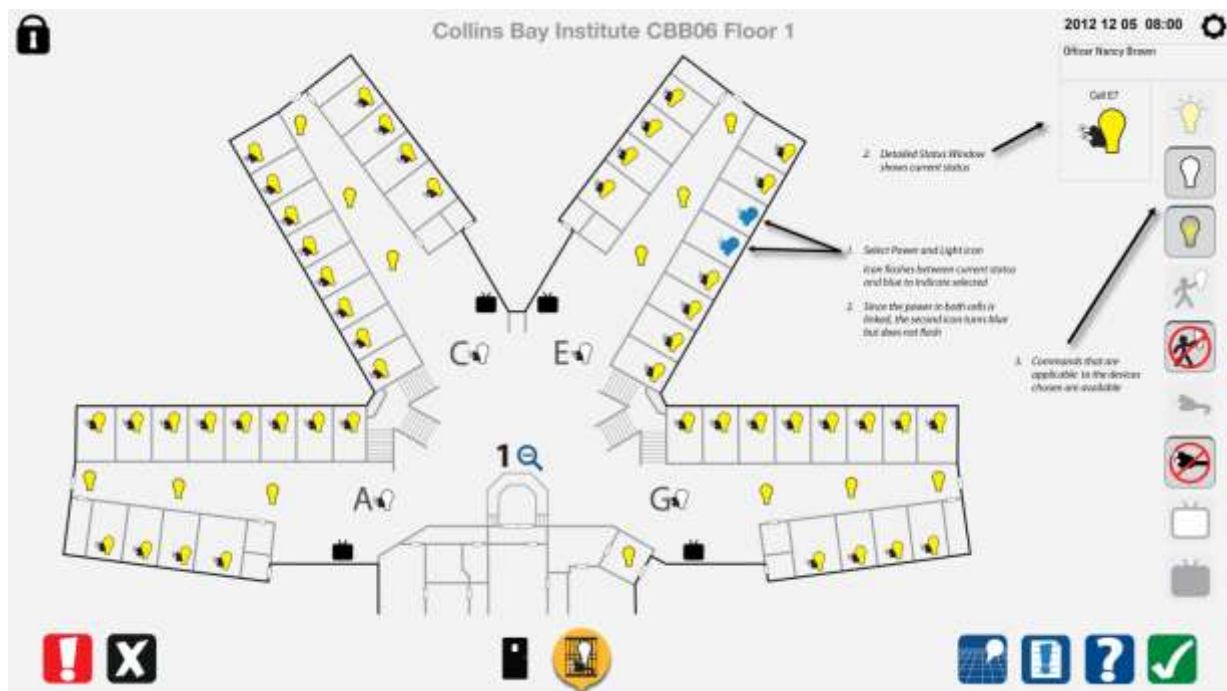
8.22 Enable power in a single cell that is joined



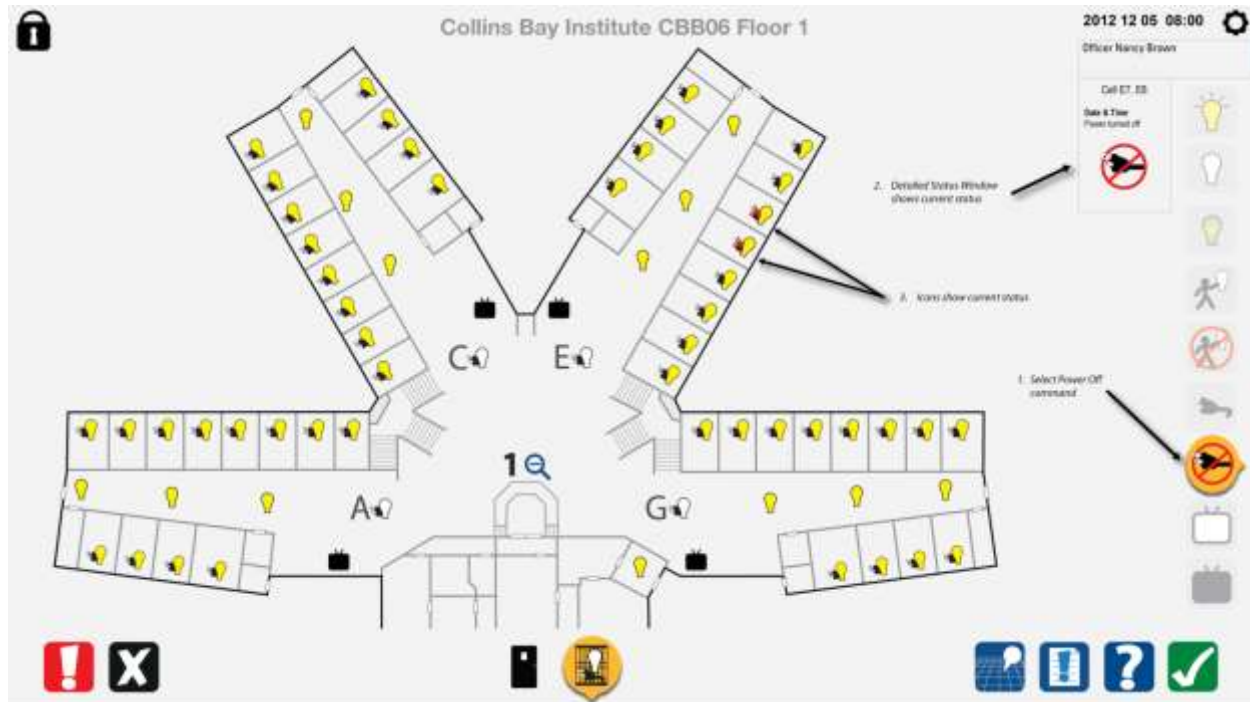
8.23 Enable power in a single cell that is joined – command completed



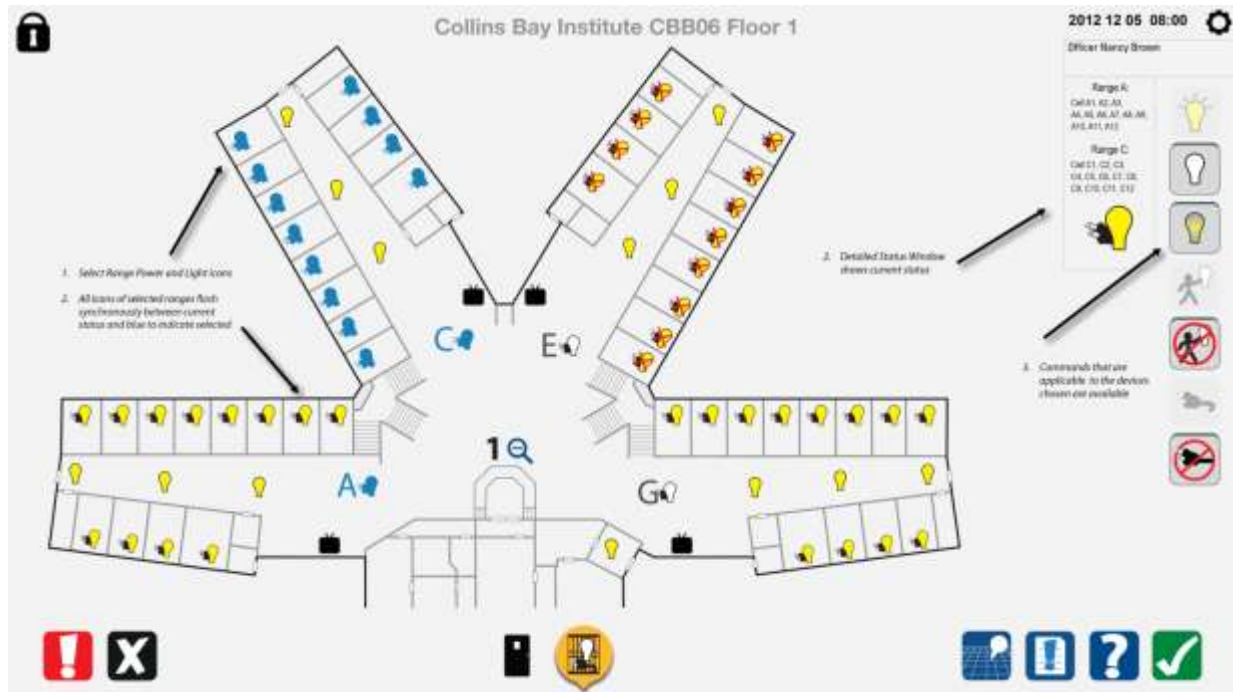
8.24 Disable power in a single cell that is joined



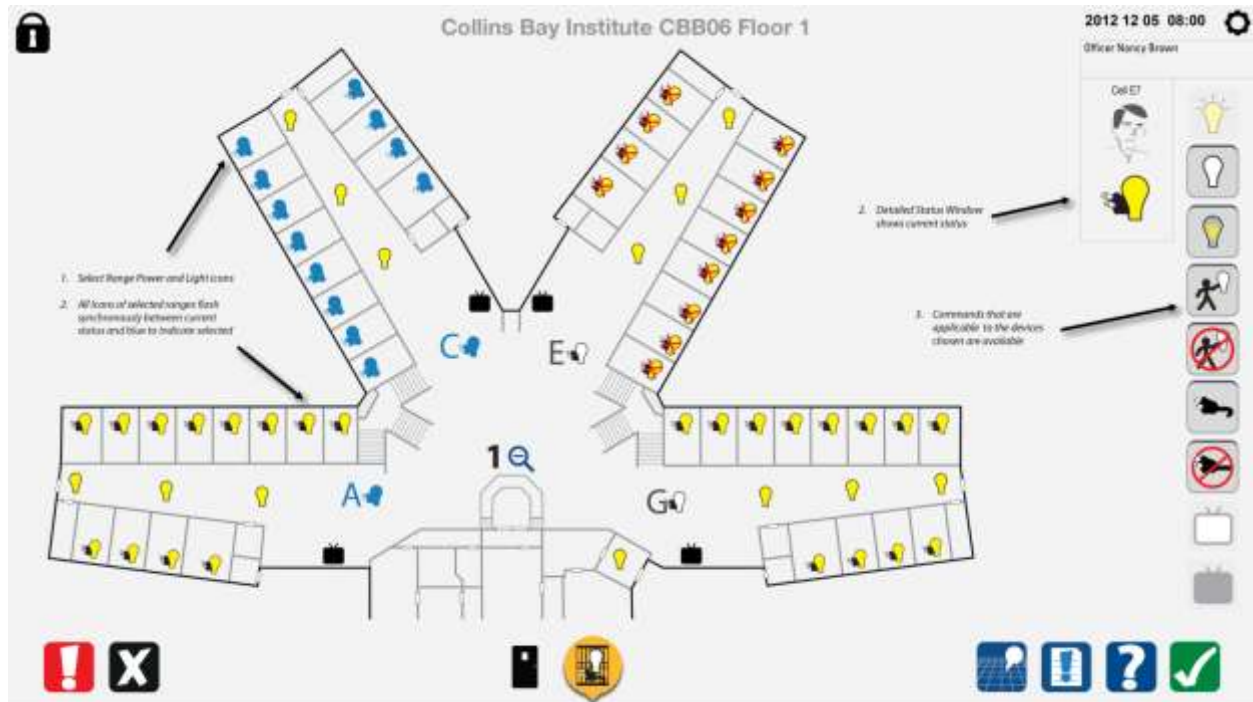
8.25 Disable power in a single cell that is joined – command completed



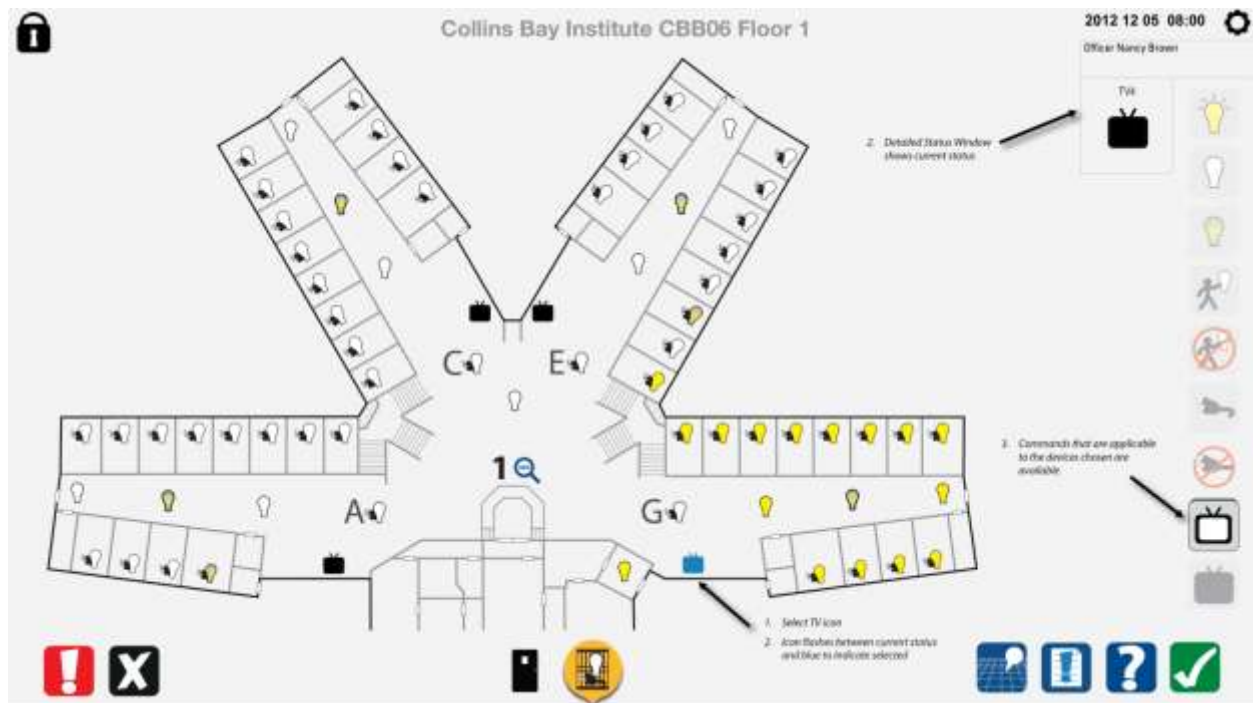
8.26 Disable power in a range



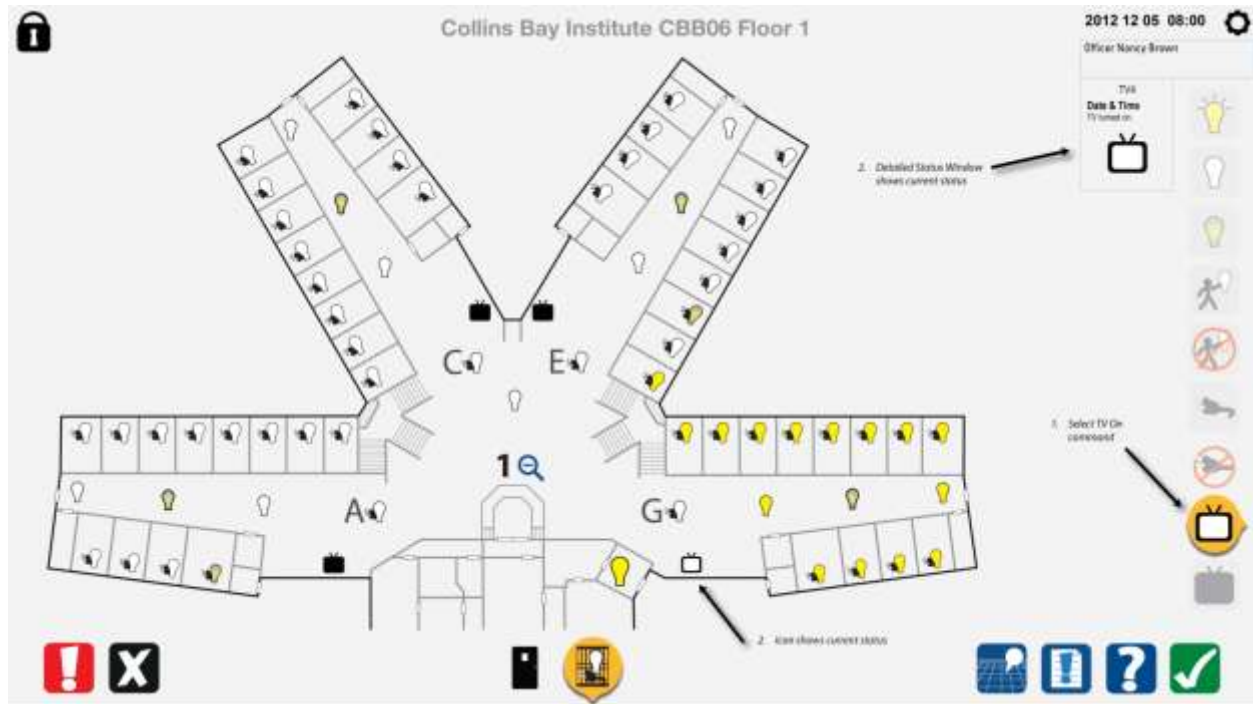
8.27 Disable power in a range – command completed



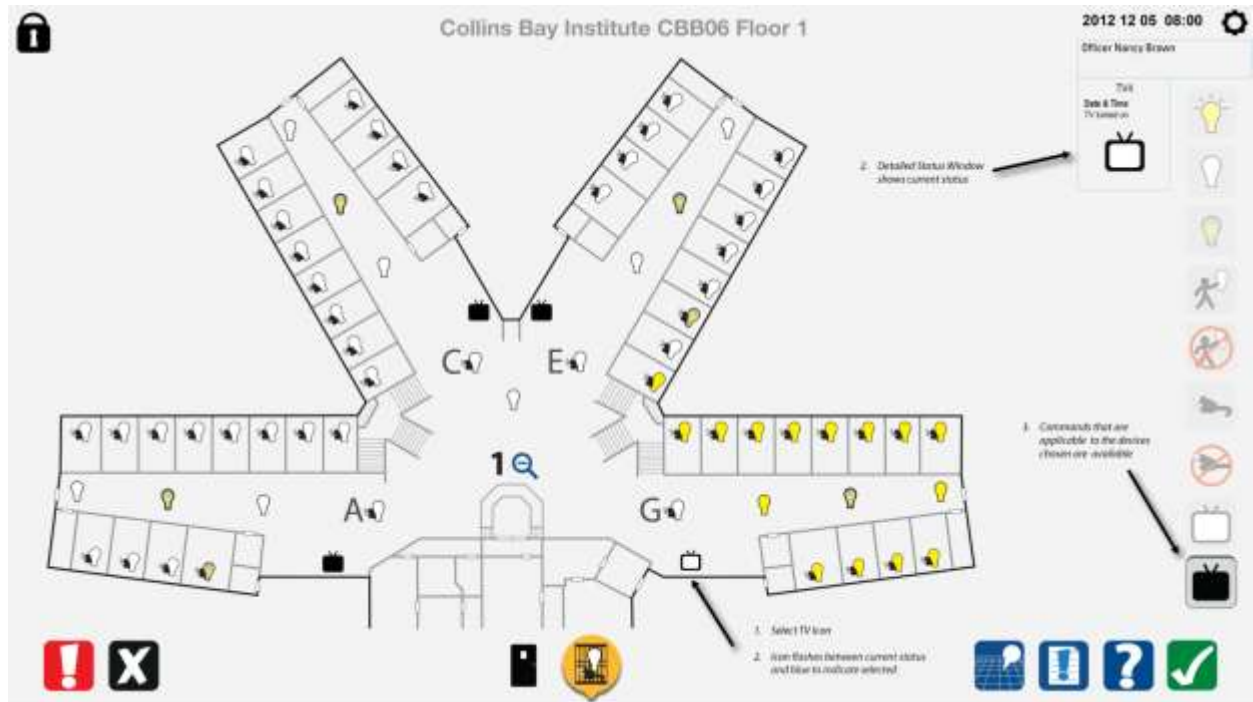
8.28 TV On



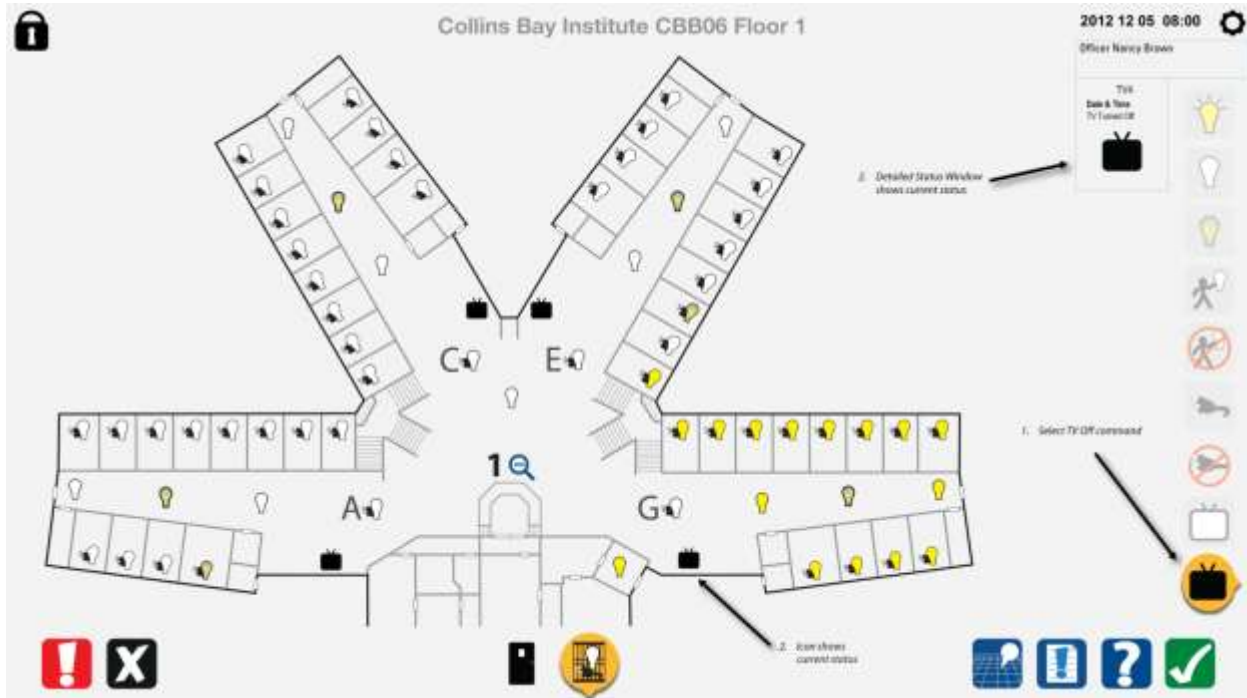
8.29 TV on – command completed



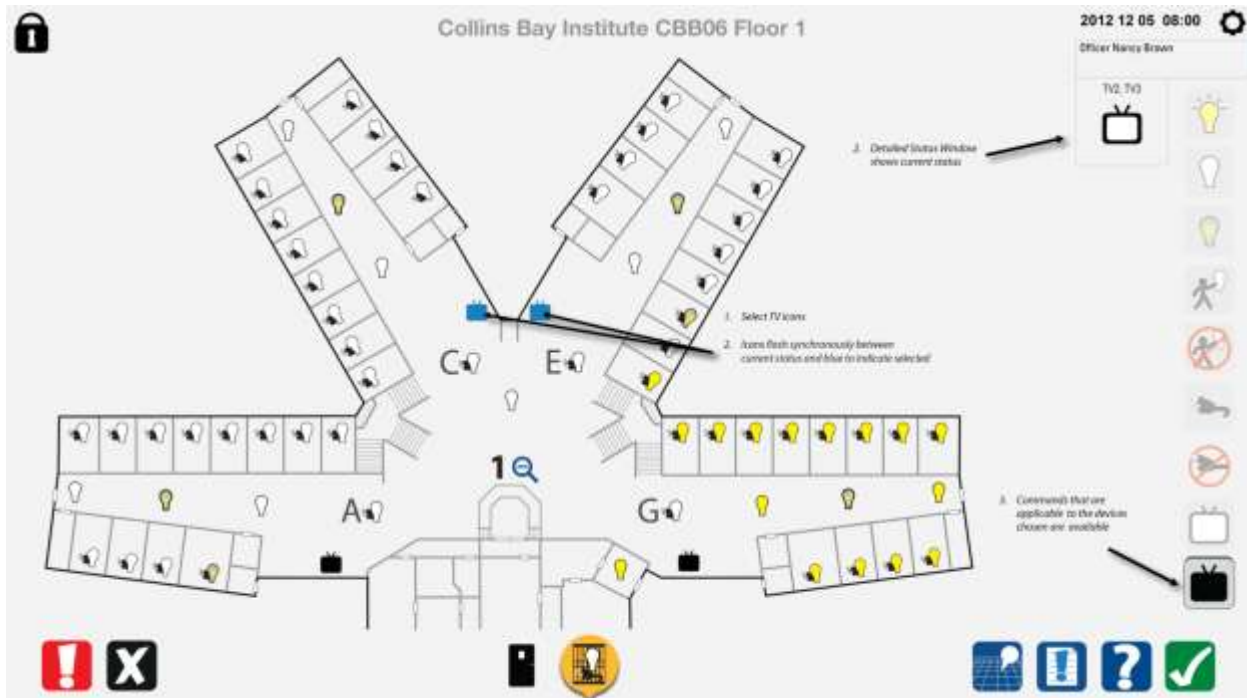
8.30 TV Off



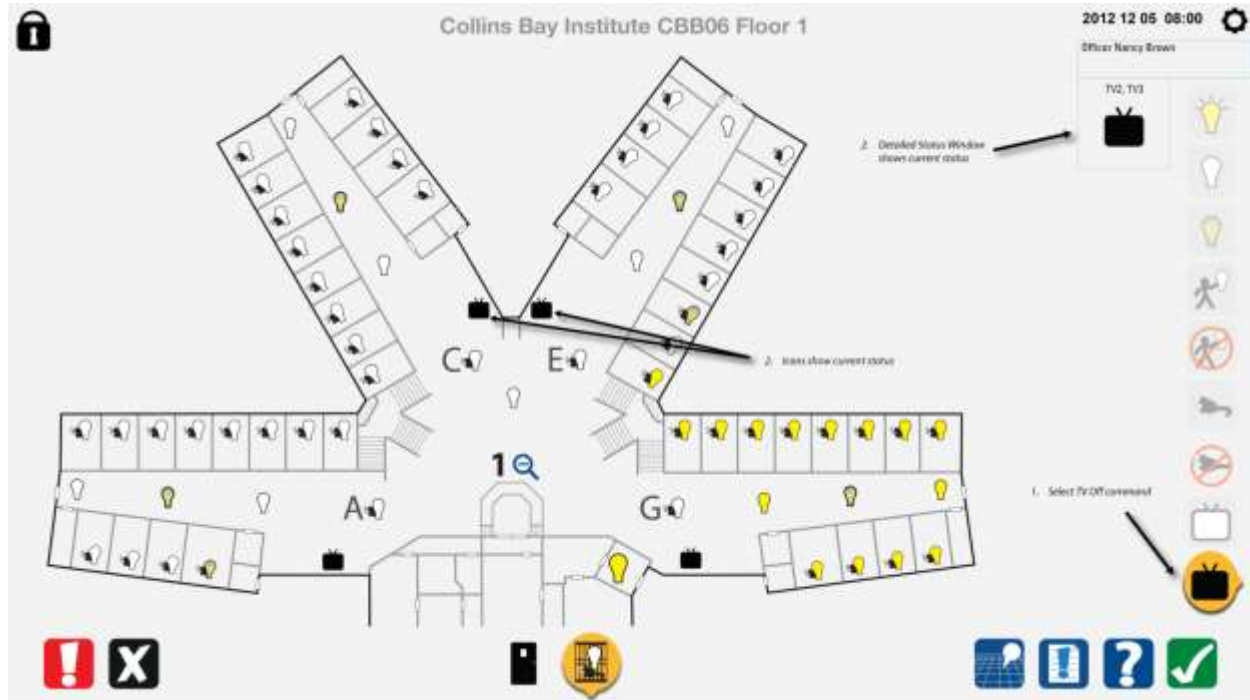
8.31 TV off – command completed



8.32 TV Group off












8.33 TV group off – command completed





















9 POWER AND LIGHT ICONS FOR LIVING UNIT CONTROL POST

.1 All icons are available from CSC in .png format.





9.1 Power and light command icons









Icon Description	Location	Icon Name	Icon	Description for Help
Turn lights on	Command area	R1_light		Command to turn lights on
		R2_light_selected		Command to turn lights on selected
		R3_light_greyed		Command to turn lights on not available
Turn lights off	Command area	R4_light_off		Command to turn lights off
		R5_light_off_selected		Command to turn lights off selected
		R6_light_off_greyed		Command to turn lights off not available
Disable lights from inmate control	Command area	R7_light_disabled		Command to disable lights in cell for inmate control
		R8_light_disabled_selected		Command to disable lights in cell for inmate control selected
		R9_light_disabled_greyed		Command to disable lights in cell for inmate control not available

Power on	Command area	R10_power		Command to turn power on
		R11_power_selected		Command to turn power on selected
		R12_power_greyed		Command to turn power on not available
Power off	Command area	R13_power_off		Command to disable power
		R14_power_off_selected		Command to disable power selected
		R15_power_off_greyed		Command to disable power not available
TV on	Command area	R16_tv_on		Command to provide power to TV
		R17_tv_on_selected		Command to provide power to TV selected
		R18_tv_on_greyed		Command to provide power to TV not available
TV off	Command area	R19_tv_off		Command to turn power off to TV
		R20_tv_off_selected		Command to turn power off to TV selected










		R21_tv_off_greyed		Command to turn power off to TV not available
Nightlight ob	Command area	R22_night_light_on		Command to turn on night light
		R23_night_light_on_selected		Command to turn on night light selected
		R24_night_light_on_greyed		Command to turn on night light unavailable
Enable inmates to control lights	Command area	R25_cell_light_enable		Command to enable lights in cell for inmate to turn on, turn off, or turn on night light
		R26_cell_light_on_selected		Command to enable lights in cell for inmate to turn on, turn off, or turn on night light not available
		R27_cell_light_on_greyed		Command to enable lights in cell for inmate to turn on, turn off, or turn on night light not available













9.2 Power and light status icons

Icon Description	Location	Icon Name	Icon	Description for Help
Light off	Detailed status window	W40_cell_light_off		Indicates light is off
Night light on	Detailed status window	W41_night_light_on		Indicates night light is on
Light on	Detailed status window	W42_cell_light_on		Indicates light is on
Lights disabled, power on	Detailed status window	W43_lights_on_disabled_power_on		Indicates lights are disabled, and light is on. Power is available

		W65_no_power		
		W66_TV_off		
		W67_TV_on		
		W68_power_light_on		
		W88_power_on		
		W69_no_power_light_on		
		W70_no_power_night_light		
		W71_no_power_light_disabled_on		

9.3 Power and light map icons

Icon Description	Location	Icon Name	Icon	Description for Help
Light off power on	Map area	M60_power_light_off		Indicates light is off; power is available
Light on power on	Map area	M61_power_light_on.		Indicates light is on; power is available
Night light on power on	Map area	M62_power_night_light		Indicates nightlight is on; power is available
Lights off power off	Map area	M63_no_power_light_off		Indicates power is disabled; light is enabled and off
Lights on power off	Map area	M64_no_power_light_on		Indicates power is disabled; light is enabled and on
Light and power selected	Map area	M65_power_light_selected.		Indicates light and power are chosen to send a command to
Light off and disabled power on	Map area	M66_power_light_disabled_off		Indicates power is available; lights are disabled, light is off
Light on and disabled, power on	Map area	M67_power_light_disabled_on		Indicates power is available; lights are disabled, light is on
Night light on power on	Map area	M68_power_light_disabled_night		Indicates power is available; lights are disabled, night light is on

Light disabled, light off and power off	Map area	M69_no_power_light_disabled_off		Indicates power is off; lights are disabled, light is off
Light disabled, light on and power off	Map area	M70_no_power_light_disabled_on		Indicates power is off; lights are disabled, light is on
Light disabled, night light on and power off	Map area	M71_no_power_light_disabled_night		Indicates power is off; lights are disabled, night light is on
Power off, night light on	Map area	M72_no_power_night_light		Indicates power is off; night light is on
TV on	Map area	M73_tv_off		Indicates TV is off
TV off	Map area	M74_tv_on.		Indicates TV is on
TV selected	Map area	M75_tv_selected		Indicates TV is chosen to send a command to
Light (not a cell light) on	Map area	M76_light_on		Indicates light is on
Light (not a cell light) off	Map area	M77_light_off		Indicates light is off
Power off	Map area	M78_no_power		Indicates power is off
Power on	Map area	M79_power_on		Indicates power is on
Night light (not a cell light) on	Map area	M80_night_light_on		Indicates night light is on