INTEGRATIVE LEARNING CENTER

BUILDING USER MANUAL

For additional information regarding building systems and operations, please call the Facilities &
Campus Services Solutions Center at (413) 545-6401.

Facilities & Campus Services

We’re here to help.
This building user manual is published by Facilities & Campus Services to serve as a general resource of information for staff, faculty and students who work, live, and study in campus facilities. It contains information to familiarize occupants with the facility in a manner that supports the responsible use of building features and leads to personal comfort and efficient use of physical resources.

This manual would not have been possible without the knowledge and time given by many assisting advisors from Facilities & Campus Services including:

**Jeff Quackenbush**
UMass Project Manager

**Ted Mendoza**
UMass Project Manager

**Joel Norberg**
Architect, Stantec

**Kevin McCormick**
Engineer, Stantec

**Diane Bookwalter**
Electrical Engineer, Stantec

**Jenna Beltram**
Associate, Stantec

**Sandy Beauregard**
Facilities Engineer

**Jim Hunt**
Communications Manager

**Kylie Landrey**
Green Building Researcher & Graduate Student

**Ludmilla Pavlova-Gillham**
Senior Campus Planner

**Ryan Rendano**
Green Building Researcher & Graduate Student

---

ACKNOWLEDGEMENTS

This building user manual is designed to be universally accessible. Visually impaired users may require additional physical orientation. Please contact UMass Disability Services at (413) 577-0122 for assistance.

Main Concourse
Christian Phillips, courtesy of Stantec, Inc.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. <strong>Contacts</strong></td>
<td>4</td>
</tr>
<tr>
<td>II. <strong>Building Overview</strong></td>
<td>5</td>
</tr>
<tr>
<td>III. <strong>Building Resources</strong></td>
<td>6</td>
</tr>
<tr>
<td>a. <strong>Entrances</strong></td>
<td>7</td>
</tr>
<tr>
<td>- Entrance Service &amp; Maintenance</td>
<td>7</td>
</tr>
<tr>
<td>- Key Card Access</td>
<td>8</td>
</tr>
<tr>
<td>b. <strong>Windows</strong></td>
<td>9</td>
</tr>
<tr>
<td>- Operable Windows</td>
<td>9</td>
</tr>
<tr>
<td>- Shading Devices</td>
<td>10</td>
</tr>
<tr>
<td>c. <strong>Recycling &amp; Trash</strong></td>
<td>12</td>
</tr>
<tr>
<td>d. <strong>Power &amp; Lighting</strong></td>
<td>13</td>
</tr>
<tr>
<td>- Daylight &amp; Occupancy Sensors</td>
<td>13</td>
</tr>
<tr>
<td>- Lighting Controls</td>
<td>14</td>
</tr>
<tr>
<td>e. <strong>Audiovisual (A/V) Systems</strong></td>
<td>20</td>
</tr>
<tr>
<td>f. <strong>Heating, Cooling, &amp; Ventilation (HVAC)</strong></td>
<td>21</td>
</tr>
<tr>
<td>- Natural Ventilation</td>
<td>22</td>
</tr>
<tr>
<td>- Dedicated Outdoor Air System</td>
<td>24</td>
</tr>
<tr>
<td>- Variable Air Volume (VAV) System</td>
<td>25</td>
</tr>
<tr>
<td>- Ceiling Zoned Fan Coil Units (FCU)</td>
<td>26</td>
</tr>
<tr>
<td>- Radiant Panels</td>
<td>27</td>
</tr>
<tr>
<td>- Thermostat System</td>
<td>28</td>
</tr>
<tr>
<td>- Thermostat Locations &amp; Zones</td>
<td>31</td>
</tr>
<tr>
<td>g. <strong>Plumbing</strong></td>
<td>35</td>
</tr>
<tr>
<td>- Restrooms &amp; Shower Facilities</td>
<td>35</td>
</tr>
<tr>
<td>- Dual Flush Toilets</td>
<td>36</td>
</tr>
<tr>
<td>h. <strong>Safety Systems</strong></td>
<td>37</td>
</tr>
<tr>
<td>- Fire Alarm System</td>
<td>37</td>
</tr>
<tr>
<td>- Egress Maps</td>
<td>38</td>
</tr>
<tr>
<td>i. <strong>Clock System</strong></td>
<td>42</td>
</tr>
<tr>
<td>j. <strong>PANTRIES</strong></td>
<td>43</td>
</tr>
<tr>
<td>k. <strong>Green Roof</strong></td>
<td>44</td>
</tr>
<tr>
<td>l. <strong>Green Office Program</strong></td>
<td>45</td>
</tr>
<tr>
<td>m. <strong>Notes</strong></td>
<td>46</td>
</tr>
</tbody>
</table>

Southeast Exterior Perspective  
Christian Phillips, courtesy of Stantec, Inc.

This user manual was designed to be read in both electronic and print forms. Interactive PDF versions of all building user manuals are accessible through the [Campus Planning website](#).

*Please consider the environment before printing this manual, and use the digital version whenever possible.*
I. CONTACTS

**Course and Classroom Management** - Monday - Friday, 8:00am - 5:00pm
Assistant Registrar for Scheduling..........................................................(413) 545-2605
rscheduling@registrar.umass.edu

**Department Coordinators** - Available during regular business hours

<table>
<thead>
<tr>
<th>Name</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kristen Garand</td>
<td>(413) 545-5759</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:krisg@umass.edu">krisg@umass.edu</a></td>
</tr>
<tr>
<td>Tom Maxfield</td>
<td>(413) 545-0889</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:maxfield@linguist.umass.edu">maxfield@linguist.umass.edu</a></td>
</tr>
<tr>
<td>Bruce O’Leary</td>
<td>(413) 545-9276</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:bruce@umass.edu">bruce@umass.edu</a></td>
</tr>
<tr>
<td>Sheilagh Hanley</td>
<td>(413) 545-5931</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:hanley@umass.edu">hanley@umass.edu</a></td>
</tr>
<tr>
<td>Sharmila Muratoti</td>
<td>(413) 545-2605</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:smuratoti@registrar.umass.edu">smuratoti@registrar.umass.edu</a></td>
</tr>
<tr>
<td>Barry Spence</td>
<td>(413) 545-3659</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:bspence@complit.umass.edu">bspence@complit.umass.edu</a></td>
</tr>
<tr>
<td>Debra Madigan</td>
<td>(413) 545-4314</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:dmadigan@comm.umass.edu">dmadigan@comm.umass.edu</a></td>
</tr>
</tbody>
</table>

**List of DBCs**
http://www.umass.edu/fcsadmin/sites/default/files/BCCSRList.pdf

**Environmental Health & Safety** - Staffed 24/7/365
https://ehs.umass.edu
(413) 545-2682

**Facilities & Campus Services Solution Center** - Staffed 24/7/365
(413) 545-6401
https://www.umass.edu/facilities/requests

**Information Technology Services** - Monday - Friday, 8:30am - 5:00pm
IT Support Center...........................................................................(413) 545-9400
https://www.umass.edu/it/support

**Classroom Technology Services** - Monday - Friday, 8:00am - 7:00pm
Auditorium & Classroom Equipment Support.................................(413) 545-5768
cts@it.umass.edu
II. BUILDING OVERVIEW

The $93 million, 173,000 S.F. Integrative Learning Center (ILC) provides state-of-the-art education and technology facilities for the Communication, Journalism, Linguistics, and Film Studies departments. Located adjacent to the Lincoln Campus Center and Student Union, the facility houses offices, film broadcasting and production studios, editing and screening rooms, auditoriums, technology-enabled active learning classrooms, lounges, and language laboratories.

The building is equipped with the latest audiovisual devices and educational technologies, and accommodates up to 2,000 students. The ILC is designed to adapt to future digital technologies to match the evolving fields of news and journalism, training the students of today for the jobs of tomorrow.

The ILC has been a major success, blending individual study areas with collaborative group spaces. It is one of the most highly trafficked buildings on campus, with a turnover rate of 3,600 students per hour. The project is LEED Gold Certified.
III. BUILDING RESOURCES

As a responsible member of the University of Massachusetts and town of Amherst community, we hope that you will take your role as faculty, staff, student, or guest seriously and respect the university’s facilities, property, and grounds. The Integrative Learning Center provides a new learning facility which all should have the freedom and privilege to use.

The building features several advanced systems designed to reduce energy use and facilitate a healthy living and learning environment. This facility was designed to encourage its users to engage in environmentally conscious habits. As a regular building user, the contents of this manual will help you to better understand your role in these crucial sustainability efforts.

Southwest Conference Room
Christian Phillips, courtesy of Stantec, Inc.
What Is It?

Grilles, grates, and/or mats are located at all main building entrances to help facilitate healthy indoor air quality. Note that some entrances are designated for service personnel only, and are not accessible to the general public.

What’s My Part?

Please be aware of ongoing building maintenance efforts. Utilize the available grilles, grates, and mats at main entrances to help reduce the influx of dirt and particulates.
KEY CARD ACCESS

What Is It?

The RP-40 is a multi-technology card reader designed for enhanced security through mutual authentication and data encryption. These devices are located throughout the building as part of an advanced security system with integrated cameras and lighting.

The Integrative Learning Center is open to the public weekdays from 8am - 11pm, and locked on weekends. Card reader systems are also installed on interior classroom and administrative doors to protect the technology and systems housed inside during off-hours. Building faculty, instructors, and departmental staff have access to these spaces after the rooms auto-lock via the door equipped with a card reader.

How Does It Work?

Readers provide access to valid key cards when scanned. Hold your identification card directly in front of the RP-40 until the top status indicator light turns from red to green. The door is now unlocked. The RP-40 card reader is designed to scan your card through most wallets, small purses, and pocket bags.

Alternatively, physically-impaired users may press the raised paddle button adjacent to the door to automatically unlock and open it.

What’s My Part?

If you have a card to access particular spaces outside of standard building operation hours, please use it responsibly and do not give it out for use by others. If you have any issues accessing a room using your card, please contact your Department Building Coordinator (see I. Contacts).
OPERABLE WINDOWS

What Are They?

Aluminum frame, tilt-out awning style windows are located in perimeter offices to improve indoor air quality and occupant comfort. Glazing was selected for its visibility and energy efficiency properties based on the expected sun and heat exposure. The design team performed solar analysis studies to determine areas where high-performance glazing would have the greatest benefits in terms of cost and energy savings.

South and west-facing windows experience direct natural light, which can cause heat gain issues and increase cooling loads during the summer months. These windows are designed with a low solar heat gain coefficient (SHGC) to mediate light and allow less heat transmission through the glass.

In contrast, the north and east facades experience indirect light exposure. This glazing has a high SHGC to maximize solar gains and minimize building heating loads during the winter months.

How Do They Work?

Operable windows allow you to opt out of the building’s controlled environment in favor of natural ventilation. Position sensors in the frame automatically detect when the window is open or closed.

Rotate the handle at the bottom of the window outward to open. When your window is open, the HVAC system will shut off and remove your office from the group it shares a VAV box with (see VAV System). Turn the handle counterclockwise to close the window. The system will automatically re-engage once the window is closed.

What’s My Part?

Please remember that opening your window will result in a HVAC system shutoff for your office until the window is closed. To reduce energy use, open your windows and take advantage of natural ventilation when weather and temperature conditions are favorable. Please close all windows before leaving your office at the end of the day. Doing so prevents heat loss overnight, reduces building heating loads, and saves energy.
EXTERIOR SHADING DEVICES

What Are They?

Due to the path of the sun, the south and west-facing sides of a building experience greater intensities of sunlight compared to the north and east. An exterior, aluminum louvered shading system on the south and west sides of the Integrative Learning Center maximizes views and natural daylighting, whilst protecting the building against glare and high solar heat gain during the summer months. This translates to decreased building cooling loads, and increased energy savings.

How Do They Work?

Exterior louvers are designed and dimensioned according to the building’s solar orientation to control the flow of natural light into interior spaces, as shown below.

What’s My Part?

The exterior louvers are a fixed structural system designed to optimize shading and daylighting based on the building’s solar orientation. No action or adjustments are required by the user.
INTERIOR SHADING DEVICES

What Are They?

Conference rooms are equipped with MechoSystems EcoVeil™ 0950 Series motorized interior roller shade systems to allow occupants full control over natural light exposure. This system works in tandem with fixed exterior shading devices to control glare and solar heat gain.

The EcoVeil™ is a Cradle to Cradle certified product selected both for its sustainable properties and ability to effectively mediate light. Its primary material, ThermoPlastic Olefin (TPO), is biodegradable and polyvinyl chloride (PVC)-free.

How Do They Work?

Meeting rooms include a five-button wall switch which provides full control over the interior shading devices. Intermediate shade band height intervals are factory preset to 25%, 50%, and 75% by default.

The switch configuration shown below includes three levels of preset intermediate control for roller shade screen height, along with full range up and down manual controls.

What’s My Part?

*During the summer months, utilize the solar screen shades* to reduce solar heat gain and building cooling loads.

*In winter, take advantage of direct light exposure during the day* to naturally heat spaces. Close the shades before leaving for the day to prevent heat loss and reduce building heating loads overnight.
RECYCLING & TRASH

What Is It?

Since 2001, the university has recycled all materials banned from disposal facilities by the Massachusetts Department of Environmental Protection (DEP).

The ILC utilizes dual stream recycling, where paper and cardboard are kept separate from bottles and cans. This strategy has low contamination levels and processing costs, and results in a high quality and value of recovered material compared to single stream recycling.

After collection and storage onsite, materials are transported to a recycling plant where they are sorted and processed for reuse. Trash and recycling receptacles are located in all classrooms and administrative spaces, and also interspersed throughout corridors and common areas. For more information about recycling at UMass, visit www.umass.edu/recycle, or call the Office of Waste Management at (413) 545-9615.

What’s My Part?

Recycling is only encouraged, it is the university’s policy. Please remember to dispose of all recyclable materials using the designated bins, and resist the urge to discard recyclable items in trash cans.
Integrative Learning Center Building User Manual

DAYLIGHT & OCCUPANCY SENSORS

What Are They?

Ceiling mounted sensors detect when a particular space is in use, and adjust the building’s lighting and HVAC systems accordingly based on its daily occupancy patterns.

Daylight and occupancy sensors are tied to the Johnson Controls Metasys™ Building Automation System (BAS), which allows the Physical Plant to monitor and control the building’s systems remotely.

How Do They Work?

Sensors are programmed to detect ultrasonic pulses and infrared, heat-based movement. This allows the system to accurately detect motion and assess activity levels at any given time.

Daylight and occupancy sensors function automatically. Physical light switches and thermostats are used to manually control lighting and thermal comfort in spaces. Together, these design strategies reduce heating, cooling, and lighting loads by activating these systems only when required.

When activity is continually detected by the occupancy sensor, artificial lighting will remain engaged, and the HVAC systems will ramp up to meet user demand. If a room is unoccupied for a prolonged period of time, the occupancy sensor will automatically shut off the lights, and set back heating and cooling levels to baseline temperatures.

What’s My Part?

Sensors are preprogrammed to activate lighting and HVAC systems when a space is in use. After a programmed setting of room inactivity, the sensors will turn off lighting automatically. Remember to stretch, get up, and walk around at regular intervals to ensure that your movements are detected by the occupancy sensor.

To save additional energy, please remember to manually shut off your lights. By doing this, you negate the 30 minute time delay for automatic shut off, and protect against false activation from movements near the door.
LIGHTING CONTROLS

What Are They?
All interior spaces in the building are designed to provide adequate illumination levels consistent with the standards defined in the *Illumination Engineering Society Handbook*. In the ILC, light fixtures were selected to enhance the building’s unique aesthetics and architectural details. Lighting strategies are achieved through the careful selection of wall finishes and glazing, and the intentional placement of statement and accent lighting fixtures.

What’s My Part?
High level lighting operates on an automated schedule that turns on the lights Monday through Friday, 8am - 8pm. Low level lighting is adjusted manually by the occupant. You can control the lights in your office using the wall-mounted switch to toggle between three settings: high, low, and off. Choose your lighting levels consciously based on the task and ask yourself, “how much light do I actually need?”

How Do They Work?
The ILC lighting system has different levels of manual switching which vary by room type, as well as daylight and occupancy sensors to help limit electricity consumption. Automated daylight sensors monitor natural daylight levels, and adjust the quantity of artificial lighting accordingly.

If natural daylight matches or exceeds the preset artificial lighting level, the sensor shuts off the lights. When sensors detect natural light levels above 50 foot candles, high level lighting will shut off automatically after a ten minute delay. Low level lighting will remain activated. Occupancy sensors will automatically turn off all lights after 15 minutes of inactivity.
**LIGHTING CONTROLS**

**How Do They Work?**

High efficiency LED and fluorescent light fixtures are installed and zoned according to room use type (see Lighting Controls Table). In smaller rooms, such as offices and mail rooms, all light fixtures are controlled by a single wall toggle switch next to its entrance.

Larger classrooms, conference spaces, and auditoriums contain multiple switches, each tied to a different zone of lighting. Dimmer switches are located at room entrances, whiteboards, and/or projection screens. These switches contain a series of buttons, each corresponding to a preset artificial light level. Experiment with the available switches and dimming controls to find the artificial light level which best suits your needs.
COMMON AREAS

Lighting in main corridors and lobbies operates based on occupancy sensors. Zones for emergency and normal power are tied to a lighting relay system. All lights are connected to the building automation system (BAS) for universal control and override. This integrative system allows lighting to be turned on and off based on how occupants regularly use the building. Public atrium spaces are programmed based on the time of day using relays and the BAS. Atrium lighting also operates using daylight sensors, which will automatically disable artificial light when ample natural daylight is available.

AUDITORIUM

The ILC auditorium features a dimmable lighting system with full control over the individual zones. Due to the room’s large size, a dimming panel is provided in the adjacent audiovisual (AV) room. Wall switches near entrances turn main lighting on and off. Lighting zones are dimmable wherever possible. However, metal halide fixtures only switch on and off. Preset lighting scenes are programmable by UMass and the AV system using an audiovisual tie-in.
CLASSROOMS

Classrooms provide advanced lighting control systems which allow for customization based on different use types. A master wall switch which controls all light fixtures in the room is located next to all primary room entrances. Each classroom is subdivided into lighting zones based on the needs of the A/V system. A four-screen station near the podium provides control over all zones, in addition to a wireless remote control for ease of use. These areas include dimmable lighting for a wide range of lighting levels.

Where A/V equipment does not require a direct tie to the lighting controls, multiple levels of lighting are provided via the dual ballasting of fixtures. This allows for control over the individual lamps in a fixture to emit different levels of light. Emergency lighting is provided near the exits. Emergency light fixtures can be manually disabled if desired, but will automatically activate in the event of an emergency for egress purposes.

BREAK & MAIL ROOMS

Lighting is controlled by a single wall switch at the main door. Lights will toggle on and off automatically using occupancy sensors. Please review the beginning of this section for more information.
For conference rooms with A/V integration, lighting adjustments are controlled similarly to classrooms. A zoned Lutron GRAFIK Eye system operates in conjunction with the A/V tie-in interface. Scene control and on/off switches are provided at the door. For meeting rooms without A/V integration, lighting controls are zoned based on fixture location. An integral switch bank is located near the door and main screen to toggle individual zones on and off.

Every office provides dual switching between two lighting levels. Switch “a” will turn on one lamp in each fixture, and switch “b” will activate all remaining lamps. Auto on/off functions are controlled by daylight and occupancy sensors. All lights are programmed to turn off automatically once the room is vacated for an extended period of time. The timeout duration can be adjusted between 5-30 minutes, and is set to 15 minutes by default. When daylight sensors register over 50 foot candles of natural light (bright enough for office tasks), lighting controlled by switch “a” is shut off automatically. Lights manually controlled by switch “b” are unaffected by daylight sensors.
## LIGHTING CONTROLS TABLE

<table>
<thead>
<tr>
<th>Occupancy</th>
<th>Toggle Switch</th>
<th>Timer Switch</th>
<th>Tie-In with AV Control</th>
<th>Occupancy Sensor</th>
<th>Daylight Sensor</th>
<th>Preset Dimming</th>
<th>Preset Switching - No Dimming</th>
<th>Low Voltage Relay Time Clock</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Lobbies &amp; Gathering</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Lobby &amp; Passage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Corridors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auditorium</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-Purpose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tiered Classrooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case Study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team Based Learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexible Classroom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group Study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lounge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Break-Out Spaces</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Lounge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office Supp. Corridors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workrooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey/Café</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior Walkways</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restrooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical/Electrical Rooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telecommunications Rooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stairs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
AUDIovisual (A/V) Systems

What Are They?

The Integrative Learning Center is designed to accommodate a wide range of current and future digital technologies to match the evolving fields of news and journalism. The building features fully integrated, state-of-the-art audiovisual (A/V) solutions for everyday lectures, meetings, and presentations, as well as specialized facilities and equipment for filming, editing, and live broadcasting. A/V systems installed throughout the building vary widely depending on the space use type.

What’s My Part?

Please remember to turn off all A/V systems and return all equipment to its original location before leaving a space. For A/V operational instructions and support, call Classroom Technology Services at (413) 545-5768. For general IT support, contact the help desk at (413) 545-9400, or visit the Information Technology Services website at http://www.umass.edu/it/support.

A/V Wall Control Panel
HVAC SYSTEMS OVERVIEW

What Is It?
The Integrative Learning Center contains a variety of heating, ventilation, and air conditioning (HVAC) systems. Together, they manage the intake, conditioning, delivery, and exhaustion of air to provide thermal comfort and natural ventilation for occupants.

How Does It Work?
Fresh intake air is collected by the rooftop dedicated outdoor air system (DOAS), and conditioned to preset interior temperatures using a variable air volume (VAV) system. Conditioned air is delivered to interior spaces through ceiling zoned fan coil unit (FCU) supply diffuser registers.

Dedicated return registers housed in the ceiling system collect heated air for reconditioning. A second rooftop unit manages this exhaust air, and reconditions it for delivery to interior spaces. The system expels exhaust air while conditioning incoming fresh air received from the dedicated outdoor air system (DOAS), leading to increased energy efficiency.

HVAC systems are remotely controlled and monitored in real time by the Physical Plant, using the Johnson Controls Metasys™ Building Automation System (BAS).

What’s My Part?
Please review this section in its entirety to familiarize yourself with the building’s various HVAC systems. Pay special attention to the system(s) present in your office, and consult this information as a primary resource when troubleshooting. If you continue to experience issues with units or controls, contact your Department Building Coordinator (see I. Contacts).
NATURAL VENTILATION

What Is It?
Natural ventilation relies on the unforced movement of air through strategically placed and controlled building apertures, as opposed to conditioning air using traditional mechanical systems. In the ILC, natural ventilation allows the mechanical supply air and ventilation systems to shut off for approximately 15% of the year in common spaces. Natural ventilation has several benefits, including low operational costs, and health gains for building occupants.

What’s My Part?
The system functions automatically. The Metasys® Building Automation System (BAS) monitors indoor and outdoor temperatures and determines how much the windows need to open or close to regulate indoor temperature and air flow. A rain sensor closes these windows during inclement weather conditions, and the system is sealed off during winter to prevent cold air from infiltrating the building.

South Corridor

Natural Ventilation Window Sensor
Natural ventilation is controlled by the BAS, which monitors temperature conditions and adjusts air intake and exhaust rates accordingly. A series of automated windows on the south and west sides of the ILC intake cool supply air to naturally ventilate public spaces, as shown above. Air warms and rises as it travels through the building. This phenomenon is commonly referred to as the stack effect. Heated air is expelled from the ILC through a series of windows on the east side of the building, and through the roof via two vertical exhaust shafts (shown below). The entire process is done without the aid of mechanical systems.
DEDICATED OUTDOOR AIR SYSTEM (DOAS)

What Is It?

In addition to the variable air volume (VAV) system described in the next section, the dedicated outdoor air system (DOAS) supplies fresh air and removes exhaust air from interior spaces. All regularly occupied spaces include dedicated ceiling registers for natural ventilation. This ventilation method offers several benefits, including low operational costs, a 10-30% reduction in annual cooling loads, and increased environmental air quality for occupants.

How Does It Work?

Two rooftop units manage the intake and delivery of fresh air to interior spaces. One unit handles recirculated air, while the other contains the DOAS. Incoming supply air is filtered to remove contaminants, conditioned to a preset temperature for dehumidification, and distributed throughout the building to satisfy occupant demand for fresh air.

A heat recovery, or dual enthalpy wheel, rotates between the supply and exhaust air streams to maximize energy savings. Depending on the season, the wheel recovers either heating or cooling energy from the exhaust air, and uses it to condition the incoming supply air.

What’s My Part?

This system functions automatically. The Metasys® Building Automation System monitors indoor and outdoor temperatures and adjusts air intake and exhaust rates accordingly to regulate indoor temperature and air flow.
VARIABLE AIR VOLUME (VAV) SYSTEM

What Are They?

Variable air volume (VAV) systems fluctuate the supply airflow rate at a constant temperature of 55°F to condition interior spaces. This strategy is ideal for large buildings with several zones, each with its own unique heating and cooling needs. VAV systems facilitate high levels of occupant comfort for a wide variety of spaces, and contribute to energy savings by reducing necessary fan and refrigeration energy.

What’s My Part?

The HVAC system will automatically determine whether your room needs to be heated or cooled using the same sensors tied to the lighting system. If you are absent from your room and feel warm or cold when you return, please give the system time to reach its set point before manually adjusting your thermostat. Doing so puts less demand on the heating system and contributes to energy savings.

How Do They Work?

VAV systems condition interior spaces by modulating the supply airflow volume in response to room temperature. When a room’s temperature rises above its predefined set point, the thermostat relays a signal to the VAV air terminal box. A damper inside of the box changes its position to increase airflow through the system. As a result, the room is returns to its desired set point temperature.

The VAV system controls temperatures across multiple spaces with different heating and cooling requirements using a single, central air handling unit (AHU). Air that is not needed in one space is reserved for another, increasing HVAC efficiency throughout the entire building.
CEILING ZONED FAN COIL UNITS (FCU)

What Are They?

After air is conditioned using the VAV system, it is distributed to interior spaces via ceiling zoned fan coil units (FCU) with dedicated supply and return registers. Supply registers deliver fresh, conditioned air to interior spaces, while return registers collect heated air for reconditioning or exhaustion using a dedicated rooftop unit.

What’s My Part?

The temperature in your office is dependent on all offices in your shared zone. Groups of two to three offices share one FCU system for heating and cooling. The FCU calculates the supply air temperature based on the average set point of all thermostats in the zone (see Thermostat System).

First, use the thermostat maps to identify your office and zone. Then, coordinate with the surrounding offices in your zone to ensure optimal comfort and energy use.
RADIANT PANELS

What Are They?

Radiant ceiling panels are located in all perimeter offices. They ensure occupant comfort in spaces adjacent to the outside walls and glazing surfaces, without taxing the building’s primary heating systems. The aluminum Price™ Modular Radiant Panel System (RPM) is installed in the ILC, with a standard white finish and 1” foil backing for acoustical purposes.

This panel employs heat sinks on the back of a rigid ceiling tile to effectively transfer heat from copper tubes to the panel face. The system can be silk screened to match a wide variety of tile appearances, seamlessly integrating the radiant panels into the standard ceiling tile grid.

What’s My Part?

The radiant panel control allows the user to personally adjust the heat level for optimal comfort. Occupants who prefer a cooler space will likely not use the panels, while those who prefer it warmer will utilize their full potential.

While in your office, feel free to adjust the slider to your liking. Note that radiant heat does not directly heat the air, but instead transfers heat to “objects” in the room, including yourself, your desk, and the floor. Please remember set the slider at the minimum position before you leave your office for the day.

How Do They Work?

The flow of hot water through the radiant panel is controlled by the slider on the room’s temperature sensor. When the slider is set at the low end, all heat is supplied by the building’s forced hot air system and no heat is emitted through the radiant panel. The further the slider is moved towards the maximum position, the more heat will be emitted from the panel.

The radiant panels serves as a secondary source of warmth and are not directly tied to the building’s primary heating system. Instead, heat from each panel radiates straight to the individual, making him or her feel warmer, without increasing the room’s ambient temperature.

The occupant acts as a thermal mass and radiates heat back into the space, increasing the temperature. This process occurs slowly, and has negligible effects on the space.

Radiant Panel Section Diagram

Courtesy of Price™
**THERMOSTAT SYSTEM**

**What Is It?**

The ILC features **Johnson Controls™** thermostats which correspond to specific heating and cooling zones (see *Thermostat Locations & Zones*).

**How Does It Work?**

Thermostats operate based on a predefined baseline, or **set point** temperature (typically 72°F). Room temperatures can deviate up to 2°F from the set point temperature in either direction before heating or cooling systems are triggered. In the example pictured below, the room temperature is allowed to fluctuate between 70 and 74°F before external systems are activated. This 4°F temperature range is referred to as the **deadband**.

Occupants can adjust the set point temperature up or down by 2°F using the dial on the device. Adjusting the set point temperature changes the deadband range accordingly. For example, lowering the set point to 70°F produces a deadband range of 68 to 72°F. Raising the set point to 74°F results in a deadband range of 72 to 76°F. Using an assigned set point allows the room temperature to fluctuate independently within the deadband, resulting in energy savings.

---

*Thermostat Set Point Diagram*
What’s My Part?

You have control to set the temperature of thermostats within preset, monitored parameters; typically up or down by 2°F. All rooms are set to 72°F by default. It is best to find a comfortable temperature within a few degrees of 72 and leave the controls alone.

If you are not immediately comfortable when you arrive at your office, please give the system time to reach its set point before manually adjusting your thermostat. If you believe the system is malfunctioning after this adjustment period, contact your Department Building Coordinator (see I. Contacts).

Occupancy Button

Press and hold the side occupancy button for one second to temporarily enable occupancy mode only when working outside of the building’s normal hours of operation (i.e. nights and weekends).

LED Mode Indicator

Illuminates to reflect the current occupancy mode. A steady light indicates occupied mode, while no light indicates unoccupied (night) mode.

Set Point Dial

Rotate the knob to adjust room temperature. Turn clockwise to increase the temperature, and counterclockwise to decrease.

Johnson Controls™ Thermostat
THERMOSTAT SYSTEM

CLASSROOMS & CONFERENCE AREAS

Each zone has two VAV boxes, or zone-level flow control devices. The first box controls the ventilation air flow rate while the second controls the primary air flow rate. Thermostats will modulate the VAV system up and down between the maximum and minimum flow rate levels to maintain comfortable carbon dioxide levels for occupants.

The flow rate for primary air will fluctuate similarly to maintain the space cooling set point. Each space also includes temperature, carbon dioxide, and motion/occupancy sensors that will automatically reset the room’s temperature when unoccupied.

INTERIOR OFFICES

Groups of four interior offices share one VAV box. The box will modulate flow rates to maintain the space cooling set point. In cooling mode, the VAV box controls temperatures based on the average set point for all occupied rooms. Each office also includes a temperature and motion/occupancy sensor tied to the Building Automation System (BAS).

PERIMETER OFFICES

Each pair of corridor offices share a VAV box, while corner offices have their own dedicated unit. During the cooling season, this system will modulate between the maximum and minimum allowable air flow rate. Each perimeter office is also equipped with a radiant panel (see Radiant Panels) that has a dedicated hot water control valve. During the heating season, the panel can be controlled via a local room control slider for optimal thermal comfort in each space.
What Are They?

The following floor plans denote thermostat locations and shared heating and cooling zones. Each group of offices that share a zone is indicated by a red outline. The Building Automation System (BAS) automatically calculates the average temperature of all thermostats in each zone to determine the supply air temperature.

*Please coordinate with the surrounding offices in your zone to ensure optimal comfort and energy use.*
Plan Key

- = Thermostat
= Shared Thermostat Zone
= Classroom / Curriculum
= Office
= Restroom
= Circulation & Common Areas
= Service / Utility

2nd Floor Plan
THERMOSTAT LOCATIONS & ZONES

Plan Key

= Thermostat

= Shared Thermostat Zone

= Classroom / Curriculum

= Office

= Restroom

= Circulation & Common Areas

= Service / Utility

3rd Floor Plan
Plan Key

- Thermostat
- Shared Thermostat Zone
- Classroom / Curriculum
- Office
- Restroom
- Circulation & Common Areas
- Service / Utility

4th Floor Plan
RESTROOMS & SHOWER FACILITIES

What Are They?

ILC restroom facilities are designed to be inclusive and welcoming spaces which are both physically accessible (ADA compliant), and open to people of any gender. Dedicated shower and changing rooms are available for faculty and staff who bike to work. They are located on the third and fourth floors, near the center of the building.

How Do They Work?

Unisex restrooms ensure that facilities are fully accessible to all members of society. Signage for these bathrooms is visibly identified with open, inclusive language, and lacks gender designation. Placards denote right and left hand approach routes for physically impaired users, and include braille translations for the visually-impaired.

What’s My Part?

Please be aware of ongoing building signage efforts to increase accessibility, and respect the gender neutral restroom policy.

East Entry Bicycle Rack
DUAL FLUSH TOILETS

What Are They?

In 1997, Massachusetts became the first state to mandate low-flow toilets for all commercial renovations and new construction projects. The ILC is outfitted with wall-hung, vitreous china, elongated bowl, siphon jet toilets.

Dual flush toilets allow for two levels of water use. The low-flow flush setting uses 1.1 gallons per flush (GPF). The second setting uses 1.6 GPF; the current standard for commercial and residential plumbing fixtures.

The dual flush function helps to reduce water consumption and conserve resources compared to conventional 1.6 GPF toilets, and older models rated at 3.5 GPF. Restrooms are also equipped with low-flow urinals.

How Do They Work?

Modern toilets require less water than traditional models to assist the siphon gravity flush system. Dual flush toilets use pressurized air to force water into the bowl, ensuring that they effectively clear waste with a single flush, and use less water.

Dual flush toilets use two buttons to flush different levels of water. Use the green, half flush button for liquid waste, and the silver, full flush button for solid waste as shown at right.

What’s My Part?

Be aware of the role you can play every day to support sustainable practices. During bathroom breaks, contribute to efficiency in your routines and save water by using the low-flush setting whenever possible.
FIRE ALARM SYSTEM

What Is It?

The Integrative Learning Center is equipped with an addressable fire alarm system manufactured by SimplexGrinnell™. It includes a control and voice communications panel which allows the Amherst Fire Department to operate the system remotely.

The building’s fire alarm system is monitored 24/7 by the campus central station. It is equipped with voice notification for all spaces, and includes duct-mounted smoke detectors, ceiling heat and smoke detectors, manual pull stations, and combination speaker/strobe alarm units.

The entire building is also protected by a sprinkler system, which helps to contain smoke and flames during an emergency.

How Does It Work?

An onboard Ethernet port provides fast external communications to expedite alarm system installation and service activities. In addition, the InfoAlarm Command Center panel provides options for convenient expanded display content.

All spaces include addressable smoke alarms with combination speaker/strobe units interconnected with the entire facility. Activation of the smoke alarm in an individual zone will automatically trigger the whole building system and relay a signal to the public safety office.

What’s My Part?

This system is run by appointed operators. It has a user-friendly interface that is easily accessible for those who update and maintain it. Never tamper with the fire alarm system unless there is an emergency.

Always be aware of your surroundings. Familiarize yourself with all building emergency exits and egress stairwell locations. In the event of an emergency, use the nearest exit to get yourself out of the building quickly and safely.

If you have any additional questions regarding fire alarms, egress maps, or life safety, visit the Environmental Health & Safety website at http://ehs.umass.edu, or call (413) 545-2682.
EGRESS MAPS

What Are They?

The following egress maps are laid out floor by floor for reference. Please familiarize yourself with all egress stairwell and exit locations. In the event of an emergency, avoid elevators.

Use the highlighted stair shaft and exit closest to you to get yourself out of the building quickly and safely. Call 911, and wait outside at a designated emergency accountability area for the emergency response team to arrive.
EGRESS MAPS

Plan Key

= Exit

= Egress Stairwell

= Fire Alarm Pull Station

2nd Floor Plan
EGRESS MAPS

Plan Key

- = Exit

= Egress Stairwell

= Fire Alarm Pull Station

3rd Floor Plan
EGRESS MAPS

Plan Key

- = Exit

= Egress Stairwell

= Fire Alarm Pull Station

4th Floor Plan
CLOCK SYSTEM

What Is It?

The UMass campus utilizes a wireless master clock system with a Visiplex™ transmitter to support all clocks installed in the Integrative Learning Center. Clocks are located throughout the building and are compatible with the existing infrastructure.

How Does It Work?

The Visiplex system uses a radio transmitter to send accurate time information to synchronize all of the university’s clocks, bells, etc. In the event of an emergency, this system will also broadcast voice notifications and alerts across the entire campus.

What’s My Part?

All clocks will reset and update automatically per the system settings. Please trust the time displayed and do not attempt to adjust the clocks manually. If the time shown is incorrect, contact your Department Building Coordinator for assistance (see I. Contacts).
PANTRIES

What Are They?

Faculty and staff pantries are located intermittently throughout office corridors. Each includes a fully equipped kitchen with common seating areas nearby.

Pantries provide a relaxing space removed from offices and conference rooms where people can gather for breaks, informal meetings, and other social events.

These common areas promote an open, collaborative environment to unite students, faculty, and staff across all departments of the Integrative Learning Center.

What’s My Part?

Pantries are a shared community resource which all occupants have the freedom to use. Please treat them with respect, and clean up after yourself. When others are using common areas for work or studying, be considerate and limit the volume of your conversations accordingly.

If you notice any kitchen fixtures or appliances are broken or malfunctioning, report them to your Department Building Coordinator, and submit a service request at https://goo.gl/kBoM7i (see I. Contacts).
GREEN ROOF

What Is It?
The Integrative Learning Center roof features approximately 15,000 square feet of extensive plantings. The green roof contains a variety of native, hardy sedum species which require minimal maintenance.

What’s My Part?
The ILC green roof is used for academic research and is not accessible to the public. If you require access to the green roof for an event, please contact your Department Building Coordinator (see I. Contacts).

How Does It Work?
Stormwater is captured and stored onsite in an underground cistern, treated to remove 80% of total suspended solids, and reused for irrigation of the green roof and surrounding landscape.

The green roof absorbs carbon dioxide, retains stormwater, minimizes glare, and reduces the heat island effect. It also protects the building’s roof membrane from the elements, extending the roof’s life expectancy.
GREEN OFFICE PROGRAM

What Is It?
The UMass Green Office Program facilitates energy and waste reduction practices to encourage sustainable office behaviors and operations across the campus.

How Does It Work?
Offices that choose to participate in the program work to satisfy sustainable requirements based on a four-level scale: bronze, silver, gold, and green. Each level is defined by four subcategories: energy, waste and recycling, kitchens, and purchasing. Together, these divisions promote sustainable office behaviors and activities. Completion of the program occurs once an office has met the criteria for the “green” level.

The UMass Sustainability Fellows work individually with each office to develop a plan tailored to meet the office’s needs. The system encourages friendly competition between offices to see who can achieve green certification first. Recognition is awarded for every level completed with a congratulatory certificate. Scoring criteria for version 2.0 (launched in February 2013) are as follows:

- Bronze: 8+
- Silver: 12+
- Gold: 16+
- Green: 

To learn more, visit the Green Office Program website at https://goo.gl/LTSnrg, or email the program team at greenoffice@umass.edu.

What’s My Part?
Take the initiative to incorporate sustainable practices in your office. Visit https://goo.gl/LTSnrg to access a step-by-step guide to the program, and get started today!

Green Office Program Certificate

Green Office Program Plaque
### NOTES

| UMass Facilities & Campus Services works continuously to develop, review, and update the building user manuals. | Please contact Ludmilla Pavlova-Gillham at lpavlova@cp.umass.edu if you have any suggestions or feedback for future iterations. |
For additional information regarding building systems and operations, please call the Facilities & Campus Services Solutions Center at (413) 545-6401.