Andrews Hall Renovation
Design-Build Technical Criteria

Housing & Dining Services
University of Colorado at Boulder

October, 2007
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credits</td>
<td>3</td>
</tr>
<tr>
<td>Introduction and Overview</td>
<td>4</td>
</tr>
<tr>
<td>Scope of Work Summary</td>
<td>6</td>
</tr>
<tr>
<td>Use Program</td>
<td>14</td>
</tr>
<tr>
<td>Room Programs</td>
<td>16</td>
</tr>
<tr>
<td>Technical Criteria: General, Exterior Scope and Materials</td>
<td>32</td>
</tr>
<tr>
<td>Technical Criteria: Interior Scope and Materials</td>
<td>34</td>
</tr>
<tr>
<td>Mechanical Criteria</td>
<td>55</td>
</tr>
<tr>
<td>Electrical Criteria</td>
<td>62</td>
</tr>
<tr>
<td>Luminaire Standards</td>
<td>69</td>
</tr>
<tr>
<td>Code Review</td>
<td>70</td>
</tr>
</tbody>
</table>
Building Committee

Housing and Dining Services

Deb Coffin, Executive Director
Kambiz Khalili, Deputy Director
Deb Cook, Director, Conference Services
Curt Huetson, Director, Facility Services
Steve Hecht, Manager, Projects Group
Lori Lander, Assistant Director, Residence Life
Marina Florian, Project Manager

Facilities Management

George Galida, Architect, Facilities Planner

College of Engineering

Scot Douglass, PhD., Faculty Director, Engineering Honors Program
INTRODUCTION AND OVERVIEW

Andrews Hall is one of the five residence halls in the Kittredge Complex, which also includes Kittredge Commons (refer to the Kittredge Complex plan on page 12). The building, located in the northern part of the complex, was constructed in 1964 and has seen only minor renovations and improvements since then. The renovation of Andrews Hall is the second project in what will be a continuing program to improve and update all of the Kittredge facilities.

Andrews Hall has approximately 59,600 SF divided into three wings of two or three stories each, with crawlspace. There are no dining facilities within the building; dining for all for the residents in the complex takes place in Kittredge Commons.

The purpose of the renovation is four-fold:
1. To make improvements due to the age of the building and its systems.
2. To create a specialized living and academic environment for students in the Engineering Honors Program (EHP) which supports the Residential Campus 2020 Plan.
3. To increase and retain the population of sophomores, juniors and seniors living in the building.
4. To increase revenue from summer conferences.

Andrews Hall is configured largely as it was the day that it opened and, with the exception of carpet replacement, it has most of its original finishes. Over the course of its 40-year existence, the interior of the building has become tired and shopworn. Further, the building has no air-conditioning, rendering it less than desirable for students during hot weather and for conferences.

All of the residents of Andrews will be members of the Engineering Honors Program. Students are invited to apply to be participants in the program on the basis of their academic achievements, and they pay an additional fee to be a part of it, as well. They will not only live in the building but they will also take classes and study in it. The intention is to create a special place where students can easily interact with one another, with faculty and with staff.

The Engineering Honors Program is administered by the College of Engineering and is one of the premier residential academic programs on the campus. The program is designed to serve all four years including freshman and sophomores, with the desire to attract more upperclassmen. Presently there are 69 students, along with another ten “student leaders”. The expectation is that the program will grow to have 199 students by Fall, 2009 and will be a four year program. The ultimate goal is to have 300 full time honors students.

As described in the Program Plan, there is:

"...the broad campus initiative to move toward a residential campus model including the expansion of the current residential academic programs. These programs have been shown to increase the involvement, academic performance, and satisfaction of undergraduate students; transform the student culture; and the University is committed to providing this opportunity to all incoming students. Key to a successful residential campus strategy is attracting sophomores, juniors and seniors to living on campus in the residence halls. This will require adding amenities to some rooms to make them more attractive to these students."
ANDREWS HALL RENOVATION

DESIGN-BUILD TECHNICAL CRITERIA

Housing and Dining Services
University of Colorado at Boulder

The academic courses that are taught are "core courses", which are conducted in the building throughout the day and evening. Approximately eight to nine courses are taught each semester. The program offers relatively small classes, resulting in the "Honors Program Promise" of only 15-17 students per class for core curricula. As students pay extra for the program, they expect higher quality space for living, teaching, advising and administration.

In order to attract more sophomores and upperclassmen, the residential options need to be greater than those found in other residence halls. This includes greater privacy for them, which will be facilitated by the provision of single rooms with private baths, and some suites which will have shared baths.

CU Conference Services, a division of Housing and Dining Services, provides space for a variety of conferences and gatherings across campus, year-round. It provides conference related on-campus housing from June 1st through the first weekend in August each summer. Conferees consist of adults and youth-groups, some of whom are housed in the residence halls where some meeting sessions also are held. The improvements to Andrews Hall will serve Conference Services in parallel with serving the students by creating a more comfortable and contemporary residential and learning environment.

Overall Goals

It is the intent of the University to have the Design-Build Team deliver a fully functional and operational facility.

The renovation of Andrews Hall should result in an environment that facilitates a dynamic learning, interdisciplinary environment. The design of the renovation should encourage students to spend time in the common spaces. These spaces should be multifunctional and have a high utilization. It is the expectation that the success of the Andrews renovation will create further interest among the students for similar facilities.

Andrews Hall is intended to be a community where students and faculty alike can share in academic pursuits. It will be a place where casual conversations, interactions and the exchange of ideas occur naturally. It should be a place with the feeling of a neighborhood, where students feel "ownership" and that it is "their place". Students will be able to customize their own academic experiences and learn from one another in a non-compartmentalized learning environment.

The character of the renovated facility should transcend that of the residence halls of the past. It should be a place of inspiration and discovery.
ANDREWS HALL RENOVATION
DESIGN-BUILD TECHNICAL CRITERIA
Housing and Dining Services
University of Colorado at Boulder

SCOPE OF WORK SUMMARY

The scope of work is the complete interior renovation of Andrews Hall and may include partial or
total reconfiguration of the floors to satisfy the requirements of the use program. Site
improvements are also included in the scope. The work includes all demolition and new
construction that is necessary to meet the requirements of the program and criteria. All existing
wall and ceiling finishes are to be removed in this project.

It is a fundamental and primary requirement of this project that the total number of beds shown
in the use program be provided, at a minimum. Additional beds beyond the minimum may be
included in the design and would be welcome, provided the building remains useful in all other
aspects and the additional beds do not compromise the quality of the overall environment. It is
the goal of the University to achieve a bathroom fixture to occupant ratio of between 1:7 and
1:8.

The information contained in the Program Plan, dated May 10, 2007, is complimentary of the
information contained within the Design-Build Criteria. If there are conflicts in the information
contained within these two documents then the owner shall be contacted to resolve the
conflicts. The Program Plan can be found at the following website:
http://fm.colorado.edu/planning/projects/Andrews/documents/AndrewsHallRenovationPgmPla
n03-03-06.pdf

The completed building will have a variety of academic spaces from formal classroom settings
to less formal ones for seminars, to informal spaces where students can study quietly, either alone
or in small groups. There will be several options for relaxation and recreation that enhance the
experience of the residents and contribute to their personal and academic goals.

The performance of the building envelope is to be improved by the replacement of existing
windows and exterior doors, and the addition of insulation for the walls and roofs. Accessibility
to the site is to be improved. The only new interior space will be created by expanding the existing
ground floor Great Room towards the south to the next structural grid at the center wing (the
Design-Build entities shall priced this option as an add alternate).

The building is to be provided with all new mechanical, electrical and information technology
systems. This will necessitate the installation of ductwork, piping and conduits which were never
present in the original construction. With a short floor-to-floor dimension and a flat slab floor
system, there is only 8'-2" from finish floor to the undersides of the concrete decks. Maintaining a
habitable ceiling height will be critically important; with the exception of soffits enclosing
systems, ceilings may be no lower than 7'-11". Soffits may be no lower than 7'-0" and should be
minimized to the greatest degree possible. Some portions of the top floors of the different wings
presently have "cathedral" ceilings in them, something which should be maintained in the
renovated facility.

Maintenance and durability have a high priority. Residence halls see a significant amount of
wear and tear and the costs to maintain the facilities is substantial. The selection of materials
should reflect this important fact.

All furniture and some electronic equipment will be furnished and installed by the Owner. The
latter includes televisions; digital video projectors; sound amplification, recording and
playback equipment; and speakers. All power and data wiring, for connections by others, is to
be included in the Design-Build scope. The Owner or one of its vendors will furnish washers and dryers for the laundry rooms, and such kitchen appliances as an electric oven/range, refrigerator and dishwasher, all for installation/final connection by the Design-Build Team.

Site improvements are identified in the section of this document titled, "Technical Criteria: Exterior Scope and Materials".

### Staging
The only portion of the site which may be used for staging, construction access or any other construction activities is that which immediately surrounds Andrews hall, as shown in the diagram on page 11. The other buildings in the complex will continue to be occupied throughout the course of construction and therefore must remain safely and conveniently accessible. The limits of the construction area must remain fenced throughout the duration of construction, though those limits of construction may be less than that which is shown on the diagram.

The University’s Standards for protecting the site during construction and restoring it afterwards will be strictly enforced. The trees on the site are mature and are highly valued, and all within the area of the limits of construction must be protected with fencing at their drip-lines. All trees must be watered at regular intervals to ensure their continued viability and growth during construction. None may be removed for construction accessibility and any which are damaged will be required to be replaced at their assessed value. Adhere to LEED requirements for protecting the site during construction and restoring it afterwards. Refer to the section of this document titled, "Technical Criteria: Exterior Scope and Materials" for re-sodding requirements.

Contractor parking spaces will be included in the staging area for the use by the Design-Build Team without charge. Additional spaces may be "purchased" from the University’s Parking and Transportation Services for the duration of the project – however, consideration should be given to providing workers with remote parking.

### Accessibility
It is the University’s policy to exceed the requirements of the Americans with Disabilities Act wherever possible. It is the intent of the University for all common areas of the building to be as accessible to the disabled as possible. All public and academic areas shall be made accessible by the addition of new elevators or lifts. Existing elevators within the secure student residential areas shall remain but may need to be complimented with new elevators or lifts within the publicly accessible areas to make all public areas accessible. Where split-level floors exist, lifts may be utilized to achieve access. At the west wing, access must be provided to all residential areas, this may entail the installation of a new elevator to access the third level.

### Sustainability
In support of the University’s commitment to sustainability, the work will meet as many of the United States Green Building Council’s points for a LEED Silver certified building as possible. LEED silver certification will be sought. The successful design-build entity will have the obligation to meet all the requirements of design, documentation, and construction to achieve this goal. This may require the Design-Build Entity to have, as part of their team, a certified LEED professional.
Adhere to the sustainability/LEED requirements (indicated in red) in the "University of Colorado Building and Construction Standards", 2007 Edition.

For purposes of evaluation, the building will be categorized as LEED-NC (New Construction). This category was determined by the fact that the envelope will be improved to the performance of a new building and all new systems will be installed. The checklists on pages 14 and 15 indicate the LEED credits which are expected to be achieved. There will be a formal submittal for certification to the US Green Building Council, consequently, the successful Design-Build Team will be obligated to maintain records, provide all methodologies and submissions that are required to substantiate the compliance with the identified credits and points. The design-build Entity will be responsible for uploading submittals to the USGBC website.

Hazardous Materials
The building contains hazardous materials which must be abated under the Design-Build contract. Refer to the Comprehensive Hazardous materials Building Inspection, the scope of work, and the abatement specification (all prepared by Herron Enterprises USA), dated October 5, 2007 in a document, included by reference and separate from this one. All piping which is existing and serves other buildings or facilities than Andrews Hall will be left in place after abatement. All abated piping shall be reinsulated per the CU-B construction standards.
STAGING AREA / LIMITS OF CONSTRUCTION SITE

ANDREWS HALL RENOVATION
DESIGN-BUILD TECHNICAL CRITERIA
Housing & Dining Services
University of Colorado at Boulder
LEED-NC

LEED-NC Version 2.2 Registered Project Checklist

ANDREWS HALL RENOVATION - revised as of 9/24/07
University of Colorado at Boulder

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<th>Sustainable Sites</th>
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</table>

- Prereq 1 Construction Activity Pollution Prevention
- Credit 1 Site Selection
- Credit 2 Development Density & Community Connectivity
- Credit 3 Brownfield Redevelopment
- Credit 4.1 Alternative Transportation, Public Transportation Access
- Credit 4.2 Alternative Transportation, Bicycle Storage & Changing Rooms
- Credit 4.3 Alternative Transportation, Low-Emitting and Fuel-Efficient Vehicles
- Credit 4.4 Alternative Transportation, Parking Capacity
- Credit 5.1 Site Development, Protect of Restore Habitat
- Credit 5.2 Site Development, Maximize Open Space
- Credit 6.1 Stormwater Design, Quantity Control
- Credit 6.2 Stormwater Design, Quality Control
- Credit 7.1 Heat Island Effect, Non-Rooftop
- Credit 7.2 Heat Island Effect, Rooftop
- Credit 8 Light Pollution Reduction

<table>
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<th>Water Efficiency</th>
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- Credit 1.1 Water Efficient Landscaping, Reduce by 50%
- Credit 1.2 Water Efficient Landscaping, No Potable Use or No Irrigation
- Credit 2 Innovative Wastewater Technologies
- Credit 3.1 Water Use Reduction, 20% Reduction
- Credit 3.2 Water Use Reduction, 30% Reduction

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- Prereq 1 Fundamental Commissioning of the Building Energy Systems
- Prereq 2 Minimum Energy Performance
- Prereq 3 Fundamental Refrigerant Management [CFC Reduction]
- Credit 1 Optimize Energy Performance
- Credit 2 On-Site Renewable Energy
- Credit 3 Enhanced Commissioning
- Credit 4 Enhanced Refrigerant Management
- Credit 5 Measurement & Verification
- Credit 6 Green Power
### Materials & Resources

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<td>Y</td>
<td></td>
<td>X</td>
<td></td>
<td>Prereq 1</td>
<td>Storage &amp; Collection of Recyclables</td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>X</td>
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<td>Credit 1.1</td>
<td>Building Reuse, Maintain 75% of Existing Walls, Floors &amp; Roof</td>
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<td>Building Reuse, Maintain 100% of Existing Walls, Floors &amp; Roof</td>
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<td>Credit 1.3</td>
<td>Building Reuse, Maintain 50% of Interior Non-Structural Elements</td>
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<td>Credit 2.1</td>
<td>Construction Waste Management, Divert 50% from Disposal</td>
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<td>Construction Waste Management, Divert 75% from Disposal</td>
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<td>Recycled Content, 20% (post-consumer + ½ pre-consumer)</td>
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<td>Regional Materials, 10% Extracted, Processed &amp; Manufactured Regionally</td>
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<td>Regional Materials, 20% Extracted, Processed &amp; Manufactured Regionally</td>
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<td>X</td>
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### Indoor Environmental Quality

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<td>Minimum IAQ Performance</td>
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<td>X</td>
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<td>Credit 2</td>
<td>Increased Ventilation</td>
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<tr>
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<td>Construction IAQ Management Plan, During Construction</td>
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<td>Low-Emitting Materials, Adhesives &amp; Sealants</td>
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<td>Low-Emitting Materials, Paints &amp; Coatings</td>
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<td>Controllability of Systems, Lighting</td>
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<td>Thermal Comfort, Verification</td>
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<td>Credit 8.1</td>
<td>Daylight &amp; Views, Daylight 75% of Spaces</td>
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<td>Daylight &amp; Views, Views for 90% of Spaces</td>
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### Innovation & Design Process

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<tr>
<td>X</td>
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<td>Innovation in Design: Water exceedance</td>
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<td>X</td>
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<td>Credit 1.4</td>
<td>Innovation in Design: Provide Specific Title</td>
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<td>X</td>
<td></td>
<td>Credit 2</td>
<td>LEED® Accredited Professional</td>
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### Project Totals (pre-certification estimates)

- Certified 26-32 points: Silver 33-38 points: Gold 39-51 points: Platinum 52-69 points
USE PROGRAM

The following table summarizes the square footage requirements for all of the use and support spaces for the building.

<table>
<thead>
<tr>
<th>Category</th>
<th>QTY</th>
<th>Area/Ea</th>
<th>Total Area (ASF)</th>
<th>Beds or Occs/Ea</th>
<th>Total Beds or Occs</th>
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<tbody>
<tr>
<td><strong>Bedrooms/Suites/Apartments</strong></td>
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<tr>
<td>Single Bedrooms</td>
<td>7</td>
<td>110 SF</td>
<td>770 SF</td>
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<td>7</td>
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<tr>
<td>Single Bedroom (Accessible)</td>
<td>1</td>
<td>110 SF</td>
<td>110 SF</td>
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<tr>
<td>Double Bedrooms</td>
<td>77</td>
<td>190 SF</td>
<td>14630 SF</td>
<td>2</td>
<td>154</td>
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<tr>
<td>Double Bedrooms (Accessible)</td>
<td>9</td>
<td>190 SF</td>
<td>1710 SF</td>
<td>2</td>
<td>18</td>
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<tr>
<td>Single Bedrooms with Bath</td>
<td>5</td>
<td>205 SF</td>
<td>1025 SF</td>
<td>1</td>
<td>5</td>
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<tr>
<td>Single Bedroom with Bath (Accessible)</td>
<td>1</td>
<td>205 SF</td>
<td>205 SF</td>
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<tr>
<td>Suites: 2 Single Bedrooms with Bath</td>
<td>5</td>
<td>370 SF</td>
<td>1850 SF</td>
<td>2</td>
<td>10</td>
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<tr>
<td>Suite: 2 Single Bedrooms with Bath (Accessible)</td>
<td>1</td>
<td>370 SF</td>
<td>370 SF</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Suites: 2 Double Bedrooms with Bath</td>
<td>7</td>
<td>580 SF</td>
<td>4060 SF</td>
<td>4</td>
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<tr>
<td>Suite: 2 Double Bedrooms with Bath (Accessible)</td>
<td>1</td>
<td>580 SF</td>
<td>580 SF</td>
<td>4</td>
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<tr>
<td>Faculty in Residence Apartment</td>
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<tr>
<td></td>
<td>115</td>
<td></td>
<td>26,410 SF</td>
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<tr>
<td><strong>Total: Bedrooms/Suites/Apartments</strong></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>26,410 SF</td>
<td></td>
<td>230</td>
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<tr>
<td><strong>Building Common</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Reception/Information Desk/Work Study</td>
<td>1</td>
<td>250 SF</td>
<td>250 SF</td>
<td>6</td>
<td>6</td>
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<tr>
<td>Great Room</td>
<td>1</td>
<td>750 SF</td>
<td>750 SF</td>
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<tr>
<td>Floor/Study Lounges (Type A)</td>
<td>6</td>
<td>240 SF</td>
<td>1440 SF</td>
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<td>Floor/Study Lounges (Types B.1 and B.2)</td>
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<td>320 SF</td>
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<tr>
<td>Laundry (Option A)¹</td>
<td>1</td>
<td>500 SF</td>
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<tr>
<td>Vending Area</td>
<td>1</td>
<td>50 SF</td>
<td>50 SF</td>
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<tr>
<td>Kitchen</td>
<td>1</td>
<td>120 SF</td>
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<tr>
<td>Coffee/Food Cart</td>
<td>1</td>
<td>70 SF</td>
<td>70 SF</td>
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<tr>
<td>Sink Niches</td>
<td>9</td>
<td>20 SF</td>
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<tr>
<td>Common Bathrooms</td>
<td>9</td>
<td>280 SF</td>
<td>2520 SF</td>
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<tr>
<td>Public Toilets</td>
<td>3</td>
<td>100 SF</td>
<td>300 SF</td>
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<tr>
<td>Storage (in attic)</td>
<td>1</td>
<td>1,400 SF</td>
<td>1,400 SF</td>
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<tr>
<td><strong>Total: Building Common</strong></td>
<td></td>
<td></td>
<td>8,540 SF</td>
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### Use Program, continued

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<tr>
<th>Category</th>
<th>Space</th>
<th>QTY</th>
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<th>Total Area</th>
<th>Occs/Ea</th>
<th>Total Occs</th>
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<tbody>
<tr>
<td><strong>Academic</strong></td>
<td></td>
<td></td>
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<td>EHP Administration</td>
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<tr>
<td>Faculty Office</td>
<td>1</td>
<td>120 SF</td>
<td>120 SF</td>
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<tr>
<td>Administrative Office</td>
<td>1</td>
<td>120 SF</td>
<td>120 SF</td>
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<td>Director’s Office</td>
<td>1</td>
<td>150 SF</td>
<td>150 SF</td>
<td>1</td>
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<td>Work Room</td>
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<td>100 SF</td>
<td>100 SF</td>
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<tr>
<td>Classroom - large</td>
<td>1</td>
<td>450 SF</td>
<td>450 SF</td>
<td>17</td>
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<tr>
<td>Classroom - small</td>
<td>1</td>
<td>350 SF</td>
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<td>15</td>
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<tr>
<td><strong>Total: Academic</strong></td>
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<td>6</td>
<td>1,290 SF</td>
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<tr>
<td>Custodial Breakroom (Optional)</td>
<td>1</td>
<td>125 SF</td>
<td>125 SF</td>
<td>5</td>
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<tr>
<td><strong>Building Support</strong></td>
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<tr>
<td>Custodial Closets</td>
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<td>40 SF</td>
<td>360 SF</td>
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<tr>
<td>Custodial Storage Closets</td>
<td>1</td>
<td>250 SF</td>
<td>500 SF</td>
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<td>Mechanical Rooms</td>
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<tr>
<td>Main Mechanical Room$^2$</td>
<td>1</td>
<td>780 SF</td>
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<tr>
<td>Pump Room$^2$</td>
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<td>TBD SF</td>
<td>TBD SF</td>
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<tr>
<td>Air Handler Rooms$^3$</td>
<td>3</td>
<td>0 SF</td>
<td>0 SF</td>
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<tr>
<td>Main Electrical Room</td>
<td>1</td>
<td>150 SF</td>
<td>150 SF</td>
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<tr>
<td>Electrical Closets</td>
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<td>4 SF</td>
<td>36 SF</td>
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<td>Elevator Machine Rooms</td>
<td>2</td>
<td>90 SF</td>
<td>180 SF</td>
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<td>IT MDF Room</td>
<td>1</td>
<td>110 SF</td>
<td>110 SF</td>
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<tr>
<td>IT IDF Rooms</td>
<td>3</td>
<td>110 SF</td>
<td>330 SF</td>
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<tr>
<td><strong>Total: Building Support</strong></td>
<td></td>
<td></td>
<td>2,446 SF</td>
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</table>

#### Summary

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<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Bedrooms/Suites</td>
<td>26,410 SF</td>
<td>230</td>
</tr>
<tr>
<td>Building Common</td>
<td>8,540 SF</td>
<td>152</td>
</tr>
<tr>
<td>Academic</td>
<td>1,290 SF</td>
<td>35</td>
</tr>
<tr>
<td>Building Support</td>
<td>2,446 SF</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>38,686 SF $^4$</td>
<td></td>
</tr>
</tbody>
</table>

**Notes**

1. As an alternative, one Laundry Room may be provided in each wing, for a total of three (Option B). Each of these rooms is to be approximately 125 SF; refer to the Room Programs for additional information.
2. The main mechanical room in the Basement will be re-used and additional space for a pump room may be necessary, located in new space (also in the Basement).
3. Air Handler Rooms will be located in the attics.
4. Assignable Square Footage areas are based on a building net to gross of 62%. Additional space requirements are included above. Please see the Program Plan for additional detail.
ROOM PROGRAMS

The following pages contain the spatial requirements of each of the use spaces and describe their interrelationships. They also include the moveable equipment within each. Refer to the Technical Criteria for built-in fixtures, equipment and accessories.

### Single Bedroom

**Function/Activity:** Housing for one Resident Advisor (RA). It is preferred that the Resident Advisor rooms be centrally located in their respective floors.

**Area:** 150 SF

**Total Number of Identical Rooms:** 5

**Number of Occupants:** 1

**Adjacent to:** Double Bedrooms

**Close to:** Double Bedrooms, Common Bathroom

**Away from:** Suites and other bedrooms with private baths, public areas

**Other Design Considerations:**
- One closet, 3'-6" H x 2'-6" D (included in room area).
- There should be a single bedroom on every floor that has double bedrooms.

#### Moveable Furnishings and Equipment:

<table>
<thead>
<tr>
<th>Item</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Bed (Furniture by Thurston No. 146-HW.3)</td>
<td>36&quot; x 80&quot; (mattress)</td>
</tr>
<tr>
<td>(1) Dresser (Furniture by Thurston No. 203-24)</td>
<td>32&quot; W x 24&quot;D x 30&quot;H</td>
</tr>
<tr>
<td>(1) Bookcase (Furniture by Thurston No. 225-72)</td>
<td>32W&quot; x 12D&quot; x72&quot;H</td>
</tr>
<tr>
<td>(1) Desk (Furniture by Thurston No. 133)</td>
<td>42W&quot; x 24&quot;D x 30&quot;H</td>
</tr>
<tr>
<td>(1) Under-desk files (Furniture by Thurston No. 140)</td>
<td>17&quot;W x 22&quot;D x 26&quot;H</td>
</tr>
<tr>
<td>(1) Desk chair (Furniture by Thurston No.100SD)</td>
<td>20&quot;W x 18&quot;Dx32&quot;H</td>
</tr>
<tr>
<td>(1) Micro-fridge (furnished by Owner)</td>
<td>19&quot;W X 19 1/4&quot; D X</td>
</tr>
<tr>
<td></td>
<td>43 1/2&quot; H</td>
</tr>
</tbody>
</table>

### Single Bedroom (Accessible)

**Function/Activity:** Housing for one student

**Area:** 150 SF

**Total Number of Identical Rooms:** 1

**Number of Occupants:** 1

**Adjacent to:** Double Bedrooms

**Close to:** Double Bedrooms, Common Bathroom

**Away from:** Suites and other bedrooms with private baths, public areas

**Other Design Considerations:**
- One closet, 3'-6" W x 2'-6" D (included in room area).
- Accessibility: All features and components are to be accessible to the disabled.

#### Moveable Furnishings and Equipment:

<table>
<thead>
<tr>
<th>Item</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Bed (Furniture by Thurston No. 146-HW.3)</td>
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</tr>
<tr>
<td>(1) Dresser (Furniture by Thurston No. 203-24)</td>
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</tr>
<tr>
<td>(1) Bookcase (Furniture by Thurston No. 225-72)</td>
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<td>42W&quot; x 24&quot;D x 30&quot;H</td>
</tr>
<tr>
<td>(1) Under-desk files (Furniture by Thurston No. 140)</td>
<td>17&quot;W x 22&quot;D x 26&quot;H</td>
</tr>
<tr>
<td>(1) Desk chair (Furniture by Thurston No.100SD)</td>
<td>20&quot;W x 18&quot;Dx32&quot;H</td>
</tr>
<tr>
<td>(1) Micro-fridge (furnished by Owner)</td>
<td>19&quot;W X 19 1/4&quot; D X</td>
</tr>
<tr>
<td></td>
<td>43 1/2&quot; H</td>
</tr>
</tbody>
</table>
ROOM PROGRAMS

Room Name: Double Bedroom
Function/Activity: Housing for two students
Area: 190 SF
Total Number of Identical Rooms: 71
Number of Occupants: 2
Adjacent to: Other Double Bedrooms
Close to: Single Bedrooms, Common Bathroom
Away from: Suites and other bedrooms with private baths, public areas

Other Design Considerations:
- Two closets, each 3’6” W x 2’6” D (included in room area).

Moveable Furnishings and Equipment:

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<thead>
<tr>
<th>Item</th>
<th>Size</th>
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<tr>
<td>(2) Beds (Furniture by Thurston No. 146-HW-3)</td>
<td>36” x 80” (mattress)</td>
</tr>
<tr>
<td>(2) Dressers (Furniture by Thurston No. 203-24)</td>
<td>32” W x 24”D x 30”H</td>
</tr>
<tr>
<td>(1) Bookcase (Furniture by Thurston No. 225-72)</td>
<td>32”W x 12”D x 7”H</td>
</tr>
<tr>
<td>(2) Desks (Furniture by Thurston No. 133)</td>
<td>42”W x 24”D x 30”H</td>
</tr>
<tr>
<td>(2) Under-desk Files (Furniture by Thurston No. 140)</td>
<td>17”W x 22”D x 26”H</td>
</tr>
<tr>
<td>(2) Desk chairs (Furniture by Thurston No. 1005D)</td>
<td>20”W x 18”D x 32”H</td>
</tr>
<tr>
<td>(1) Micro-fridge (furnished by Owner)</td>
<td>19”W X 19 ½” D X 43 1/2 “H</td>
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</tbody>
</table>

Room Name: Double Bedroom (Accessible)
Function/Activity: Housing for two students
Area: 190 SF
Total Number of Identical Rooms: 7
Number of Occupants: 2
Adjacent to: Other Double Bedrooms
Close to: Single Bedrooms, Common Bathroom
Away from: Suites and other bedrooms with private baths, public areas

Other Design Considerations:
- Two closets, each 3’6” W x 2’6” D (included in room area).
- Accessibility: All features and components are to be accessible to the disabled.

Moveable Furnishings and Equipment:

<table>
<thead>
<tr>
<th>Item</th>
<th>Size</th>
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<tr>
<td>(2) Beds (Furniture by Thurston No. 146-HW-3)</td>
<td>36” x 80” (mattress)</td>
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<tr>
<td>(2) Dressers (Furniture by Thurston No. 203-24)</td>
<td>32” W x 24”D x 30”H</td>
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<tr>
<td>(1) Bookcase (Furniture by Thurston No. 225-72)</td>
<td>32”W x 12”D x 7”H</td>
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<tr>
<td>(2) Desks (Furniture by Thurston No. 133)</td>
<td>42”W x 24”D x 30”H</td>
</tr>
<tr>
<td>(2) Under-desk Files (Furniture by Thurston No. 140)</td>
<td>17”W x 22”D x 26”H</td>
</tr>
<tr>
<td>(2) Desk chairs (Furniture by Thurston No. 1005D)</td>
<td>20”W x 18”D x 32”H</td>
</tr>
<tr>
<td>(1) Micro-fridge (furnished by Owner)</td>
<td>19”W X 19 ½” D X 43 1/2 “H</td>
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</tbody>
</table>
Room Programs

**Room Name:** Single Bedroom with Bathroom

**Function/Activity:** Housing for one student

**Area:** 205 SF

**Total Number of Identical Rooms:** 3

**Number of Occupants:** 1

**Adjacent to:** Suites and other bedrooms with private baths

**Close to:** Suites and other bedrooms with private baths

**Away from:** Single and Double Bedrooms (without private baths), public areas

**Other Design Considerations:** One closet, 3'-6" W x 2'-6" D (included in room area).

<table>
<thead>
<tr>
<th>Moveable Furnishings and Equipment</th>
<th>Item</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) Bed (Furniture by Thurston No. 146-HW-3)</td>
<td>36&quot; x 80&quot; (mattress)</td>
</tr>
<tr>
<td></td>
<td>(1) Dresser (Furniture by Thurston No. 203-24)</td>
<td>32&quot; W x 24&quot;D x 30&quot;H</td>
</tr>
<tr>
<td></td>
<td>(1) Bookcase (Furniture by Thurston No. 225-72)</td>
<td>32W&quot; x 12D&quot; x 72&quot;H</td>
</tr>
<tr>
<td></td>
<td>(1) Desk (Furniture by Thurston No. 133)</td>
<td>42W&quot; x 24&quot;D x 30&quot;H</td>
</tr>
<tr>
<td></td>
<td>(1) Under-desk files (Furniture by Thurston No. 140)</td>
<td>17&quot;W x 22&quot;D x 26&quot;H</td>
</tr>
<tr>
<td></td>
<td>(1) Desk chair (Furniture by Thurston No. 1005D)</td>
<td>20&quot;W x 18&quot;D x 32&quot;H</td>
</tr>
<tr>
<td></td>
<td>(1) Micro-fridge (furnished by Owner)</td>
<td>19&quot;WX19 ½&quot;DX43 1/2 &quot;H</td>
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</tbody>
</table>

---

**Room Name:** Single Bedroom with Bathroom (Accessible)

**Function/Activity:** Housing for one student

**Area:** 205 SF

**Total Number of Identical Rooms:** 1

**Minimum Width:** 10'-0"

**Number of Occupants:** 1

**Adjacent to:** Suites and other bedrooms with private baths

**Close to:** Suites and other bedrooms with private baths

**Away from:** Single and Double Bedrooms (without private baths), public areas

- One closet, 3'-6" W x 2'-6" D (included in room area).
- Accessibility: All features and components are to be accessible to the disabled.

<table>
<thead>
<tr>
<th>Moveable Furnishings and Equipment</th>
<th>Item</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) Bed (Furniture by Thurston No. 146-HW-3)</td>
<td>36&quot; x 80&quot; (mattress)</td>
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<tr>
<td></td>
<td>(1) Desk chair (Furniture by Thurston No. 1005D)</td>
<td>20&quot;W x 18&quot;D x 32&quot;H</td>
</tr>
<tr>
<td></td>
<td>(1) Micro-fridge (furnished by Owner)</td>
<td>19&quot;WX19 ½&quot;DX43 1/2 &quot;H</td>
</tr>
</tbody>
</table>
ROOM PROGRAMS

Suite: Two Single Bedrooms with One Connecting Bathroom

Housing for two students
370 SF

Total Number of Identical Rooms: 2
Number of Occupants: 2
Adjacent to: Other suites and bedrooms with private baths
Close to: Other suites and bedrooms with private baths
Away from: Single and Double Bedrooms (without private baths), public areas
Other Design Considerations: One closet in each Bedroom, each 3' 6" W x 2' 6" D (included in room area).

Moveable Furnishings and Equipment:

<table>
<thead>
<tr>
<th>Item (each Bedroom)</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Bed (Furniture by Thurston No. 146-HW-3)</td>
<td>36&quot; x 80&quot;</td>
</tr>
<tr>
<td>(1) Dresser (Furniture by Thurston No. 203-24)</td>
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<td>(1) Under-desk files (Furniture by Thurston No. 140)</td>
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</tr>
<tr>
<td>(1) Desk chair (Furniture by Thurston No. 100SD)</td>
<td>20&quot;W x 18&quot;Dx32&quot;H</td>
</tr>
<tr>
<td>(1) Micro-fridge (furnished by Owner)</td>
<td>19&quot;WX19 1/4&quot;DX43 1/2 &quot;H</td>
</tr>
</tbody>
</table>

Room Name: Suite: Two Single Bedrooms with One Connecting Bathroom (Accessible)

Function/Activity: Housing for two students
Area: 370 SF

Total Number of Identical Rooms: 1
Number of Occupants: 2
Adjacent to: Other suites and bedrooms with private baths
Close to: Other suites and bedrooms with private baths
Away from: Single and Double Bedrooms (without private baths), public areas
Other Design Considerations:
- One closet in each Bedroom, each 3'-6" W x 2'-6" D (included in room area).
- Accessibility: All features and components are to be accessible to the disabled.

Moveable Furnishings and Equipment:

<table>
<thead>
<tr>
<th>Item (each Bedroom)</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>(1) Dressers (Furniture by Thurston No. 203-24)</td>
<td>32&quot; W x 24&quot;D x 30&quot;H</td>
</tr>
<tr>
<td>(1) Bookcase (Furniture by Thurston No. 225-72)</td>
<td>32&quot;W x 12D x 72&quot;H</td>
</tr>
<tr>
<td>(1) Desks (Furniture by Thurston No. 133)</td>
<td>42&quot;W x 24&quot;D x 30&quot;H</td>
</tr>
<tr>
<td>(1) Under-desk files (Furniture by Thurston No. 140)</td>
<td>17&quot;W x 22&quot;D x 26&quot;H</td>
</tr>
<tr>
<td>(1) Desk chair (Furniture by Thurston No. 100SD)</td>
<td>20&quot;W x 18&quot;Dx32&quot;H</td>
</tr>
<tr>
<td>(1) Micro-fridge (furnished by Owner)</td>
<td>19&quot;WX19 1/4&quot;DX43 1/2 &quot;H</td>
</tr>
</tbody>
</table>
### Room Programs

**Suite: Two Double Bedrooms with One Connecting Bathroom**

- Housing for four students
- 580 SF
- Number of Identical Rooms: 5
- Number of Occupants: 4
- Other Design Considerations:
  - Two closets in each Bedroom, each 3'-6" W x 2'-6" D (included in room area).

**Moveable Furnishings and Equipment:**

<table>
<thead>
<tr>
<th>Item (each Bedroom)</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Beds (Furniture by Thurston No. 146-HW-3)</td>
<td>36&quot; x 80&quot;</td>
</tr>
<tr>
<td>(2) Dressers (Furniture by Thurston No. 203-24)</td>
<td>32&quot; W x 24&quot;D x 30&quot;H</td>
</tr>
<tr>
<td>(1) Bookcase (Furniture by Thurston No. 225-72)</td>
<td>32W&quot; x 12D&quot; x72&quot;H</td>
</tr>
<tr>
<td>(2) Desks (Furniture by Thurston No. 133)</td>
<td>42W&quot; x 24&quot;D x 30&quot;H</td>
</tr>
<tr>
<td>(2) Under-desk Files (Furniture by Thurston No. 140)</td>
<td>17&quot;W x 22&quot;D x 26&quot;H</td>
</tr>
<tr>
<td>(2) Desk chairs (Furniture by Thurston No. 1005D)</td>
<td>20&quot;W x 18&quot;Dx32&quot;H</td>
</tr>
<tr>
<td>(1) Micro-fridge (furnished by Owner)</td>
<td>19&quot;WX19 1/2&quot;DX43 1/2 &quot; H</td>
</tr>
</tbody>
</table>

---

**Suite: Two Double Bedrooms with One Connecting Bathroom (Accessible)**

- Housing for four students
- 580 SF
- Number of Identical Rooms: 1
- Number of Occupants: 4
- Other Design Considerations:
  - Two closets in each Bedroom, each 3'-6" W x 2'-6" D (included in room area).
  - Accessibility: All features and components are to be accessible to the disabled.

**Moveable Furnishings and Equipment:**

<table>
<thead>
<tr>
<th>Item (each Bedroom)</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Beds (Furniture by Thurston No. 146-HW-3)</td>
<td>36&quot; x 80&quot;</td>
</tr>
<tr>
<td>(2) Dressers (Furniture by Thurston No. 203-24)</td>
<td>32&quot; W x 24&quot;D x 30&quot;H</td>
</tr>
<tr>
<td>(1) Bookcase (Furniture by Thurston No. 225-72)</td>
<td>32W&quot; x 12D&quot; x72&quot;H</td>
</tr>
<tr>
<td>(2) Desks (Furniture by Thurston No. 133)</td>
<td>42W&quot; x 24&quot;D x 30&quot;H</td>
</tr>
<tr>
<td>(2) Under-desk Files (Furniture by Thurston No. 140)</td>
<td>17&quot;W x 22&quot;D x 26&quot;H</td>
</tr>
<tr>
<td>(2) Desk chairs (Furniture by Thurston No. 1005D)</td>
<td>20&quot;W x 18&quot;Dx32&quot;H</td>
</tr>
<tr>
<td>(1) Micro-fridge (furnished by Owner)</td>
<td>19&quot;WX19 1/2&quot;DX43 1/2 &quot; H</td>
</tr>
</tbody>
</table>
ROOM PROGRAMS

Room Name: Faculty in Residence Apartment (FIR)
Function/Activity: Housing for faculty and family
Area: 1100 SF
Total Number of Identical Rooms: 1
Number of Occupants: 4
Adjacent to: Single Room (for potential connection and use as a third bedroom, utilize "hotel type double door" for single room privacy when not used with FIR apt.)
Close to: Single Bedroom
Away from: Suites and bedrooms with private baths, public areas
Other Design Considerations: Provide two bedrooms, one living/dining area, one kitchen and one bath, provide for conversion to ADA accessibility.

Moveable Furnishings and Equipment:

<table>
<thead>
<tr>
<th>Item</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furniture to be provided by occupant. Anticipate typical furniture for the above space types.</td>
<td>TBD</td>
</tr>
<tr>
<td>Kitchen Appliances (by Owner) – Refrigerator, Stove, Hood/Microwave combination, Washer, Dryer, Dishwasher.</td>
<td></td>
</tr>
</tbody>
</table>

Room Name: Hall Director's Apartment (NOT USED)
Function/Activity: Housing for one adult employee
Area: (Existing)
Total Number of Identical Rooms: (Existing)
Number of Occupants: (Existing)
Room Proportions: (Existing)
Adjacent to: Student Bedrooms
Close to: Student Bedrooms
Away from: Public areas
Other Design Considerations: Except for new windows, no other changes are required in the existing apartment.

Moveable Furnishings and Equipment:

<table>
<thead>
<tr>
<th>Item</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Existing)</td>
<td></td>
</tr>
</tbody>
</table>

ROOM PROGRAMS

Room Name: Reception/Information Desk and EHP Student Leader/Work Study Office
Function/Activity: 1. Staffed location for providing information to residents, greeting visitors, a place to store vacuum cleaners, games, etc. and for students to check-out such items.
Area: 2. Office for student to do administrative work and projects.
Total Number of Identical Rooms: 1
Number of Occupants: 6
Reception/Office: 200 SF; Closet: 50 SF (total of 250 SF)
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Room Proportions: TBD
Adjacent to: Building main entry,
Close to: Great Room; EHP Administrative Suite (no direct connection between the
two)
Away from: -
Other Design Considerations: Lockable door on closet

Moveable Furnishings and Equipment:

<table>
<thead>
<tr>
<th>Item</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Desks</td>
<td>48&quot;W x 30&quot;D x 30&quot;H</td>
</tr>
<tr>
<td>(8) Task Chairs</td>
<td>20&quot;W x 19&quot;D x 45&quot;H</td>
</tr>
<tr>
<td>(1) Work table</td>
<td>36&quot;W x 96&quot;L x 30&quot;H</td>
</tr>
<tr>
<td>(1) Copier</td>
<td>24&quot;W x 28&quot;D x 43&quot;H</td>
</tr>
</tbody>
</table>

Room Name: Great Room
Function/Activity: Large group gatherings and meetings; recreation and relaxation for
individuals and small or medium sized groups; games; television and movie
watching; lectures and programs.
Area: 750 SF
Total Number of Identical Rooms: 1
Number of Occupants: 50
Room Proportions: 2:3
Adjacent to: -
Close to: -
Away from: -
Other Design Considerations: -

Moveable Furnishings and Equipment:

<table>
<thead>
<tr>
<th>Item</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sofas, loveseats, armchairs</td>
<td>TBD</td>
</tr>
<tr>
<td>(2) Round Tables</td>
<td>36&quot; dia. x 30&quot; H</td>
</tr>
<tr>
<td>(8) Chairs</td>
<td>20&quot;W x 19&quot;D x 45&quot;H</td>
</tr>
<tr>
<td>(1) Display Case (movable)</td>
<td>60&quot;W x 20&quot;D x 72&quot;H</td>
</tr>
<tr>
<td>Coffee and end tables</td>
<td>TBD</td>
</tr>
<tr>
<td>Flat-screen television (LCD), wall mounted w/</td>
<td>TBD</td>
</tr>
<tr>
<td>surround sound</td>
<td></td>
</tr>
<tr>
<td>AV and projection Equipment enclosed in millwork</td>
<td>TBD</td>
</tr>
</tbody>
</table>

ROOM PROGRAMS

Room Name: Floor/Study Lounge (Type A)
Function/Activity: Small group meetings, lounging, individual/group study
Area: 300 SF
Total Number of Identical Rooms: 6
Number of Occupants: 10
Room Proportions: 2:3
Adjacent to: -
Common circulation.
Balconies on each above-grade floor.
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Close to: Bedrooms (in combination with Floor/Study Lounge Types A and B.2, locate one on each floor of each wing; i.e., one lounge per floor per wing)
Away from: Public areas
Other Design Considerations: Provide a minimum of 16 SF of window from the room to the corridor.

Moveable Furnishings and Equipment: Item Size
Sofas, loveseats, armchairs, coffee tables TBD
(1) Round Table 36" dia. x 30" H
(4) Chairs 20"W x 19"D x 45"H

Floor/Study Lounge (Type B.1)
Function/Activity: Seminars, small group research, study and discussion.
Area: 400 SF
Total Number of Identical Rooms: 1
Number of Occupants: 12
Room Proportions: 2:3
Adjacent to: Common circulation.
• Exterior wall with windows.
Close to: Bedrooms (in combination with Floor/Study Lounge Types A and B.2, locate one on each floor of each wing; i.e., one lounge per floor per wing)
Away from: Public areas
Other Design Considerations: Refer to UCB Building and Construction Standards, Appendix 9.
• Include complete “smart-to-the-front” classroom technology, including A/V cabinet, digital projection and sound amplification.
• Provide a minimum of 16 SF of window from the room to the corridor.

Moveable Furnishings and Equipment: Item Size
3 Tables 60"W x 30"D x 30"H
12 task chairs 20"W x 19"D x 45"H

ROOM PROGRAMS

Floor/Study Lounge (Type B.2)
Function/Activity: Small group research, study and discussion.
Area: 400 SF
Total Number of Identical Rooms: 1
Number of Occupants: 12
Room Proportions: 2:3
Adjacent to: Common circulation
Close to: Bedrooms (in combination with Floor/Study Lounge Types A and B.2, locate one on each floor of each wing; i.e., one lounge per floor per wing)
Away from: Public areas
Other Design Considerations: Provide a minimum of 16 SF of window from the room to the corridor.

Moveable Furnishings and Equipment: Item Size
(12) Carrels 33"W x 25"D x 48"H
(15) Task chairs 20"W x 19"D x 45"H
(2) Tables 60"W x 30"D x 30"H
(1) Printer
ROOM PROGRAMS

Laundry Room (Option A)
Laundering (coin-operated) by residents; casual interaction
Area: 500 SF
Total Number of Identical Rooms: 1
Number of Occupants: -
Room Proportions: TBD
Adjacent to: -
Close to: Bedrooms
Away from: -
Other Design Considerations: The space should be arranged with an area for washers, dryers and folding (provide counter for folding as described in Technical Criteria), with another area for casual seating. The latter should have visual access to a wall-mounted television.

<table>
<thead>
<tr>
<th>Moveable Furnishings and Equipment:</th>
<th>Item</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[6] Dryers</td>
<td>27&quot;W x 29&quot;D x 45&quot;H</td>
</tr>
<tr>
<td></td>
<td>(1) Table</td>
<td>36&quot;W x 60&quot;L x 30&quot;H</td>
</tr>
<tr>
<td></td>
<td>(4) Chairs</td>
<td>20&quot;W x 18&quot;D x 32&quot;H</td>
</tr>
</tbody>
</table>

Laundry Room (Option B)
Laundering (coin-operated) by residents
Area: 125 SF
Total Number of Identical Rooms: 3
Number of Occupants: -
Room Proportions: TBD
Adjacent to: -
Close to: Bedrooms
Away from: -
Other Design Considerations:

<table>
<thead>
<tr>
<th>Moveable Furnishings and Equipment:</th>
<th>Item</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(2) Washers</td>
<td>27&quot;W x 28&quot;D x 44&quot;H</td>
</tr>
<tr>
<td></td>
<td>(2) Dryers</td>
<td>27&quot;W x 29&quot;D x 45&quot;H</td>
</tr>
</tbody>
</table>
ROOM PROGRAMS

Room Name: Vending Area – need not be discrete room
Function/Activity: Dispensing snacks and soft drinks
Area: 50 SF
Total Number of Identical Rooms: 1
Number of Occupants: TBD
Room Proportions: TBD
Adjacent to: Corridor
Close to: Public and Common Areas, Main Building Entry
Away from: Bedrooms
Other Design Considerations:
  - Locate to facilitate sales and to allow easy observation of individuals in the space, however the space should not be visible from the Building Main Entry (no door required).
  - Allow 2” clear space between vending machines and walls.

Moveable Furnishings and Equipment: Item
(3) Vending Machines
(37”W x 35”D x 72”)(Note: Machines require 110v electrical service and each draws 14amps.)

Room Name: Kitchen
Function/Activity: Cooking of snacks and light meals by residents; serving/prep area for food at events
Area: 120 SF
Total Number of Identical Rooms: 1
Number of Occupants: TBD
Room Proportions: TBD
Adjacent to: Great Room, Corridor
Close to: -
Away from: -
Other Design Considerations: Provide a door directly from the corridor and from the Great Room.

Moveable Furnishings and Equipment: Item
(1) Electric range with four burners and self-cleaning oven
(1) Refrigerator
(1) Dishwasher
(1) Microwave Oven
(1) Coffee Maker

<table>
<thead>
<tr>
<th>Item</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric range</td>
<td>30&quot;W x 27&quot;D x 48&quot;H</td>
</tr>
<tr>
<td>Refrigerator</td>
<td>30&quot;W x 30&quot;D x 66&quot;H</td>
</tr>
<tr>
<td>Dishwasher</td>
<td>24&quot;W x 24&quot;D x 34&quot;H</td>
</tr>
<tr>
<td>Microwave Oven</td>
<td>30&quot;W x 18&quot;D x 18&quot;H</td>
</tr>
</tbody>
</table>
ROOM PROGRAMS

Room Name: Coffee/Food Cart Room
Function/Activity: Storage of a refrigerated vending cart when not in use, and location of services for it when it is. Food is delivered by Dining Services with service for brief periods (2-3 hours). The cart itself will be positioned at a location directly outside of the room and will be connected to electrical power and voice/data ports for the point-of-sale system.

Area: 70 SF
Total Number of Identical Rooms: 1
Number of Occupants: -
Room Proportions: 1:2
Adjacent to: Great Room
Close to: -
Away from: Bedrooms
Other Design Considerations: The room should open directly to the Great Room and should have a pair of doors with louvers for ventilation (the cart will have a refrigeration system which will operate while the cart is stored).

Moveable Furnishings and Equipment: Item Size
Coffee/Food Cart 8'-0" W x 3'-0" D x 5'-0" H
Microwave Oven

Room Name: Sink Niches
Function/Activity: Location for residents to get water for coffee, etc. and to wash personal dishes
Area: 10 SF
Total Number of Identical Rooms: 8
Number of Occupants: -
Room Proportions: -
Adjacent to: Corridor and one adjacent to each Floor/Study Lounge.
Close to: Bedrooms
Away from: -
Other Design Considerations: Provide a recess adjacent to the corridor for the counter and cabinets (refer to Technical Criteria).

Moveable Furnishings and Equipment: Item Size
[None]
ROOM PROGRAMS

Room Name: Common Bathrooms
Function/Activity: Bathrooms for multiple residents (non-gender specific)
Area: 3,900 SF, total (areas and quantities of fixtures in each may vary; the total area and number of fixtures should be divided proportionately to the numbers of individuals served by each bathroom).
Total Number of Identical Rooms: 6 or 7 (one per floor/per wing, excluding floors with suites and bedrooms with private baths).
Number of Occupants: TBD
Room Proportions: -
Adjacent to: -
Close to: Bedrooms without private baths
Away from: Public Areas
Other Design Considerations: Each room is to be fully accessible to the disabled

Moveable Furnishings and Equipment: Item | Size
[None]

Room Name: Public Toilets
Function/Activity: Restroom facilities for visitors
Area: 50 SF
Total Number of Identical Rooms: 2 (unisex)
Number of Occupants: -
Room Proportions: 1:2
Adjacent to: -
Close to: Public areas, Great Room, Main Entry, Classroom
Away from: Bedroom areas
Other Design Considerations: Each toilet room is to be fully accessible to the disabled.
The toilet rooms may be on different floors to satisfy adjacency requirements.

Moveable Furnishings and Equipment: Item | Size
[None]

ROOM PROGRAMS

Room Name: Reception: Engineering Honors Program (EHP)
Function/Activity: Reception area for visitors with seating for six; distribution of brochures and related materials about the EHP.
Area: 100 SF
Total Number of Identical Rooms: 1
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Number of Occupants: 6-8
Room Proportions: 2:3
Adjacent to: EHP Administrative Assistant's Office
Close to: Student academic areas
Away from: Bedrooms
Other Design Considerations: This is one of five spaces that comprise the EHP Administrative Suite.

Moveable Furnishings and Equipment:
<table>
<thead>
<tr>
<th>Item</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>(6) Lounge chairs</td>
<td>32&quot;W x 31&quot;D x 33&quot;H</td>
</tr>
<tr>
<td>(1) Coffee Table</td>
<td>48&quot;W x 48&quot;D x 16&quot;H</td>
</tr>
</tbody>
</table>

Room Name: Administrative Assistant Office: Engineering Honors Program
Function/Activity: Administrative work; receptionist for the Program
Area: 120 SF
Total Number of Identical Rooms: 1
Number of Occupants: 1 + visitors
Minimum Width: 10'-0"
Adjacent to: EHP Reception, EHP Work Room, EHP Director
Close to: -
Away from: Bedrooms
Other Design Considerations: Provide a minimum of 16 SF of glass in the wall between the office and EHP Reception.
This is one of five spaces that comprise the EHP Administrative Suite.

Moveable Furnishings and Equipment:
<table>
<thead>
<tr>
<th>Item</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Desk</td>
<td>60&quot;W x 32&quot;D x 30&quot;H</td>
</tr>
<tr>
<td>(1) Task Chair</td>
<td>20&quot;W x 19&quot;D x 45&quot;H</td>
</tr>
<tr>
<td>(2) Side Chairs</td>
<td>23&quot;W x 26&quot;D x 33&quot;H</td>
</tr>
<tr>
<td>(4) Lateral filing cabinets</td>
<td>36&quot;W x 18&quot;D x 60&quot;H</td>
</tr>
<tr>
<td>(1) Bookcase</td>
<td>48&quot;W x 12&quot;D x 72&quot;H</td>
</tr>
</tbody>
</table>

ROOM PROGRAMS

Room Name: Director's Office: Engineering Honors Program
Function/Activity: Administrative work; consultation with students and parents
Area: 175 SF
Total Number of Identical Rooms: 1
Number of Occupants: 1 + visitors
Minimum Width: 10'-0"
Adjacent to: EHP Administrative Assistant
Close to: Student academic areas
Away from: Bedrooms
Other Design Considerations: This is one of five spaces that comprise the EHP Administrative Suite.

Moveable Furnishings and Equipment:
<table>
<thead>
<tr>
<th>Item</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Desk</td>
<td>66&quot;W x 36&quot;D x 30&quot;H</td>
</tr>
<tr>
<td>(1) Task Chair</td>
<td>20&quot;W x 19&quot;D x 45&quot;H</td>
</tr>
<tr>
<td>(4) Side Chairs</td>
<td>23&quot;W x 26&quot;D x 33&quot;H</td>
</tr>
</tbody>
</table>
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(1) Meeting Table
(1) Credenza
(2) Lateral filing cabinets
(1) Bookcase
36" dia. x 30"H
66" W x 24"D x 30" H
36"W x 18"D x 60"H
48"W x 12"D x 72"H

Room Name: Work Room: Engineering Honors Program
Function/Activity: Copying; document preparation; supply storage
Area: 100 SF
Total Number of Identical Rooms: 1
Number of Occupants: -
Room Proportions: 2:3
Adjacent to: EHP Administrative Assistant's Office
Close to: Student academic areas
Away from: Bedrooms
Other Design Considerations: This is one of five spaces that comprise the EHP Administrative Suite

Moveable Furnishings and Equipment: Item
(1) Copier 60"W x 30"D x 43"H
(1) Fax 16"W x 14"D x 8"H
(4) 4-drawer vertical files 18"W x 28"D x 52" H
(1) Microwave 21"W x 15"D x 13"H
(1) Coffee Maker
(1) Under-cabinet Refrigerator 19"W x 20"D x 34"H

Room Name: Faculty Office: Engineering Honors Program
Function/Activity: Administrative work; consultation with students and parents
Area: 120 SF
Total Number of Identical Rooms: 1
Number of Occupants: 1 + visitors
Minimum Width: 10'-0"
Adjacent to: EHP Reception, EHP Work Room, EHP Director
Close to: Bedrooms
Away from: -
Other Design Considerations: • Provide a outside window
• This is one of five spaces that comprise the EHP Administrative Suite.

Moveable Furnishings and Equipment: Item
(1) Desk 60"W x 32"D x 30"H
(1) Task Chair 20"W x 19"D x 45"H
(2) Side Chairs 23"W x 26"D x 33"H
(4) Lateral filing cabinets 36"W x 18"D x 60"H
(1) Bookcase 48"W x 12"D x 72"H
ROOM PROGRAMS

Room Name: Classrooms - 2
Function/Activity: Lectures, seminars
Area: 450 SF and 350 SF
Total Number of Identical Rooms: 1
Number of Occupants: 17
Room Proportions: 2:3
Adjacent to: Public circulation
Close to: Other academic spaces, EHP Administrative Suite
Away from: Bedrooms
Other Design Considerations:
• Refer to UCB Building and Construction Standards, Appendix 9.
• Each room is to have "smart-to-every seat" classroom technology, including A/V cabinet, digital projection and sound amplification.

Moveable Furnishings and Equipment: Item per room
8 tables
17 task chairs
1 cart for laptop computers

Size
60"W x 30"D x 30"H
20"W x 19"D x 45"H
TBD

ROOM PROGRAMS

Room Name: Custodial Closets
Function/Activity: Storage of routine custodial supplies and custodial cart, water access
Area: 50 SF
Total Number of Identical Rooms: 8
Number of Occupants: 0
Room Proportions: 1:2
Adjacent to: Each Common Bathroom
Close to: —
Away from: Bedrooms
Other Design Considerations: —

Moveable Furnishings and Equipment: Item
Custodial Cart

Size (L x W or D x H)
60L" x 24W" x 48"H
**ROOM PROGRAMS**

**Custodial Storage Rooms**
- Storage of bulk custodial supplies (paper products and cleaning agents)
- Storage of linens (sheets, pillows, blankets)

250 SF

**Area:**
- Total Number of Identical Rooms: 1
- Number of Occupants: -
- Room Proportions: 2:3
- Adjacent to: Exterior service entry
- Close to: -
- Away from: -

**Moveable Furnishings and Equipment:**
- Item: (12) Shelving units
- Size: 36"W x 24"D x 84"H

Note: This space is optional and is not included in the overall program.

**Custodial Breakroom (NOT USED)**
- Space for custodians to relax and to eat lunch.

125 SF

**Area:**
- Total Number of Identical Rooms: 1
- Number of Occupants: 4
- Room Proportions: 2:3
- Adjacent to: Public circulation
- Close to: Custodial Storage Closets
- Away from: Bedrooms

**Moveable Furnishings and Equipment:**
- Item: (1) Round Table
- Size: 48" dia. x 30"H
- Item: (4) Task chairs
- Size: 20"W x 19"D x 45"H
- Item: (1) Refrigerator
- Size: 30"W x 30"D x 66"H
- Item: (1) Microwave Oven
- Size: 30"W x 18"D x 18"H
- Item: (1) Coffee Maker
- Size: -
TECHNICAL CRITERIA: GENERAL
Except as modified in this document, all work in all disciplines is governed by and must comply with:

1. "University of Colorado Building and Construction Standards", 2007 Edition, including sustainability/LEED requirements (indicated in red), and all of its Appendices;
2. "Instructions: UCB Standards for Construction Component Performance, Preference and Selection;
3. "University of Colorado Construction/Life-Safety Handbook" (Revised: January 2005).
4. It shall be a requirement of this project that all mechanical, electrical and IT/security system components shall be fully integrated and coordinated with one another, with the building structure and with all architectural elements to achieve the following:
   A. There are no physical conflicts between the components/elements of the systems.
   B. There is easy access to all components for maintenance and replacement.
   C. All mechanical, electrical and IT/security components are fully concealed as required elsewhere in this document.

These documents may be found at the following websites:
http://fm.colorado.edu/construction/standards/Categories.html;

TECHNICAL CRITERIA: EXTERIOR SCOPE AND MATERIALS

1. SITE
   Note: refer to the Site Scope of Work drawing on page 37 for additional information.

   A. Maintain ramped access to the existing terrace on the south side of the center wing. Any site walls enclosing the ramp must be clad in sandstone to match the existing building. The ramp must comply with all requirements for access to the disabled.
   B. Tuckpoint the stone masonry cheek-walls and site walls adjacent to the building at the at their various locations. All site walls shall be evaluated for visible structural defects or damage and joints/expansion joints deemed to need restoration shall be restored.
   C. Remove the steel barrier rail on the north side of the building.
   D. Relocate bicycle racks so that they are distributed around the building and not clustered in one or two places. Provide additional ‘hardscape’ for additional bike racks.
   E. Provide two - (2) waterproof duplex receptacles at the terrace on the south side of the Great Room and two – (2) waterproof duplex receptacles at the north side of the Great Room at the small patio.
   F. Provide exterior lighting at the terrace on the south side of the center wing that:
      1. Provides a suitable amount of light for informal gatherings of small groups.
      2. Contributes to the security of the space.
      3. Is of an architectural character appropriate for the purpose and which is in compliance with Campus Standards.
      4. Eave lighting around the building shall be replaced with LED fixtures and lamps so as to comply with the LEED standards.
      5. Replace the exterior lighting in the soffit at the ‘bridge’ on the north side of the ‘Great Room’.
   G. Remove all existing sod and replace with new throughout the entire area shown on the Site Scope of Work diagram on page 11. This area of sod replacement shall be required regardless of the area of the site actually used and fenced by the Design-Build Team.
1. New sod shall have no backing of any type.
2. Prior to installation of new sod, fill the area to a depth of 6" and add 3 cu. yds. of compost per 1,000 SF of surface.
3. Existing irrigation system is to be re-used; protect all lines, heads and valves.

H. Screen existing and/or new transformers, coordinate with Owner.
I. Protect all trees and existing landscaping. Fence all trees to the drip line of each tree, ensure proper watering of each tree during the life of the project.
J. Provide a "porch" and 5'-0" wide concrete sidewalk running from the new exterior entrance to the Faculty-in-residence apartment to the nearest exterior sidewalk.
II. BUILDING ENVELOPE

A. REPLACE ALL EXISTING WINDOWS AND DOORS.

1. Windows (typical)
   a. Operation: Sliding, in configurations to match existing, with locks.
   b. Grade: Heavy Duty Commercial.
   c. Material: Aluminum.
   d. Finish: Black anodized.
   e. Glazing: 1" insulating units (each lite: 1/4")
      1. Indoor light: 1/4" clear.
      2. Outdoor light: 1/4", with low-E coating; provide glass with gray tint on east, south and west exposures, and clear glass on north.
   f. Provide screens on all windows, removable from the inside.
   g. Manufacturers:
      1. EFCO Corporation
      2. Graham Architectural Products
      3. Kawneer
      4. Wausau Window and Wall Systems
      5. Approved Substitute
   h. Windows at existing sliding glass doors will be considered by the Owner in lieu of doors as specified elsewhere – consideration will be based on the interior layout required to meet the criteria for beds.

2. Windows/Glazing at Bridges: Replace all single glazing and jalousie windows at the two bridges between upper floors with 1" insulated glass units. The new units should be anchored-in-place with aluminum stops similar to the existing construction.
   a. Glazing: 1" insulating units (each lite: 1/4")
      1. Indoor light: 1/4" clear.
      2. Outdoor light: 1/4", with low-E coating; provide clear glass on north exposures and glass with gray tint on south exposures.
   c. Match new windows at the Bridge at Arnett hall.

3. Doors: Provide new hollow metal doors at all exterior locations, except where noted in paragraph A.4 (existing frames may remain and be reused).
   a. Glazing: 1" insulating units.
      a. Indoor light: 1/4" clear.
      b. Outdoor light: 1/4", with low-E coating; provide clear glass on north exposures and glass with gray tint on south exposures.
   b. Match existing rail and stile configurations.
   c. Provide continuous geared hinges on all exterior doors.

4. Storefront:
   a. At the following locations, replace the sliding glass doors with new storefront framing and one swinging aluminum door in the openings to the existing balconies. The 'Great Room' is to be considered the hub off of which the 'wings' extend.
      1. West Wing (Wing "A" on the original construction drawings).
         a. Second Floor, north side, west end, south side.

      2. North Wing (Wing "B" on the original construction drawings).
a. Second Floor, north end.

3. East Wing (Wing "C" on the original construction drawings).
   a. Second Floor, north and south sides, east end.

b. Provide the following as an Add Alternate in your pricing. Expand the existing Great Room to the south to the next structural column grid. Remove the existing stone base at the existing windows. Replace the existing exterior concrete slab with a new slab structurally integrated with the existing interior slab. Enclose the new area with aluminum storefront on a stone base to match the existing 'to be removed' consistent with the existing windows and glazing.

c. Materials
   2. Finish: Black anodized.
   3. Storefront Glazing: 1″ insulating units (each lite: 1/4″)
      a. Indoor light: 1/4″ clear.
      b. Outdoor light: 1/4″, with low-E coating; provide clear glass on north exposure and glass with gray tint on east, south and west exposures.

4. Door Type: Full-lite with medium stiles.

5. Door Glazing:
   a. Indoor light: 1/4″ clear.
   b. Outdoor light: 1/4″, with low-E coating; provide clear glass on north exposures and glass with gray tint on south exposures.

6. Provide continuous geared hinges on all doors.

B. INSULATE THE BUILDING ENVELOPE

1. Foundation: In the crawlspace, provide 2″ closed-cell polystyrene insulation around the perimeter of the foundation, from grade to underside of concrete deck.

2. Exterior walls: Provide isocyanurate insulation on all exterior walls (except those on the bridges) to achieve an overall wall R-value of 19, with a maximum thickness of 3½″. Use foam insulation to fill voids left in the rigid insulation. Insulation must comply with "flame spread" and "smoke developed" limitations of the IBC and tested per ASTM E84. Enclose and protect the insulation with studs and drywall.

3. Roof: Add 6″ of batt insulation (to achieve an assembly rating of R = 30) to the drywall ceiling on the underside of the existing roofs at all locations. The new insulation must be enclosed with metal studs and drywall unless otherwise directed by Owner (attic spaces – typical).

C. CLAD THE ROOF WOOD FASCIAS

1. Clad the surface of the wood fascias of all existing sloping roofs with pre-finished metal.

2. Mock-up: Prepare a mock-up, for the Owner’s review of appearance and craftsmanship. The mock-up shall be 10’-0″ long and installed in a final location. If acceptable, the mock-up may become a part of the finished work.

3. Materials
b. Fasteners: High-strength aluminum, stainless steel or coated steel to prevent corrosion and galvanic activity between dissimilar metals.

4. Installation: Install metal with over lapped, sealed butt joints and concealed fasteners. Wrap all corners so as to prevent any corner butt joints.

TECHNICAL CRITERIA: INTERIOR SCOPE AND MATERIALS

Note: Refer to the Mechanical and Electrical Technical Criteria for additional criteria pertaining to those disciplines.

I. PLANNING

A. CEILINGS AND CEILING HEIGHTS

1. All ceilings shall be no less than 7'-11", except in areas of soffits that are required to enclose duct, pipes and other systems, and as noted below. Minimum soffit height: 7'-0".
   a. Ceilings directly above the showers in Common Bathrooms are to be 7'-0" above shower pans.
   b. As an option, ceilings in private bathrooms (not Public Toilets or Common Bathrooms) may be as low as 7'-2" to permit the installation of recessed lights.

2. The configuration of existing "cathedral" ceilings on the uppermost floors is to be maintained.

B. CORRIDORS

1. Primary corridors shall be no less than 4'-6" in width (this may vary slightly in select locations if the Design-Build Team determines that doing so will improve the overall plan).

C. ROOM SIZES

1. Provide minimum room dimensions or approximate room proportions as indicated in the Room Programs, or proportions appropriate for the use and fixtures/furnishings indicated.
2. Classrooms should be located and designed to prevent structural components from occurring in the interior space of these rooms causing interrupted visual sight lines. Structural modifications shall be designed and included in the scope of work to accommodate removal of any such structural components.
D. SYSTEMS

1. All ducts, pipes, conduits, wires and devices must be concealed within walls, ceilings or soffits (Exception: Inside mechanical, electrical, IT and custodial rooms and closets).

E. ELEVATORS

1. Existing elevators, elevator shafts and elevator equipment rooms shall be into compliance with all applicable codes including but not limited to suppression, detection and shunt trips.

F. ADJACENCIES

1. No utility spaces (Custodial Closets/Rooms, IT Closets/Rooms, Electrical and Mechanical Closets/Rooms) may be adjacent to any bedrooms. Of these spaces, only custodial closets may be adjacent to Common Bathrooms.

G. ACOUSTICS

1. Provide the Sound Transmission Class (STC) indicated for the space adjacencies shown on the table below.

<table>
<thead>
<tr>
<th>ROOM TO ROOM STC</th>
<th>Bathrooms/Toilet Rooms* and Bedroom to Bathroom</th>
<th>Classrooms</th>
<th>Offices</th>
<th>Seminar/Study Rooms</th>
<th>Lounges</th>
<th>Corridors</th>
<th>Laundry Rooms</th>
<th>Mechanical Rms.</th>
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<td>Bedroom</td>
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</table>

*The STC does not apply between private baths and the bedrooms they serve. **Bedroom doors to corridors are to be rated at an STC 32.**

H. ACCESSIBILITY

1. All public areas of Andrews Hall must be ADA accessible, this includes all areas inside the building separated from student residence areas by security doors. The third level of the ‘West Wing’ shall be made accessible to the second floor.
I. FURNISHINGS
   1. Window Coverings: Provide PVC horizontal blinds with 2" slats at all exterior windows.

J. FLOORS
   1. The existing concrete slabs may be out of level as much as +/- 1" and may need to be leveled. The Design-Build entity shall consider this information and include an allowance for such leveling requirements.

II. CRITERIA FOR ROOM TYPES

A. BEDROOMS

   1. Windows
      a. Each bedroom shall have, as a minimum, one window.

   2. Closets
      a. Each bedroom with one bed shall have one closet 3'-6" wide by 2'-6" deep, with two, 12" deep fixed shelves and a coat rod.
      b. Each bedroom with two beds shall have two closets, each 3'-6" wide by 2'-6" deep, with two, 12" deep fixed shelves and a coat rod.
      c. Shelves: ¾" melamine-clad particle board.
      d. Doors: Swinging with latches.

   3. Finishes
      a. Floors: VCT
      b. Walls: Drywall
      c. Base: Rubber
      d. Ceiling: Drywall

   4. Accessories:
      a. Provide one 4' X 6' tackboard in each bedroom with one bed. (Coordinate with owner for materials on all)
      b. Provide two 4' X 6' tackboards in each bedroom with two beds.
      c. Provide one 18" W. x 30" H. aluminum framed markerboard (no marker-tray) and one 18" W x 12" H. tackboard on the corridor side of each bedroom entry door.

B. PRIVATE BATHROOMS

   1. Fixtures and Accessories
      a. In each bathroom serving one single bedroom, provide the following:
         1. Fixtures;
            a. One water closet.
b. One under-mounted solid-polymer surfacing lavatory in a solid-polymer surfacing material vanity measuring at least 22"D x 36"W. Provide a plastic laminate base cabinet with doors and one shelf, and at least one drawer. 
   i. In bathrooms serving accessible bedrooms, provide at least 16" width of cabinets adjacent to the lavatory knee-spaces.

c. One shower in an enclosure measuring 36" x 36", minimum — solid surface (SS) with SS shower pan.

2. Accessories
   a. (1) Medicine cabinet with mirror.
   b. (1) Single-roll toilet tissue dispenser.
   c. (2) Robe hooks; locate one adjacent to the shower and one on the back of the bathroom door.
   d. (1) 24 inch long towel bar.
   e. (1) Wash cloth ring, located adjacent to the vanity.
   f. (1) Shower curtain rod.

b. In each bathroom serving two single bedroom suites (connecting rooms), provide the following:
   1. Fixtures
      a. One water closet.
      b. Two under-mounted solid-polymer surfacing lavatories in a solid-polymer surfacing material vanity measuring at least 22"D x 60"W. Provide a plastic laminate base cabinet with doors and one shelf, and two drawers in one tier.
         i. In bathrooms serving accessible bedrooms, provide a total of at least 32" width of cabinets adjacent to the lavatory knee-spaces.

c. One shower in an enclosure measuring 36" x 36", minimum — solid surface (SS) with SS shower pan.

2. Accessories
   a. (2) Medicine cabinets with mirrors.
   b. (1) Single-roll toilet tissue dispenser.
   c. (3) Robe hooks; locate one adjacent to the shower and one on the backs of each of the two bathroom doors.
   d. (2) 24 inch long towel bars.
   e. (2) Wash cloth rings, located adjacent to the vanity.
   f. (1) Shower curtain rod.

c. In each bathroom serving two double bedroom suites (connecting rooms), provide the following:
   1. Fixtures
      a. One water closet.
      b. Two under-mounted solid-polymer surfacing lavatories in a solid-polymer surfacing material vanity measuring at least 22"D x 60"W. Provide a plastic laminate base cabinet with doors and one shelf, and four drawers.
i. In bathrooms serving accessible bedrooms, provide at least 32" width of cabinets adjacent to the lavatory knee-spaces.

c. One shower in an enclosure measuring 36" x 36", minimum – solid surface (SS) with SS shower pan.

2. Accessories
   a. (2) Medicine cabinets with mirror.
   b. (1) Single-roll toilet tissue dispenser.
   c. (5) Robe hooks; locate one adjacent to the shower and two on the backs of each of the two bathroom doors.
   d. (4) 24 inch long towel bars.
   e. (4) Wash cloth rings, located adjacent to the vanity.
   f. (1) shower curtain rod.

d. In all bathrooms serving accessible bedrooms, provide the following in addition to the above requirements:
      a. Accessible shower enclosure with seat and grab-bars – solid surface (SS) with SS shower pan.

2. Finishes
   a. Floors: Ceramic tile.
   b. Walls: Ceramic tile wainscot, to 4'-0" height on all four walls, with painted drywall above.
   c. Base: Ceramic tile cove, to match wall tile.
   d. Ceiling: Drywall.
   e. Shower:
      1. Walls and Shower Pans: Refer to Criteria for Interior Materials
      2. Ceiling/soffit: Drywall at 7'-0" above surface of shower pan.

C. OFFICES, RECEPTION ROOMS AND OFFICE WORK ROOM/OFFICE- STORAGE ROOM:

1. Windows
   a. Each office shall have, as a minimum, one window.

2. Finishes
   a. Floors: Carpet-1.
   b. Walls: Drywall.
   c. Base: Carpet.
   d. Ceiling: Suspended ceiling.

3. Casework
   a. EHP Director/EHP Administrative Assistant Offices: None.
   b. Reception Rooms
      1. Building Reception: Provide plastic laminate base cabinet (with doors) and solid-polymer surfacing material top, 8'-0" L x 30"D x 40"H, with an accessible area that is 34" high. Provide cabinets and one tier of drawers. Provide locks on all cabinets and drawers.
2. EHP Reception: Provide 24"D x 60"W x 40"H plastic laminate counter on legs or end-panels.

c. EHP Administration Work Room: Provide two plastic laminate base and wall cabinets (with doors) the full lengths of opposite walls (Exception: Provide empty spaces for floor-mounted copier, four-4-drawer filing cabinets and a residential-size refrigerator). Provide one tier of drawers in each, and locks on all cabinets and drawers.
d. Storage Rooms: None.

4. Accessories
   a. Building Reception
      1. Provide a motorized counter fire door (lockable) the full width of the reception counter.
      2. Provide one recessed display case near entrance, 48"W x 48"H x 6"D.

   b. EHP Reception: Provide one recessed display case, 48"W x 48"H x 6"D.

D. GREAT ROOM

1. Finishes
   a. Floors: Carpet-1.
   b. Walls: Drywall.
   c. Base: Carpet.
   d. Ceiling: Suspended ceiling.

2. Casework: None.

3. Accessories
   a. Provide one 72" x 72" motorized projection screen in accordance with UCB Building and Construction Standards, Appendix 9, recessed in soffit.
   b. Provide one recessed display case, 48"W x 48"H x 6"D.
   c. Provide a bracket for a ceiling-mounted projector (projector furnished and installed by Owner).

E. FLOOR/STUDY LOUNGES TYPE A

1. Finishes
   a. Floors: Carpet-1.
   b. Walls: Carpet.
   c. Base: Rubber.
   d. Ceiling: Suspended ceiling.

2. Casework: Built-in desk ht. solid-surface study carrel for one student with fixed shelves above.
F. CLASSROOM AND FLOOR/STUDY LOUNGES TYPES B.1 AND B.2

1. Windows: Locate the rooms to have at least one exterior window.
2. Finishes
   a. Floors: Carpet-1.
   b. Walls: Drywall.
   c. Base: Carpet.
   d. Ceiling: Suspended ceiling.

3. Casework
   a. Classrooms:
      1. Provide plastic laminate A/V Cabinet and Projector Shelf in accordance with
         UCB Standards, Appendix 9 (provide lock on A/V cabinet). Note: No lectern is
         required.
      2. Provide plastic laminate base and wall cabinets (with doors) 24"D x 72"L, with
         one tier of drawers, locks on all cabinets and drawers. Countertop to be plastic
         laminate.
   
   b. Floor/Study Lounge B.1:
      1. Provide plastic laminate A/V Cabinet and Projector Shelf in accordance with
         UCB Standards, Appendix 9 (no lectern).

   c. Accessories
      1. Markerboards
         a. Classrooms: Provide 12 lineal feet of markerboard on one wall and 12 lineal
            feet of chalkboard on another wall.
         b. Floor/Study Lounges B.1 and B.2: Provide 10 lineal feet of markerboard on
            one wall of each.

      2. Tackboards
         a. Provide one 4' x 4' tackboard each in the Classroom and Floor/Study
            Lounge Types B.1 and B.2.

      3. Projection Screens
         a. Classroom and Floor/Study Lounge B.1: Provide each room one 72" x 72"
            pull-down projection screen, recessed in a soffit in accordance with UCB

   4. Brackets for Ceiling-mounted Projectors: Provide one each in Classroom and
      Floor/Study Lounge Types B.1 and B.2 (projector furnished and installed by
      Owner).

   5. Provide manually operated 'blackout' window coverings at each classroom
      window and door.

G. LAUNDRY ROOMS

1. Finishes
   a. Floors: VCT.
   b. Walls: Drywall.
   c. Base: Rubber.
   d. Ceiling: Drywall.
2. Casework:
   a. Bracket-supported plastic laminate counter for folding.
      1. Option A: 2'-0" x 10'-0" [total combined length if only one].
      2. Option B: 2'-0" x 6'-0".

3. Other:
   a. Provide bracket for mounting a television high on one wall in Laundry Room Option

H. VENDING AREA

1. Finishes
   a. Floors: VCT.
   b. Walls: Drywall.
   c. Base: Rubber.
   d. Ceiling: Suspended ceiling.

I. KITCHEN

1. Fixtures and Accessories (refer to Plumbing Fixtures for additional information).
   a. One double stainless steel sink with mixing valve and gooseneck faucet.
   b. Disposal.
   c. Cold-water supply for coffee-service machine.
   d. One re-circulating-type residential exhaust hood.
   e. Install one Owner-furnished paper towel dispenser.

2. Appliances
   a. Install the following Owner provided appliances (refer also to the Room Program):
      1. Dishwasher
      2. Oven/Range
      3. Refrigerator

3. Finishes
   a. Floors: VCT.
   b. Walls: Drywall.
   c. Base: Rubber.
   d. Ceiling: Drywall.

4. Casework:
   a. Provide a minimum of 16 lineal feet of base and wall cabinet. Countertop to be of solid-polymer surfacing material.

J. COFFEE/FOOD CART ROOM

1. Fixtures and Accessories (refer to Plumbing Fixtures for additional information).
a. Provide six tiers of 48" W x 12" D x 1" thick, melamine-clad adjustable shelves on heavy duty brackets and standards.
b. Provide a 48"W x 24"D solid-polymer surfacing material countertop with stainless steel sink, on plastic laminate base cabinets with doors and one tier of drawers.
c. Install owner-furnished paper towel and soap dispenser.

2. Finishes
   a. Floors: VCT.
   b. Walls: Drywall.
   c. Base: Rubber.
   d. Ceiling: Drywall.

K. SINK NICHES

1. Fixtures and Accessories (refer to Plumbing Fixtures for additional information).
   a. One single stainless steel sink with mixing valve and gooseneck faucet located on side of sink.
   b. Disposal.

2. Finishes
   a. Floors: Ceramic Tile shall be installed on the floor in front of the sink niches to a depth of 2 feet.
   b. Walls: Drywall.
   c. Base: Ceramic Tile.
   d. Soffit: Drywall.

3. Casework:
   a. Provide 5 lineal feet of plastic laminate base and wall cabinet in each niche. Countertop to be of solid-polymer surfacing material.

L. COMMON BATHROOMS

1. General
   a. Provide one Common Bathroom per floor, per wing.
   b. Provide a total of 17 water closets, 17 lavatories and 20 showers, divided proportionately to the population on each floor that will be utilizing the Common Bathrooms (i.e., exclude the population served by private baths).
   c. Single Occupant Floor Bathrooms: a total of two single bathrooms consisting of a water closet, a lavatory and a shower. These bathrooms shall be ADA compliant and located on two separate floors having floor bathrooms. Only one of the bathroom locations shall be the ground floor, the other bathroom must be on a higher floor level. These bathrooms will not change the total fixture count necessary for the floor upon which they are located.
   d. It is the goal of the University to achieve an occupant to fixture ratio of 1:7 to 1:8.
2. Fixtures and Accessories
   a. Provide the following in each bathroom:
      1. Water closets in compartments, each with sanitary napkin disposals.
      2. Under-mounted lavatories in a solid-polymer surfacing material vanities (refer to the diagram on page 54 for additional information):
         a. Vanities: 20" D x 30" of width for each lavatory.
         b. Solid-polymer surfacing material shelf 6" D, positioned 10" above vanity (below mirror) integral with the wall in front of the vanity.
         c. 6" diameter holes in vanities between each lavatory (finish edges or provide trim ring) for access to Owner-furnished trash cans below.
      3. Unframed mirror spanning the width of the vanity, inlaid into wall tile, from the top of the shelf above the vanity to the ceiling.
      4. Showers in enclosures, each measuring 36" x 36", with an adjacent 36" x 36" drying compartment, each with its own swinging door. Provide each with a curtain and rod, and one robe hook on the door to the enclosure.
   b. One recessed lockable enclosure for hose bibb and hose.
   c. Install the following Owner furnished accessories in each room:
      1. One toilet paper dispenser for each water closet.
      2. Two paper towel dispensers.
      3. One soap dispenser for each lavatory.
      4. One (non-electric) hand sanitizer.

3. Finishes
   a. Floors: Ceramic tile.
   b. Walls: Ceramic tile, full height.
   c. Base: To match wall tile.
   d. Ceiling: Drywall.
   e. Shower:
      1. Walls and Shower Pans: Refer to Criteria for Interior Materials
      2. Ceilings/soffits: Drywall at 7'-0" above surface of shower pan.

M. PUBLIC TOILETS

1. Fixtures and Accessories
   a. In each public toilet, provide the following:
      1. One water closet.
      2. One wall-mounted vitreous china lavatory.
      3. One framed mirror, 18" x 24".
      4. One single-piece, L-shaped grab-bar.
      5. One sanitary napkin disposal.

2. Install the following Owner furnished accessories in each room:
   a. One toilet paper dispenser.
   b. One paper towel dispenser.
   c. One soap dispenser.
   d. One (non-electric) hand sanitizer.
3. Finishes
   a. Floors: Ceramic tile.
   b. Walls: Ceramic tile.
   c. Base: To match wall tile.
   d. Ceiling: Drywall.

N. STORAGE ROOMS

1. Finishes
   b. Walls: Drywall.
   c. Base: Rubber.
   d. Ceiling: None.

O. CUSTODIAL CLOSETS

1. Fixtures and Accessories
   a. In each custodial closet, provide the following:
      2. One 26"L stainless steel mop rack.
      3. Five, 24"D x 36"W adjustable shelves on standards and brackets.
      4. 18" H stainless steel wall guard on two sides of mop service basin.

2. Finishes
   b. Walls: Drywall with epoxy paint.
   c. Base: Rubber.
   d. Ceiling: None.

P. CUSTODIAL STORAGE CLOSETS

1. Finishes
   a. Floors: Sealed concrete
   b. Walls: Drywall
   c. Base: Rubber
   d. Ceiling: None

Q. CORRIDORS

1. Finishes
   a. Floors:
      1. Carpet-1 (typical).
      2. Carpet-2.
         a. Provide Carpet-2 for a length of 6'-0" in the long axis of the corridor, spanning the width of the corridor, at every door to a Common Bathroom.
   b. Walls: Drywall.
ANDREWS HALL RENOVATION
DESIGN-BUILD TECHNICAL CRITERIA
Housing and Dining Services
University of Colorado at Boulder

c. Base: Carpet.
d. Drywall.

2. Accessories:
   a. Provide one 3’ x 3’ tackboard adjacent to each exterior door and adjacent to each Common Bathroom.

R. MECHANICAL/MACHINE ROOMS, ELECTRICAL/IT ROOMS AND CLOSETS

1. Finishes
   b. Walls: Drywall.
   c. Base: Rubber.
   d. Ceiling: None.

S. ELEVATORS
   Note: Completely renovate all existing elevator cars.

   1. Finishes:
      a. Floors: 24” x 24” quartz-reinforced vinyl tile by Rikett Quartz or approved substitute.
      b. Walls: Plastic laminate.
      c. Ceiling: Plastic laminate with downlights.

   2. Control console: Stainless steel.
   3. Existing elevators shall be brought into code compliance in regards to suppression, detection and shunt trip.

T. CUSTODIAL BREAKROOM [NOT USED]

   1. Fixtures and Accessories (refer to Plumbing Fixtures for additional information).
      a. One single stainless with mixing valve and gooseneck faucet.
      b. Disposer.

   2. Finishes
      a. Floors: VCT,
      b. Walls: Drywall.
      c. Base: Rubber.
      d. Soffit: Drywall.

   3. Casework:
      a. Provide plastic laminate base and wall cabinet along the length of the short wall of the room, leaving space for a full-size refrigerator. Countertop to be of solid-polymer surfacing material.

U. All student rooms above any apartment room complex (F.I.R. / Graduate / Hall Director Apartment) shall be furnished with wall to wall carpet and pad on all floor surfaces – coordinate colors with the University.
V. All interior stairs shall have VCT tile, rubber stair treads, base and stair nosing with gypsum board ceilings and painted walls. - Coordinate colors with the University.

W. FACULTY-IN-RESIDENCE APARTMENT

It is the intent of the Owner to provide a faculty member and their family (four occupants typical) a standard residential apartment with all the standard residential amenities in the bathroom, kitchen and living areas.

1. Fixtures and Accessories - Bathroom
   a. One water closet.
   b. One double sink - under-mounted solid-polymer surfacing lavatory in a solid-polymer surfacing material vanity measuring at least 22"D x 60"W w/ back splash. Provide a hardwood base cabinet with doors and one shelf, and at least one drawer.
   c. Shower enclosure/Bath with Shower Curtain Rod and Curtain, solid surface enclosure except ceiling at shower (drywall w/high build semi-gloss paint.)
   d. Typical Residential Bathroom Accessories – including but not limited to Medicine Cabinet, Towel Bars, Mirror, etc.
   e. Window coverings – match building standard.

2. Fixtures and Accessories - Kitchen
   a. Stainless Steel Double Sink with Disposal and hand sprayer
   b. Cabinets – Standard Residential Grade Hardwood Cabinets with Solid Surface Counters and back splash.
   c. Utility Connections for Refrigerator, Stove/Oven Combination, Hood/Microwave Oven Combination, Dishwasher, Clothes Washer/Dryer (if located in Kitchen).
   d. Ceiling Fan with light.
   e. Window Coverings – match building standard.

3. Fixtures and Accessories – Living Areas and Bedrooms
   a. Ceiling Fan with light.
   b. Window Coverings – match building standard.

4. Finishes – Living Areas and Bedrooms
   a. Floors – Laminate
   b. Walls – Standard Drywall and Standard Paint (anticipate up to four accent colors)
   c. Ceilings – Standard Drywall and Standard Paint
   d. Stained hardwood base

5. Finishes – Kitchen
   a. Floors – Porcelain Tile
   b. Walls - Standard Drywall and Standard Paint
   c. Ceilings – Standard Drywall and Standard Paint

6. Finishes – Bathroom
a. Floors – Porcelain Tile
b. Walls – Ceramic Tile Wainscot – 42" high except in shower enclosure, Standard Drywall and Standard Paint
c. Ceiling - Standard Drywall and Standard Paint

7. Miscellaneous –
   a. Living areas –
      i. 2 – 4’-0” Wide X full height hardwood bookshelves built-in.
      ii. 1- Data/Cable/Phone jack per campus standards.
   b. Kitchen –
      i. 1- Data/Cable/Phone jack per campus standards.
   c. Master Bedroom –
      i. 1- Data/Cable/Phone jack per campus standards
d. Bathroom –
      i. Obscure glass in exterior window(s)
e. Doors –
      i. Exterior entrance door- Steel door with Hollow Metal Frame
      ii. Interior entrance door - 1-3/4" thick, solid core with Hollow Metal Frame  
          – code compliant
      iii. Doors connecting to the required adjacent single room shall be 1-3/4"  
          thick, solid core with Hollow Metal Frames
      iv. All other doors – Standard Residential, 1-3/8" thick
   f. Sprinkler/ing/Fire Alarm –
      i. Match and incorporate into new building alarm and notification system

III. CRITERIA FOR INTERIOR MATERIALS

A. GENERAL

1. The Design-Build Team will make recommendations of colors for all materials and components to enable the Owner to make decisions about them in the context of an entire palette.

B. MILLWORK

1. General: All millwork is to have LEED MRc7 certified wood products.
2. Cabinets
   a. All cabinets are to be clad with plastic laminate (except F.I.R. apartment). Refer to  
      the Criteria for Room Types for countertop materials.
   b. Provide one adjustable melamine-clad shelf in each base cabinet.
   c. Provide one adjustable melamine-clad shelf in each wall cabinet up to 24” in  
      height, and two shelves for all others.
   d. Provide locks as indicated in the Criteria for Room Types.
3. Countertops: Self-edged, square profile; provide 4” high backsplash at each abutting  
   wall.
   a. Materials: As indicated under Criteria for Room Types.
ANDREWS HALL RENOVATION
DESIGN-BUILD TECHNICAL CRITERIA
Housing and Dining Services
University of Colorado at Boulder

4. Window Sills: Provide ½" thick solid-polymer surfacing material window sills.
5. Shower Enclosures
   a. Walls: ½" thick solid-polymer surfacing material, with integral, recessed soap dish.
   b. Shower Pan: ½" thick solid-polymer surfacing material.

C. DOORS, DOORFRAMES AND HARDWARE

1. Doors
   a. All rooms and closets are to be enclosed by at least one door, except where
      specifically noted otherwise in this document.
   b. All doors are to swing into rooms except those serving mechanical/electrical/IT
      rooms and closets, custodial closets and storage rooms, or doors otherwise
      required by building and life-safety codes to swing outward.
   c. All doors are to be solid-core wood, with plastic laminate faces and edges. All
      doors are to have LEED MRc7 certified wood products.
   d. Door sizes:
      1. All room entry doors are to be 3'-0" x 6'-8" x 1¼".
      2. All bedroom closet doors are to be 2'-8" x 6'-8" x 1¾".
   e. Manufacturers:
      1. Buell Door Company
      2. Eggers Industries
      3. The Maiman Company
      4. Approved Substitute
   f. Vision Panels: Provide vision panels (of the largest size permitted by code) in doors
      into the EHP Reception, Classroom, Great Room and Floor/Study Lounges.

2. Hardware
   a. Finish: All hardware is to have US26D finish.
   b. Locking/Latching Hardware
      1. All doors are to be lockable except doors to stairs and Laundry Room(s).
      2. Locksets
         a. Typical on all doors except as noted otherwise: Install Onity Integra 3
            locksets (locksets furnished by Owner).
         b. Provide and install Schlage “D” series vandal resistant lever with electronic
            locking hardware and electronic access devices at the following locations
            (refer to Security Systems for additional information):
            i. Exterior Doors: Card Readers (“C-Cure”).
            iii. All doors between public areas and student residential areas.
         c. Private Baths in Suites: Provide a passage set on each door with Schlage
            “D” series vandal resistant lever and occupancy indicator.
      4. Door Operators: Provide a pneumatic door operator on the entry doors of each
         wing at the entry plazas (only one operator at pairs of doors).
      5. Provide all bedroom entry doors from corridors with a wide-angle, one-way
         door viewer.
      6. Provide Rockwood kickplates on doors in the following location:
         a. All exterior doors.
b. Common Bathroom doors.
    c. Stairway doors.
    d. Custodial closets.
    e. Mechanical rooms.
    f. IT Room and Closets.
    g. Corridors

c. Provide floor-mounted doorstops.
    d. Provide Rockwood push/pulls.
    e. Provide magnetic hold-open devices on the doors at the following locations:
        1. Main entry doors to each wing.
        2. Great Room.
        3. Floor/Study Lounges (all).
        5. Classroom.

f. Provide 1/2" H thresholds at doors to Common Bathrooms.

D. FINISHES

1. Walls
    a. Typical: Type X drywall, with Level 4 finish.
    b. Corridors: Type X abuse-resistant drywall, with Level 4 finish. Soffits in the corridors shall have Type ‘X’ impact/abrasion resistant drywall.
    c. Private Bathrooms:
        1. 4” X 4” ceramic tile (with epoxy grout) wainscot to 4'-0" above floor.
        2. Moisture-resistant drywall with Level 5 finish above ceramic tile wainscot.

d. Common Bathrooms and Toilet Rooms: 4” X 4” ceramic tile, full height.

2. Flooring and Bases
    a. Carpet
            a. Base: 4” high carpet base with bound edge to match Carpet-1.
        2. Carpet-2: Van Dijk Contract “Hercules Nop Tile”.
            a. Base: 4” high carpet base with bound edge to match Carpet-1.
        3. All carpet shall have a 3/8” 8-pound rebound pad installed under the carpet.

    b. VCT and Sealed Concrete
        1. Flooring materials in accordance with CU Standards.
        2. Base: 4” high rubber.

    c. Ceramic Tile:
        1. Bathrooms and Toilet Rooms: 2” X 2” ceramic mosaic tile, with dark colored epoxy grout.
            a. Base: 1” high ceramic tile cove.
3. Ceilings and Soffits
   a. Type X drywall, typical.
   b. Suspended Acoustic Ceiling (where indicated under Criteria for Room Types).
      1. Armstrong 2' x 2' "Ultima Vector" suspended ceiling system (or equal, by
         Approved Substitute).
      2. Provide 15% extra ceiling panel materials.
   c. No ceiling is required in the following spaces:
      1. Mechanical Rooms.
      2. Electrical Rooms and Closets.
      3. IT Rooms and Closets.

E. SPECIALTIES

1. Visual Display
   a. Markerboards: Provide markerboards in accordance with UCB Standards,
      Appendix 9.
   b. Tackboards: Provide Wall Technology's A108 Series composite panel, or Approved
      Substitute.
      1. Thickness: 5/8".
      2. Edges: Resin-hardened with square edge.
   c. Display Cases: Recessed, internally illuminated, wood framed display case with
      lockable sliding glass doors, tackable fabric back and adjustable glass shelves.

2. Water Closet Compartments/Drying Compartments at Showers in Common
   Bathrooms; Solid-polymer.
   a. Product: Bobrick "Sierra" Series, solid color reinforced composite partitions; floor-
      mounted/overhead braced, with latches and coathooks on doors.

3. Corner guards: Provide two-piece extruded rigid plastic corner guards, with aluminum
   retainers, at all exterior corners in corridors, to a height of 4'-0".

4. Signage:
   b. Every sign is to have the room number.
   c. Except for Single Bedrooms, Double Bedrooms, Suites and the Graduate Student
      Apartment, every sign is to have the room name.
   d. Provide signs with sleeve inserts at the following locations:
      2. Double Bedrooms.
      3. Suites.
      4. Graduate Student Apartment.
      5. Hall Director's Apartment.
      6. Offices.
   e. Provide signs at Common Bathrooms with removable/interchangeable rooms
      names (provide "Men" and "Women" for each bathroom).
5. Fire Extinguishers/Cabinets
   a. Provide extinguisher types and quantities as required by Code requirements.
   b. Cabinets
      1. Fully/Semi-recessed.
      2. Flat-trim.
      3. Duo-glazed door (glass).
      4. Vandal resistant lock (lock allows door to be opened without a key, by pulling firmly on door handle).
      5. Factory primed for field painting.

6. Toilet and Bath Accessories
   a. Provide the following toilet and bath accessories manufactured by American Specialties Inc. (ASI) or comparable products by one of the manufacturers listed in the "University of Colorado Building and Construction Standards".
      1. Toilet Tissue Holder; No. 7402
      2. Medicine Cabinet; No. 0952B
      3. Washcloth Ring; No. 7385
      4. Towel Bars; No. 7355
      5. Shower Curtain Rods; No. 1204
      6. Robe Hook; No. 0751
      7. Sanitary Napkin Disposal; No. 0473
      8. Mop Rack; No. 8215 (26" long)

F. EQUIPMENT

   a. Motorized or pull-down as indicated under Criteria for Room Types.

G. FURNISHINGS

1. Window coverings: PVC horizontal blinds with 2" slats.
   a. Product: “3 Day Blinds” Solaire, Smooth Alabaster with cord tilt, or Approved Substitute.
Common Bathroom Vanity Profile
TECHNICAL CRITERIA: MECHANICAL

I. MECHANICAL SYSTEMS: GENERAL

A. The existing mechanical systems consist of a baseboard heating system, exhaust systems, general plumbing systems and fire protection systems. The intent of this project is to completely replace all of the mechanical systems within the building. This includes new heating, air conditioning, ventilation, plumbing and fire protection systems, and replacement of all existing piping, except where particular components are specifically indicated to remain or be re-used. All piping, fittings or other mechanical apparatus in Andrews hall in use for other buildings shall be left in place and remain functional during construction. Any insulation removed for abatement shall be replaced per the CU-Boulder Construction standards under this contract.

II. HVAC SYSTEMS: GENERAL

A. This project requires an expanded central mechanical room. Locate the central cooling water pumping system, central heating water system and the central domestic hot water system in this mechanical room. From this mechanical room, distribute piping throughout the building to serve terminal users.

B. The campus high-pressure steam service exists within the existing mechanical room and may be reused. The existing building currently does not have air conditioning; therefore, there is no chilled water distribution system. Provide a new chilled water distribution system from 5 feet outside the building to the new mechanical room, through a pumping system and distributed within the building to serve terminal users.

C. If piping from the central mechanical room is installed in the ground, utilize pre-insulated piping. Provide factory fabricated pre-insulated steel chilled water and heating water piping below grade. Install expansion loops and anchors as needed to allow piping expansion.

D. Conceal all pipes, ducts, and devices within wall or ceiling construction in occupied spaces.

III. CAMPUS STEAM SYSTEM

A. Currently, Andrews Hall is supplied by the Campus underground high pressure steam system which will continue to be utilized for this project. Provide all new devices within the mechanical room (i.e., pressure relief valve (PRV) stations, condensate pumps and steam meters, installed in the central mechanical room and tied into the BAS system). Provide a PRV system to regulate the high pressure steam to 15-50 psig steam serving the heating water heat exchangers and domestic water heat exchangers. Condensate return pumps shall be powered by Campus compressed air system.

B. Steam pressure from the Campus system is 90-120 psig.
IV. CHILLED WATER SYSTEMS

A. Include a minimum of two pumps in the pumping design (100% redundancy) for the chilled water systems. Arrange the building pumping system as a variable speed “secondary” tier pumping system from the district chilled water system.

B. Provide a minimum 14 degree temperature differential between chilled supply and return water temperature in the design of the system.

C. Provide the building interface (UCB Standard) piping and control valve within the chilled water pumping room and extend chilled water piping to 5 feet outside the building wall for connection to future chilled water system. Provide a Chilled Water meter per CU-Boulder standards.

D. Provide bypass and shut off valves inside the building for the supply and return lines to provide for pressure testing and balancing the interior system.

V. HEATING WATER AND AIR–HANDLING SYSTEMS

A. GENERAL

1. Provide two steam/hot water heat exchangers (Armstrong Flo-Rite), each sized at 75% of total load, from the Campus system. Size this system for 20% excess capacity.

2. Provide heating water that is pumped to coils located in each air-handling unit, air terminal heating coils, cabinet heaters, unit heaters and fan coil units.

3. Provide a pumping system with two pumps, each sized at 75% of total load and controlled from variable frequency drives.

4. Provide a dedicated heating water system for all Make Up Air Units. This heating water system shall have a heat exchanger and shall use water to water Dowfrost HD propylene glycol solution (approximately 35%) Provide a coupon rack.

B. BEDROOM, SUITE AND FACULTY IN RESIDENCE APARTMENT HVAC SYSTEMS.

1. In each bedroom include a single four pipe heating/cooling fan coil unit located in a ceiling soffit. All fan coils are to include a throw-away type filter, a remote mounted speed selector switch, window proximity switch to disable the fan coil with an open window, and a single wall mounted Andover SmartStat (or equivalent) (+/- 4 degree F occupant adjustment) connected to DDC panels within the building connected to the Housing and Dining Services network. **Locate fan coil units for easy service and maintenance access.** Pipe chilled, heating and condensate piping branches from each fan-coil unit (FCU) to nearby vertical risers. Locate these FCU’s such that they are readily and easily accessible for maintenance. All rooms shall have tempered ventilation air from the central make-up air handling units. All FCU’s shall have isolation valves on all supply and return lines and a capped nipple to allow for complete system “blow down”.

2. In each bathroom, include an exhaust grille located above the water closets and shower areas connected to a central exhaust system. Ventilation air quantities for the
Bathrooms shall be sized in excess of 10 air changes per hour. No heating or air conditioning is to be provided to interior bathrooms.

3. The Faculty-in-Residence (FIR) apartment HVAC system shall be designed such that the FIR occupants will be able maintain all heating and cooling systems at the desired temperatures when and if the building system are ‘turned down’ during winter breaks, etc.

C. GREAT ROOM HVAC SYSTEM

1. Provide HVAC for the Great Room from the central air-handling unit serving public areas.

D. FLOOR/STUDY LOUNGES HVAC SYSTEMS

1. Depending on the final location of Floor/Study Lounges, heating and air conditioning may be provided either from the central air handling unit serving public areas (see below) or from individual fan coil units located above the ceiling. Provide a separate temperature zone for each lounge.

E. AIR HANDLING SYSTEMS SERVING PUBLIC AREAS

1. Provide make-up air from the central system for public areas. Public areas include such spaces as main corridors, lounges, support spaces and other spaces without exterior exposures.
2. Arrange each air-handling unit to provide additional outside air ventilation to provide positive building pressure relative to the outdoors. These units may be utilized for complete conditioning of these spaces or in conjunction with four pipe fan coils to provide the required conditioning, ventilation air requirements and positive building pressurization.
3. Provide the kitchen with an exhaust-type residential hood.
4. Washers and dryers in laundry rooms will be furnished and installed by the Owner’s vendor. Provide individual venting to the exterior for each dryer. Provide conditioned outside air for make-up air in the laundry rooms, and provide a separate temperature zone (i.e. dedicated thermostat) in each laundry room.

F. INFORMATION TECHNOLOGY (IT) EQUIPMENT ROOMS HVAC SYSTEMS

1. Provide special air conditioning equipment per TIAEIA 560 standards, to maintain a temperature range between 64 and 75 degrees F. and connected to the Building Automation Control System for alarm reporting. Locate the air conditioner outside the actual IT room. Provide chilled water fan coil units with condensate drains to the nearest floor drain.

G. MISCELLANEOUS HVAC SYSTEMS
1. Provide all elevator equipment rooms with a dedicated type HVAC system for ventilation cooling. Provide ventilation exhaust and make-up air.

2. Install exhaust fans and duct risers to serve as toilet exhaust for each building. Fans are to run continuously and each fan shall include a 10% excess capacity. Provide back draft dampers at the exhaust grille.

3. Design all exhaust systems and ventilation systems to eliminate "cross-talk" through the duct system.

4. Provide all small sub-electrical rooms with thermostatically-controlled ceiling ventilation fans. Provide cooling only fan coil units in the main electrical room.

5. Provide a hot water cabinet heater at all building entries.

6. For ventilation, provide with fresh air from overhead air handling unit system to meet outside air minimum requirements. The tempered fresh air system shall be directly connected to the return air duct of the fan coil.

7. In the Coffee/Food Cart Room, provide a thermostatically controlled dedicated ventilation or dedicated cooling system to maintain storage closet temperature a maximum of 80 degrees F.

8. For ductwork serving dryer-vent exhaust, either reuse the existing copper ductwork in the attic or provide new aluminum ductwork. New ductwork shall be of a thickness to resist impact damage or the ductwork will have to be protected from such damage.

VI. BUILDING CONTROLS SYSTEMS

A. Provide a DDC "Andover" automated controls system, completely compatible with the present system that exists at the UCB Campus, for all HVAC equipment and devices.

VII. PLUMBING SYSTEMS

A. GENERAL

1. Fire and Domestic Water Entry: The existing fire and domestic water mains will remain. Create a water entry room that has a large floor drain or shutoff with secondary containment for the backflow preventers in the event of a major discharge. Provide the domestic water system with two reduced pressure type backflow preventers, each capable of handling the building demand. Reuse the existing fire main double check backflow preventer.

B. DOMESTIC WATER HEATING SYSTEM

1. Provide a domestic water heating system with two feed forward steam to hot water generators. Locate generators located in the central mechanical room. Each water heater shall be capable of handling two-thirds of the total project demands. The water from the heaters shall be routed through a master thermostatic mixing station reducing the temperature to 110 degrees F, before being routed to plumbing fixtures. The domestic hot water system shall have a pumped return circulation system.

2. The domestic water distribution system shall have a duplex variable frequency drive booster pump package located in the central mechanical room with an expansion tank and remote pressure sensing switch. The domestic water will be routed through risers and serve each floor. The booster pump system shall be monitored by the BAS.
C. SANITARY DRAINAGE SYSTEM

1. Provide a standard cast iron pipe sanitary waste and vent system to serve all plumbing fixtures, public and private toilet rooms, janitor’s closets, break rooms and mechanical room floor drains. Route this cast iron system below grade to the exterior of the building. Mechanical rooms are to have two floor drains, either new or reused-existing.
2. Sanitary waste piping is to exit the building and pass through a cleanout and connect to the site sewer system to the site main.
3. Provide 3” floor drain lines at all showers and floor drains.

D. SEWAGE EJECTOR SYSTEM

1. The basement level presently has a pumped sanitary sewage ejector system. Reuse the existing pumps and connect into the main building drain serving the upper floors. The system shall be monitored by the BAS.

E. STORM DRAINAGE SYSTEM

1. The storm drain system is an external system of gutters with concealed downspouts and may remain. Any new storm drainage required as a result of any and all site work shall be provided and connected to existing.

F. FIRE PROTECTION SYSTEM

1. An existing 4 inch main fire service will remain. Provide a new concealed automatic fire sprinkler system with full coverage on each floor.
2. The sprinkler system shall comply with NFPA 13 for common areas and NFPA 13R for sleeping rooms.
3. Provide sprinkler systems serving new and existing elevator equipment rooms and shafts in accordance with UCB Building and Construction Standards.
4. Utilize semi recessed and sidewall heads.
5. Fire protection system components may not be located in custodial closets.

G. PLUMBING FIXTURES

1. Except as required by UCB Building and Construction Standards, provide fixtures described or specified below.
2. Faucets, general: Provide only Delta faucets (no substitutes).
3. Low-flow Aerators
   a. Provide the following Niagara Conservation Corp. aerators on all faucets, as indicated:
      1. Lavatories: No. N3205FTP laminar flow 0.5-gpm FIP aerator,
4. Water closets
   a. Wall mounted flush valve type.
   b. Flush Valves: Dual mode flush valves.
   c. Toilet seats and lids: Provide closed-front toilet seats with lids in all private
      bathrooms, and open-front toilet seats with no lid in Common Bathrooms and
      Public Toilets. All toilet seats are to be white.
   d. Design-Build Team Option: Reuse existing water closets and flush-valves
      (approximately one-year old); remove and replace water closet seats.
   e. Products
      1. Water Closets: Toto CT705; Color: Cotton.
      2. Flush Valves: Sloan ‘Dual-Flush’. Provide signage at the flush valve that advises
         user on flushing protocol.

5. Lavatories
   a. Counter mounted solid surface to match counter lavatories, under-mount type.
      1. Product

6. Garbage Disposals
   a. Provide a disposer in the Kitchen sink, the sinks in Sink Niches, and in the (optional)
      Custodial Breakroom.
   b. Product: In-Sink-Erator Evolution PRO Essential Food - PRO ES or Approved
      Substitute.
   c. Duty: 3/4 HP.

7. Showers
   c. Mount shower heads on soffits, adjacent to the wall with the shower controls.
   d. Provide hand held showers with slide bars at disabled-accessible showers.

8. Water Fountains
   a. Provide one water fountain per floor, per wing.
   b. Provide disabled-accessible, high-low models with equipment recessed in wall.
   c. Provide with goose-neck type filler spout.

9. Service Sinks and Basins
   a. Mop Service Basins
      1. Terrazzo composition, 36" x 36", with stainless steel rim guards.
     b. Provide a check valve in the water supply piping to each mop service basin and
        spouts with vacuum-breakers.

10. Miscellaneous Sinks
       a. Kitchen Sink and sink in (optional) Custodial Breakroom: Provide one double
           stainless steel sink with two 13 1/2" x 16" x 7 1/2" deep (approximate) compartments,
           with gooseneck faucet and mixing valve, sprayer, and disposer.
b. Sinks in Sink Niches and Classroom: In each, provide one stainless steel sink with single 22" x 19" x 5½" deep compartment (approximate), with gooseneck faucet and mixing valves. Provide a disposer in each Sink Niche.

c. Sink in Coffee/Food Cart: Provide one wall-mounted stainless steel lavatory with 11½" x 16" x 5½" deep (approximate) compartment, with gooseneck faucets and mixing valve.

11. Fixtures in Mechanical Rooms
a. In mechanical rooms with chemical treatment stations, provide an emergency shower/eye wash.
b. Provide a cold water hose bibb in each mechanical room.
c. There should be a minimum of two floor drains in each mechanical room. Existing floor drains may be retained and re-used.

12. Floor Drains
a. Provide a floor drain in all Public Toilets, Common Bathrooms and Laundry Rooms. Minimum size 3" at showers and floor drains.

13. Clothes Washer connections: Recessed in wall box with shut off valves and waste fitting.
I. POWER DISTRIBUTION

A. GENERAL

1. Conceal all conduits, wireways and junction boxes within the building construction except in unoccupied or utility spaces.

B. PRIMARY POWER DISTRIBUTION

1. An existing 150KVA pad-mounted transformer is currently serving Andrews Hall. Replace this transformer with a new 500KVA, 13.2kV to 120/208V transformer. Connect this new pad-mounted transformer to the existing underground 13.2kV radial feeder that serves the existing transformer.
2. The Design-Build Team shall provide the new pad-mounted transformer, 13.2kV wiring, duct bank, terminations, etc.

C. MAIN POWER DISTRIBUTION

1. The Main Distribution equipment for the Andrews Hall is required to be 1000A, 120/208V, 3P, 4W, fed by the new 500KVA pad-mounted transformer.
2. Provide the main breaker with zero sequence type ground-fault protection and solid-state trip.
3. The Distribution Breakers shall be insulated or molded-case type breakers.
4. Switchgear
   a. Provide front accessible switchgear only with fully rated copper bussing for both vertical and horizontal bussing.
   b. The switchgear shall contain a minimum of (2) sections with each section being a minimum of 38” wide by 24” deep. The switchgear shall also be provided with Transient Voltage Surge Protection (TVSS).
   c. Locate the switchgear in a dedicated Main Electrical Room to be located on grade level near the pad-mounted transformer.

D. SECONDARY DISTRIBUTION

1. Provide 120/208V, 3P, 4W panels and step-down dry-type transformers located to serve the convenience receptacle loads, etc.
2. Locate panels and transformers in closets with lockable doors.
3. Provide a 100 amp panel in the MDF Room.

E. EMERGENCY GENERATOR

1. Provide the design and add alternate pricing for the inclusion of an emergency generator for Andrews Hall. The emergency circuits should include emergency lighting,
ANDREWS HALL RENOVATION
DESIGN-BUILD TECHNICAL CRITERIA
Housing and Dining Services
University of Colorado at Boulder

C-Cure powered door operators. Pumps, fire-alarm panel and system, Elevator, PA system. Andover system and required systems in the Mechanical room.

II. LIGHTING

A. LUMINAIRES

1. All lighting inside the building and at exterior balconies is to be replaced.
2. All luminaires are to be surface mounted with the exception of those in spaces specifically identified to receive fixtures recessed in new soffits. MC cable may be used for the resident room lighting only with a maximum of 18 feet of MC cable in any one residence room.
3. A target of less than 1.0 watts/SF for Lighting Power Density (LPD) has been established. Refer to the Luminaire Standards on the following page for types of luminaires required in each space. The products shown are not intended to be the only fixtures which may be considered or used. Rather, they illustrate a level of quality, performance and appearance which must be met. In some cases more than one product is shown for a particular luminaire, to further illustrate the standard.
4. Exit Signs throughout the facility shall be LED Type with field adjustable directional arrows and aluminum housing.
   a. Design-Build Team Option: Re-use existing exit signs (any additional ones that are required are to match existing).
   b. Use vandalism resistant housings and mountings in vulnerable locations. See Arnett Hall.

5. Exterior Lighting
   a. Replace the exterior lighting at the balconies, underneath the bridges and at the building eaves as indicated on the Luminaire Standards.
   b. Provide exterior lighting at the patio on the south side and the north side of the Great Room entries. This lighting shall be designed to provide general area illumination for informal, nighttime gatherings in the space. Select types and quantity of luminaires which provide a suitable light level for such activities, minimize glare, are in character with the building and which comply with Campus Standards. All exterior lighting shall be controlled by an interior local, secure switch. Exterior lighting at balconies shall be locally switched inside the building. Exterior lighting underneath bridges shall be controlled via photocell and local switching.

B. INTERIOR LIGHTING CONTROLS

1. Occupancy Sensors
   a. Provide Hubbell occupancy sensor controls for lighting where shown on the Luminaire Schedule.
   b. Lighting in Mechanical Rooms, Electrical Rooms/Closets, IT Rooms and Custodial Closets shall be controlled by a ceiling mounted dual technology occupancy sensor and a wall mounted override switch.

2. Provide local switching at each entrance.
3. Provide switches controlled by time clocks for all non-emergency lights in corridors.

### Luminaire Standards

All luminaires are surface mounted except where noted.

<table>
<thead>
<tr>
<th>Space</th>
<th>Luminaire Type</th>
<th>Lighting Level</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bedroom</td>
<td>Ceiling</td>
<td>1A, 1B, 1C.</td>
<td>15-20 fc</td>
</tr>
<tr>
<td>Private bathrooms</td>
<td>Wall and Ceiling</td>
<td>4A, 4B, 5A, 5B, 9</td>
<td>20-30 fc</td>
</tr>
<tr>
<td>Reception</td>
<td>Ceiling</td>
<td>1A, 1B, 1C, 3A, 3B</td>
<td>50-70 fc</td>
</tr>
<tr>
<td>Great Room</td>
<td>Ceiling</td>
<td>1A, 1B, 1C, 2A, 2B</td>
<td>30-50 fc</td>
</tr>
<tr>
<td>Floor/Study Lounges (A)</td>
<td>Ceiling</td>
<td>1A, 1B, 1C, 2A, 2B</td>
<td>30-50 fc</td>
</tr>
<tr>
<td>Floor/Study Lounges (B.1, B.2)</td>
<td>Ceiling</td>
<td>1A, 1B, 1C, 2A, 2B</td>
<td>30-50 fc</td>
</tr>
<tr>
<td>Office</td>
<td>Ceiling</td>
<td>3A, 3B</td>
<td>35-70 fc</td>
</tr>
<tr>
<td>Laundry</td>
<td>Ceiling</td>
<td>8</td>
<td>50-75 fc</td>
</tr>
<tr>
<td>Vending</td>
<td>Ceiling</td>
<td>8</td>
<td>30-40 fc</td>
</tr>
<tr>
<td>Kitchen</td>
<td>Ceiling, Under-cabinet</td>
<td>8, 7</td>
<td>50-75 fc</td>
</tr>
<tr>
<td>Coffee Cart</td>
<td>Ceiling</td>
<td>8</td>
<td>30-40 fc</td>
</tr>
<tr>
<td>Common Bathrooms</td>
<td>Wall and Ceiling</td>
<td>4A, 4B, 9</td>
<td>20-30 fc</td>
</tr>
<tr>
<td>Public Toilets</td>
<td>Wall</td>
<td>5A, 5B</td>
<td>20-30 fc</td>
</tr>
<tr>
<td>Storage Rooms</td>
<td>Ceiling</td>
<td>10</td>
<td>20-30 fc</td>
</tr>
<tr>
<td>Work Rooms</td>
<td>Ceiling</td>
<td>3A, 3B, 7</td>
<td>35-75 fc</td>
</tr>
<tr>
<td>Classroom</td>
<td>Ceiling</td>
<td>3A, 3B, 11</td>
<td>50-70 fc</td>
</tr>
<tr>
<td>Custodial Closets</td>
<td>Ceiling</td>
<td>10</td>
<td>20-30 fc</td>
</tr>
<tr>
<td>Custodial Storage Rooms</td>
<td>Ceiling</td>
<td>10</td>
<td>20-30 fc</td>
</tr>
<tr>
<td>Mechanical/Electrical Rooms</td>
<td>Ceiling</td>
<td>10</td>
<td>20-30 fc</td>
</tr>
<tr>
<td>Corridors</td>
<td>Wall</td>
<td>6A, 6B</td>
<td>25 fc</td>
</tr>
<tr>
<td>Exterior: Balconies</td>
<td>Ceiling</td>
<td>12A, 12B</td>
<td>20 fc</td>
</tr>
<tr>
<td>Exterior: Under bridges</td>
<td>Ceiling</td>
<td>12A, 12B</td>
<td>20 fc</td>
</tr>
</tbody>
</table>

**Notes**

1. Provide wall mounted luminaires at vanities, and recessed luminaires at soffits over showers and water closets as necessary.
2. Provide recessed downlights (Type 9) in soffits over showers.
3. Provide dual-level switching for all luminaires.
4. Provide ceiling mounted luminaires for general lighting, and under-cabinet luminaires for the full width of wall cabinets.
5. Provide occupancy sensors.
6. Provide dual switched lighting in student bedrooms, lighting levels are measured at the center of the room.
III. POWER

A. All receptacles shall be 20A unless otherwise noted.
B. Provide each room throughout the facility with at least one receptacle, as a minimum.
C. All Receptacles within 6' of water (sinks, showers, etc.) shall be provided with GFI Protection.
D. Refer to the Power, IT and CATV Systems Schedule on page 67 for quantities and types of receptacles in each space category.

IV. FIRE ALARM SYSTEM

A. The Fire Alarm System shall be a totally addressable intelligent system manufactured by Simplex/Grinnell.
B. The Fire Alarm Control Panel shall be Simplex 4100-U (CPU, zone cards, batteries, cabinet, etc.).
C. Notification appliances shall be Wheelock Multitone MTWP-247SW-FR-UL/ULC, 128420, 0704.
D. Simplex Mapnet II pull station PID-2099-9761, Part 0630567, with Stopper II tamper resistant cover.
E. All fire alarm system wiring shall be installed in conduit.
F. Locate the FACP in Reception (as an alternative, the FACP may be located in a closet if an annunciator is located in Reception). 
G. The Fire Alarm System shall have an integrated Public Address system included allowing for room notification, corridor notification; by wing, by floor and all call modes of notification.

V. GROUNDING

A. All conduits throughout the facility shall be provided with an equipment-grounding conductor. Equipment needing Isolated Ground (IG) Power shall be provided with (1) Equipment Ground Conductor and (1) Isolated Ground Conductor.
B. The grounding for the Main Distribution Switchgear and the Secondary Panels and Gear shall be provided in accordance to NEC Article 250.
C. Each Electrical Room and Telecomm Room throughout the facility shall be provided with one 12"x4"x1/4"D Copper Ground Bar. These Ground Bars shall be tied together with a #4/0 AWG Stranded Copper Conductor in a grounding riser configuration. The Main Electrical Room Ground Bar shall be tied to the Ground Bus in the Main Electrical Switchgear with a 250kcmil Stranded Copper Conductor.

VI. INFORMATION TECHNOLOGY

A. The Design-Build Team will be responsible for a turn-key installation. The Design-Build Team will provide all system design, conduit infrastructure and boxes, wiring, devices and termination, system testing and system certification in accordance with UCB Telecomm Specification. UCB will provide all head-end equipment (routers, servers, etc.).
1. Provide a wireless system, only, in the following spaces:
   a. Great Room.
   b. Floor/Study Lounges (all types).
   c. Classroom.
2. Provide both a cabled system and a wireless system in all other spaces.
3. Provide for wireless accommodation of “A, B, and G” radio frequencies.
B. The Design-Build Team shall include an RCDD-certified consulting firm (i.e., not an RCDD-certified individual within the electrical engineer’s office).
C. All wiring for both phone and data shall be Category 5E. The Main Fiber Optic cables serving the building will be a 24-Strand (62.5 micron) Single-mode FO cable. Provide these cables from the Wolf Law Building. The main copper cables serving the building shall be a 200-pair for Qwest, plus a 200-pair for campus voice.
D. Elevators should be wired for future information technology connections. Use two (2) Cat 5e cables wired with 2 jacks and two (2) pair, 24 gauge power cable for future card reader.

E. IT Rooms and Closets
1. Provide one MDF Room for the building and one IDF Room per wing, centrally located to serve each floor. For locating the MDF Room, it is preferred to maintain the present entrance-location of fiber into the building and to retain the existing MDF location if possible.
2. Do not locate the rooms/closets adjacent to any bathroom or toilet room or laundry rooms (in any dimension).
3. The closets should accommodate the following:
   a. Resnet
   b. Data
   c. Voice
   d. CATV
4. All IDF Rooms are to have power that is fed from a panel in the MDF Room.
5. Provide a single, main UPS on a dedicated circuit in the MDF Room which will feed all IDF closets.
6. From the MDF Room to each IDF Room, provide two (2) Category 3 cables, a 200-pair cable, a 24-Strand (50/125) Multi-mode Fiber Optic cable, and 24-Strand Single-mode fiber optic cable.

F. Provide two (2) Cat 5E cables for existing security door (C-Cure) and future security camera. In addition, provide cable for power to electronic security door strike.
G. Provide one data jack and power for a card reader at each lockable, non-bedroom inferior security door between public and residential areas.
H. Provide one data jack at each Common Bathroom for pin-pad or thumb-print electronic access.
I. Locate the PA system controls in the Hall Director’s office.
J. Refer to the Power, IT and CATV Systems Schedule on page 67 for quantities and types of voice and/or data jacks in each space category.
K. Provide a converged wireless network system capable of supporting multiple wireless data and voices services over a single broadband infrastructure. Services are to be added by a simple “plug and play” module insertion. The main system components are to be designed to initially support cellular and Wi-Fi services using passive antennae and access points. The system is to have Head End Radio Interface Unit equipment and hubs/switches as required.
for wireless laptop computers, PDA's, etc. The Design-Build Team shall engage MobileAccess Networks, Inc. to layout and provide the system components.
L. The Owner prefers to have IT pathways located in accessible areas above the corridor ceilings; the selected team will explore that design option.

VII. SECURITY SYSTEMS

A. The Design-Build Team will be responsible for a total turn-key installation that is compatible with the existing security system and utilizes equipment by the same manufacturer (C-Cure). Provide all system design, wiring, device installation and termination, system testing and system certification.
B. The security system should terminate in the MDF Room. The Security System shall consist of card readers and pin-pad access controls, connected to electronic hardware. Existing card readers may be re-used.
C. Maintain the existing cameras presently in operation at the exterior doors.
D. Provide card readers/electric strikes (C-Cure) on corridor doors within the building that separate public or common areas from bedroom areas.
E. Existing devices may be re-used or replaced with ones identical in manufacturer, quality and performance, as deemed appropriate by the Design-Build Team. Any devices removed from a particular location may be re-used elsewhere in the building.
   1. Maintain all existing door contacts where they are presently located.
   2. Maintain all existing card readers/electric strikes and motion sensors where they are presently located; add 'C-Cure' card readers and all devices at the north and south doors of the center wing at the entries to the Great Room area.
   3. In locations where existing devices are to remain, the conduits that serve them must be concealed (i.e., replace existing conduit as necessary to accomplish this).
F. It is the purpose of the scope to ensure that all doors are equipped with either a wired security door (C-cure) or a stand alone security lock (Onity).

VIII. CABLE TV

A. The cable TV system is to be installed by the Contractor as a turn-key Installation. Design-Build Team will install all wiring, raceways and trunk system to nearest tie-in point in the Utility Tunnels.
B. Refer to the Power, IT and CATV Systems Schedule below for quantities and locations of devices in each space category.
POWER, IT AND CATV SYSTEMS SCHEDULE

<table>
<thead>
<tr>
<th>Space Category</th>
<th>Power Receptacles</th>
<th>Information Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duplex</td>
<td>Quadruple</td>
</tr>
<tr>
<td>Bedrooms</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Private bathrooms</td>
<td>1 per lav.</td>
<td>-</td>
</tr>
<tr>
<td>Reception Rooms</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Great Room</td>
<td>4+1</td>
<td>-</td>
</tr>
<tr>
<td>Floor/Study Lounges</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Offices</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Laundry</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Vending</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Kitchen</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Coffee/Food Cart</td>
<td>1+1</td>
<td>-</td>
</tr>
<tr>
<td>Common Bathrooms</td>
<td>1 per lav.</td>
<td>-</td>
</tr>
<tr>
<td>Public Toilets</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Storage Rooms</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Work Rooms</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Classroom - each</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>Custodial Closets</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Custodial Storage Closets</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Mechanical Rooms</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Electrical Rooms</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Elevator Machine Rooms</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>IT MDF Room</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>IT IDF Rooms</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Corridors</td>
<td>1/40LF</td>
<td>-</td>
</tr>
</tbody>
</table>

Notes
1. Locate one receptacle or jack on each wall.
2. Locate above vanity at each lavatory.
3. Locate quadruplex receptacle at reception desk or receptionist work-station.
4. Provide one dedicated receptacle for coffee-maker or other equipment.
5. These receptacles are in addition to the dedicated ones required for washers and dryers.
6. This receptacle is in addition to the dedicated one required for vending machines.
7. Provide two dedicated receptacles above counter.
8. In addition to convenience duplex receptacle(s), provide a 120V, 80 amp duplex receptacle on a dedicated circuit for coffee/food cart.
9. Provide two quadruplex dedicated receptacles above counter.
10. Provide voice and data ports above counter.
11. Refer to UCB Standards, Appendix 9 for information pertaining to data and power requirements for “smart-to-every-seat” classroom technology, in addition to the requirements shown here.
12. In addition to duplex receptacle in each mechanical room, provide one welding outlet (NEMA 10-30R).
13. Each power receptacle is to be a dedicated 20 amp device.
14. Provide one wall jack per floor in each wing for emergency telephone.
15. Provide in-floor receptacles for maximum flexibility.
LUMINAIRE STANDARDS

The products shown on the following pages are representative of a level of overall quality, performance and appearance that is expected in the finished project. They are not to be considered as the only products which may be considered or incorporated in the work.
CODE REVIEW

Please refer to the preliminary code review contained in the Program Plan. Comply with all applicable CU-Boulder Standards and Code Requirements. It shall be the responsibility of each Design-Build Team to perform its own review and analyses of the codes to ensure full compliance with them.
Rough-house Series

RHL7 Series - ADA Compliant
TS and TB Lamps
Ceiling/Wall Mount/Surface - Linear Fluorescent
Nominal 7"x24", 7"x36", and 7"x48"

<table>
<thead>
<tr>
<th>Width</th>
<th>Length</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.04&quot;</td>
<td>24.80&quot;</td>
<td>2.87&quot;</td>
</tr>
<tr>
<td>7.04&quot;</td>
<td>36.80&quot;</td>
<td>2.87&quot;</td>
</tr>
<tr>
<td>7.04&quot;</td>
<td>48.80&quot;</td>
<td>2.87&quot;</td>
</tr>
</tbody>
</table>

Architectural Linear Lighting for Rough Service Indoor Environments

Specifications
Lamp: UV-stabilized, high impact, pearl cast acrylic. Smooth exterior; linear prismatic interior. Nominal lumen output; 164" Lens boxed in place with tamper-resistant stainless steel POSGrip™ fasteners.

End Caps: High impact resistant, injection molded black or white polycarbonate.
Reflector: Full reflector/cover - 92% reflectivity.

Electrical: Standard electronic ballast for TB lamps (EB) Instant Start; UL listed, Class P, Class A; Audible noise rating <98 dB; Power factor = 0.90, THD = 10% minimum starting temperature. Optional electronic ballast for TS lamps (EB); Instant Start; UL listed, Class P, Class A; Audible noise rating <98 dB; Power factor = 0.90, THD = 10% minimum starting temperature. Standard electronic ballast for TS lamps (EB); Program Rapid Start; Suitable for use with occupancy switches. UL listed, Class P, Class A; Audible noise rating <98 dB; Power factor = 0.90, THD = 10% minimum starting temperature.

Hardware: Stainless steel tamper-resistant POSGrip™ fasteners.

Listings/Certifications: UL and CUL listed for Damp Locations.

Installation: Standard four-point (24" and 36") housing or six-point (48") housing required for One Year Guarantee. For surface direct installation, cap interior provided with drill points for field drilling.

Ordering Information

<table>
<thead>
<tr>
<th>Series</th>
<th>Length</th>
<th>Finish</th>
<th>Lens</th>
<th>Lamp Qty</th>
<th>Lamp Type</th>
<th>Ballast Qty</th>
<th>Ballast Voltage</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHL7</td>
<td>24&quot;</td>
<td>Bw</td>
<td>T8</td>
<td>1</td>
<td>Two</td>
<td>1</td>
<td>120V</td>
<td></td>
</tr>
<tr>
<td></td>
<td>36&quot;</td>
<td>Bw</td>
<td>T8</td>
<td>1</td>
<td>Two</td>
<td>1</td>
<td>120V</td>
<td></td>
</tr>
</tbody>
</table>

* Dry location only (EL only), one lamp maximum in extreme model.
** 1" and 3" features available in one lamp cross section only; have minimum 350-450 lumen battery pack.
*** 4" features only.
Rough-house Series

RHL7 Series

Dimensional Data

Cross Section

Mounting Holes

Length-Lamp  A  B  C
4'-T8  46.800"  44.000"  22.000"
4'-T5  46.830"  42.000"  21.000"
3'-T8  36.800"  32.000"  N/A
3'-T5  35.000"  30.000"  N/A
2'-T8  24.800"  20.000"  N/A
2'-T5  23.216"  18.000"  N/A

Photometric Information

Candlepower Distribution

Coefficients of Utilizations - Zonal Cavity Method
Test Report Number: I.TL.22335
Lamps: Two 32 Watt T8 (2850 Lumens per Lamp)

Luminance Data in Candela
Total Luminance Efficiency: 65.6%
Cross Spacing: 1.3

One Year Guarantee
Kenall Rough Service lenses are made from engineering grade high impact thermoplastic and designed to withstand rough treatment. Kenall will replace the lens if rendered inoperable due to rough handling or accidental abuse for one year from the original installation.

Quick Specification
Lens: UV stabilized, high impact, pearl acetate. Smooth exterior/linear prismatic interior. Nominal thickness: .080".
End Caps: High impact resistant injection molded back or white polycarbonate.
Hardware: Stainless steel tamper-resistant POSIDRIP™ fasteners.
Listings: UL/CUL listed for damp locations.

Project Information

Job Name:
Architect: Bennett Wagner Grody Architects
Engineer: Lubelsky Electric

Notes: Dual-Level Switched

Approved by:__________________
Date:_________________________
CONDOR

APPLICATION - A distinctive blend of graceful shape and scale combined to produce glare free broad distribution illumination. Choose from cable or direct surface mounting styles. The perforated lamp enclosure is supplied with a white acrylic liner for brightness control. Available for use with T5 or T8 lamps. See chart for lamp choices and options.

HOUSING - Die formed cold rolled steel, textured white polyester powder coated finish.

REFLECTOR - Die formed steel, white polyester powder coat finish.

DIFFUSER - Opal white acrylic with a linear perforated basket.

BALLAST - Solid state electronic, 120V thru 277V.

MOUNTING - Specify pendant mount kit, or aircraft cable kit supplied with adjustable hanger.

SOCKET - Polycarbonate locking socket.

LAMPS - T5 or T8 lamps (by others).

PHOTOMETRICS - Please visit our web site at www.lsi-industries.com for detailed photometric data.

LISTING - UL listed to U.S. and Canadian safety standards. Suitable for damp location. IBEW Union made in the U.S.A.

---

**Fixtures**

<table>
<thead>
<tr>
<th>Fixture</th>
<th>Height (A)</th>
<th>Width (B)</th>
<th>Length (C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>350-4</td>
<td>5&quot; (127mm)</td>
<td>11-3/4&quot; (299mm)</td>
<td>49-1/2&quot; (1257mm)</td>
</tr>
<tr>
<td>350-8</td>
<td>5&quot; (127mm)</td>
<td>11-3/4&quot; (298mm)</td>
<td>99-1/2&quot; (2527mm)</td>
</tr>
</tbody>
</table>

**LUMINAIRE ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Mounting Options</th>
<th>Length</th>
<th>Lamp in Cross Section</th>
<th>Lamp Type</th>
<th>Ballast</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>350</td>
<td>S - Surface</td>
<td>4</td>
<td>1</td>
<td>28 - 28W T5</td>
<td>SSO - T8 Instant Start</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td></td>
<td>54 - 54W T5 HO</td>
<td>SSOD - T8 Dimming</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>32 - 32W T8</td>
<td>SSR - T8 High Power Factor</td>
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<tr>
<td></td>
<td>PMK4 - 4&quot; Pendant Mount Kit</td>
<td></td>
<td></td>
<td></td>
<td>SSOR - T8 Rapid Start</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACK4 - 4&quot; Aircraft Cable</td>
<td></td>
<td></td>
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<td>SSO10 - 10&quot; Pendant Kit</td>
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<td>ACK8 - 8&quot; Aircraft Cable</td>
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<td>SS5 - T5 Instant Start</td>
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<td>SSSR - T5 Program Rapid Start</td>
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<td>SSSD - T5 Dimming</td>
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<td>SSSH - T5 HO</td>
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<td></td>
<td>CAN5 - 5&quot; canopy for non-feed ADK</td>
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<td>F - Fusing</td>
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<td>EM - Emergency Pack</td>
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<td>PM - Prewired Plug-in Assembly (specify circuitry)</td>
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<td></td>
<td>UE - Universal Electronic (120-277V)</td>
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</tbody>
</table>

**EXAMPLE OF A TYPICAL ORDER**

- Includes 5" canopy for feed
- For J-box mounting
- Not available for damp location

**Provide Row Information as Required**
FINELITE

Series 12 Wall Mount comes in three distinct styles: P with perforations, 1 - 100% indirect, and Indirect/Direct (ID) with either WCB White Cross Blade or PLV Parabolic Louver baffles.

All fixtures are available with 1 or 2 T8, T5 or T5HO lamps in 4' and 8' lengths. Standard flat endcaps or optional curved die-cast endcaps. Mounting includes SM standoff mount, MB mounting bracket, or SUR surface mount flush to wall without a mounting bracket.

LAMPS

1 or 2 T8 lamps
1 or 2 T5, T5HO lamps

All fixtures come with 1 or 2 T8, T5 or T5HO lamps.

S12WM-ID

S12WM-ID has a baffle section close to the wall and is available with two different shadings.

LENGTHS

Fixture lengths of 4' and 8' can be combined to make runs as long as required.

STANDARD FLAT ENDCAP

Standard flat endcap adds 0.1" each end.

ENDCAP DIMENSIONS

Optional curved endcap extends 2.75" past edge of mounting bracket.

Series S12WM-P with optional curved die-cast endcap, mounted with SM Standoff Mount.

Series S12WM-ID with WCB White Cross Blade baffle.

Series S12WM-ID with PLV Parabolic Louver semi-specular baffle.

S12WM-P has perforations close to the outer edge of the fixture.

Die-formed aligner plate and plug together wiring make joining easy and ensure strong, tight joints with no light leaks.

Finelite, Inc. © 30300 Whipple Road © Union City, CA 94587-1525 © 510 / 441-1100 © FAX: 510 / 441-1510 © www.finelite.com
FINELITE

S12WM-P, I, ID - Technical Sheet

SURFACE MOUNT SUR

STANDOFF MOUNT SM

MOUNTING BRACKET MB

Fixture bolts directly to wall studs and extends 6.3" from wall. Feed extends 4.5" from where endcap joins fixture body.

Standoff Mount SM fixture is connected to two curved mounts. Fixture hangs 0.5" from wall. Feed goes through mount to vertical J-Box.

Mounting bracket connected to wall holds fixture securely in place. Bracket comes in 4', 8' lengths and is not visible when installation is complete. Fixture hangs 0.5" from wall.

SPECIFICATIONS

CONSTRUCTION: 20 gauge die-formed steel body with 14 gauge die-formed internal frame system, plug-together wiring standard. All components hard tested to tolerance of 0.005".

S12WM-P ONLY: Precision-punched 0.093" diameter perforations cover the bottom side of the fixture.

ENDCAPS: (FE) Flat Endcap, 20 gauge die-formed steel, with 0.1" at each end.

Optional: (CE) Curved Endcap standard, aluminum die-case with 0.050" reveal, and 0.1" at each end. No extended flanges, holes or knockouts.

REFLECTORS: (91W) Die-formed pre-painted white, 91% reflective white. Virgin acrylic.

PLV Porous Louver, semi-specular louver with straight edge, spaced approximately 1.0" apart.

ACCESSORY: Optional Door Cover, clear acrylic, 78 lamps only. NOTE: Will significantly impact light level performance. Consult Factory.


MOUNTING OPTIONS: Standard: Surface Mount, fixture is bolted directly to existing wall studs. Optional: (SM) Standoff Mount, fixture hangs from optional mounting brackets formed to wall at fixture ends and joints. Standoff mount measures 4.5" wide, 8" high, and 0.5" deep. Fixture hangs 0.5" from wall. Optional: (MB) Mounthing Bracket, fixture hangs from bracket fastened directly to wall. Mounting bracket in 4', 8' lengths. Fixture hangs 0.5" from wall.

FEED: 18 gauge wire. 14 gauge wire used when fixture current exceeds 6 amps. Optional feed wire cord.


LENGTHS: 4' and 8' section lengths can be combined to make longer runs.

WEIGHT: Fixture weight = 2.0 lbs.

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Quantity</th>
<th>S12WM-P (Perf.)</th>
<th>WCB</th>
<th>32'</th>
<th>2T8</th>
<th>SC</th>
<th>91W</th>
<th>277</th>
<th>SUR</th>
<th>FE</th>
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</thead>
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<td>2</td>
<td>S12WM-ID</td>
<td>WCB</td>
<td>32'</td>
<td>2T8</td>
<td>SC</td>
<td>91W</td>
<td>277</td>
<td>SUR</td>
<td>FE</td>
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</table>

Fine lite, Inc. 30330 Whipple Road  Union City, CA 94587-1525 1-510/441-1100  FAX: 510/441-1570  www.finelite.com
stem mount
skydome™

FEATURES
Pendant mount fluorescent round dome with acrylic diffuser.
Nominal 2', 3' or 4' diameter housings are available.
Shallow 4.5" deep housing maintains low profile.
Concave lens design ensures an evenly illuminated diffuser.

Skydome™ is a good choice for open public spaces such as airport concourses, large lobbies, reception areas, schools and meeting rooms.

DIMENSIONAL DATA

lamping options
2' diameter
2 LAMP T8U6
1 LAMP T8U6

3' diameter
3 LAMP T8U6
6 LAMP T5 & T5HO
(6)-14w or 24w

4' diameter
5 LAMP T8U6
7 LAMP T5 & T5HO
(3)-14w or 24w & (4)-39w or 21w

PERFORMANCE
4-Lamp T5HO
59% Efficiency
3877 cd @ 0°

See Photometric section for additional performance data.
**SPECIFICATIONS**

**construction**
16 Ga. spun steel housing.
18 Ga. spun steel mounting pan.
Housing available in 25.2", 36.12" or 48.2" diameter x 4.5"H.
Housing secured to mounting pan by torsion springs.

2' unit weight: 28 lbs
3' unit weight: 53 lbs
4' unit weight: 78 lbs

**Optic**
One piece 20 Ga. steel reflector finished in High Reflectance White powder coat.
Convex lens of 125° thick white acrylic is secured to housing and removed with torsion springs.

**electrical**
Factory installed SJT power cord at feed location is included.
Electronic ballasts are thermally protected and have a Class "P" rating.
Optional DALL and other dimming ballasts available.
Consult factory for dimming specifications and availability.
UL and cUL listed.

**emergency**
Emergency battery packs provide 90 minutes of one lamp illumination.
Initial lumen output for lamp types are as follows:
- T5 Lamp: Up to 550 lumens
- T5HO Lamp: Up to 825 lumens
- T8U6 Lamp: Up to 795 lumens

Battery pack requires unswitched hot from same branch circuit as AC ballast.

**Finish**
Polyester powder coat applied over a 5-stage pre-treatment.
Standard luminaires housing finished in Matte Satin.
CONSTRUCTION Formed cold rolled steel housing, highly reflective die-formed white painted steel reflector. 125° diffuse acrylic lens with matte finish, removable for lamp replacement.

ELECTRICAL Standard instant start UL listed Class P, T8 electronic, Sound Rated A, thermally protected, high power factor ballasts less than 20% T40. Through wiring with quick connect standard. Standard single circuit.

MOUNTING Edge is designed to rest into lay-in ceilings (specify trim G1, G9 or GS) or non-accessible ceilings (specify trim FL or NF). Consult factory for detailed installation instructions.

FINISH Standard powder-coat white painted finish on exposed trim, consult factory for custom colors.

LABELS CUL Listed, approved for dry/damp location unless otherwise noted.

LUMINAIRE SPECIFICATION

<table>
<thead>
<tr>
<th>E4A-</th>
<th>2T8-</th>
<th>HOUSING</th>
<th>LAMPS</th>
<th>LENGTH</th>
<th>MOUNTING</th>
<th>VOLTAGE</th>
<th>W-</th>
<th>OPTIONS</th>
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<tr>
<td>2T8-</td>
<td>2T8-</td>
<td>Continuous Runs</td>
<td>Screw Slot Ceiling Grid</td>
<td>architectural continuous rows G1- 9/16&quot; Ceiling Grid G9- 9/16&quot; Ceiling Grid GS- Screw Slot Ceiling Grid Unaccessible Ceiling FL- standard 3/4&quot; Flange NF- Flangedless</td>
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</table>

COMPONENTS

Individual Luminaires

2'
(2) 17 Watt T8 lamps

3'
(2) 25 Watt T8 lamps

4'
(2) 32 Watt T8 lamps

6'
(4) 32 Watt T8 lamps (2 lamps per unit)

8'
(4) 32 Watt T8 lamps (2 lamps per unit)
PHOTOMETRICS

Test #202249
Lamp: (2) 32 Watt T8
Total Luminare Efficiency: 41.2%

Zonal Lumen Summary

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<th>Lumen</th>
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<th>%Foot</th>
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<td>1013</td>
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Luminance Data

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Candelas Array

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DIMENSIONS AND DETAILS

- NON-ACCESSIBLE Ceiling (Metal pan, sheet rock, millwork etc.)

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<tr>
<th>Trim</th>
<th>8''</th>
<th>6''</th>
<th>4''</th>
<th>3''</th>
<th>2''</th>
<th>9' and beyond</th>
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<td>a. Housing Length</td>
<td>NF, FL</td>
<td>56''</td>
<td>72''</td>
<td>48''</td>
<td>36''</td>
<td>24''</td>
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<tr>
<td>b. Rough-In Length</td>
<td>NF, FL</td>
<td>96.25''</td>
<td>72.25''</td>
<td>48.25''</td>
<td>36.25''</td>
<td>24.25''</td>
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<tr>
<td>c. Overall Length</td>
<td>FL</td>
<td>97.25''</td>
<td>73.25''</td>
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<tr>
<td>NF</td>
<td>96.125''</td>
<td>72.125''</td>
<td>48.125''</td>
<td>36.125''</td>
<td>24.125''</td>
<td>a1=a2+a3+1.25''</td>
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Individual Unit

Continuous Row

- GRID LAY-IN Ceiling (Accessible)

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<th>Continuous</th>
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24'' or 48''

1'' Grid Lay-In
Screw Slot Grid Lay-In
5/8'' Grid Lay-In

Consult factory for continuous rows utilizing 6 ft and 8 ft fixtures.
ROUGHLYTE™ Series
26, 32, 42 Watt (HF) Compact Fluorescent

ORDERING INFORMATION
Catalog Number: Example: VWXL42HFL-1

- VWXL
  - FIXTURE
  - VWXL-Wall Mount
- WATTAGE
  - 26-26W
  - 32-32W
  - 42-42W
- LAMP SOURCE
  - HFL-Compact Fluorescent
- VOLTAGE
  - 1-120V
  - 4-277V

Note: Not for use in hazardous or classified locations. Not for recessed mounting.

ACCESSORIES
Accessories - See page 5-A

TECHNICAL INFORMATION

PRODUCT SPECIFICATIONS
- Restaurants, Taverns or Nightclubs, Food Courts, Atriums or Piazzas, Malls, Retail Outlets, Stores, Athletic Clubs and Facilities, Theaters, Arenas, Stadiums, Amusement Parks.
- Precision die cast aluminum electrical enclosure.
- Die cast aluminum ballast box.
- Heat and shock resistant, prismatic glass optical chamber with neoprene gasketing.
- Corrosion resistant Draplex II polyester powder finish.
- Optional designer finishes available.
- Compact fluorescent ballasts are Electronic HPF >95%, <10% THD.
- PLT four pin base GX24q-3 (26/32W), GX24q-4 (42W).
- Starting temperature: 0°F-18°C.
- Low glare clear prismatic glass globe standard.
- Approximately 40% upright.
- UL 1598 listed for wet locations - globe down only.

Roughlyte is a registered trademark of Stonco and is not for use in hazardous areas.
FEATURES
- Trim, low-profile design, only 1-3/16" deep.
- Flattened knockouts for cleaner appearance.
- Snap-fit channel cover attachment. No tools required for wireway access.
- Hinged, removable channel cover allows hands-free wiring and quick installation.
- Factory-installed starters on all preheat models.
- Romex/BXR conduit connector provided with each fixture.
- Optional instant-on electronic start magnetic ballast for flicker-free lamp start.
- Low-brightness, linear prismatic diffuser provides improved visual comfort.
- 15% DR acrylic and snap-fit diffuser design for improved shatter-resistant and positive attachment.
- Optional task diffuser with clear linear prismatic bottom and opaque front for maximum illumination without direct edge glare.
- Five fixture lengths available.
- Available with factory-installed lamp, switch, cordset and convenience outlet options.

SPECIFICATIONS
BALLAST — Normal power factor reactor type ballast standard. Others available (See ordering information).
WIRING & ELECTRICAL — Fixture conforms to UL 1570 and is suitable for damp locations: AWM, TFW or ThHN wire used throughout, rated for required temperatures.
MATERIALS — Metal parts precision roll-formed from 20 gauge cold rolled steel.
FINISH — Five-stage iron-phosphate pre-treatment ensures superior paint adhesion and rust resistance. Painted parts finished with polyester powder paint.
LISTING — UL listed and labeled. Listed and labeled to comply with Canadian and Mexican Standards.
Specifications subject to change without notice.

PHOTOMETRICS
Photometry derived in accordance with IESNA LM-41 procedure. Vertical and horizontal illuminance is calculated with fixture mounted 15° from work surface. Full photometric data available upon request.

Initial Point Illumination on horizontal work surface. (fc)
Coordinates are on 6° centers.

UC 24
Report  LTL  6349
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UC 42
Report  LTL  6447
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<td>21</td>
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</tbody>
</table>
MOUNTING DATA

For unit or row mount installation, surface mounting only.

DIMENSIONS

Inches (centimeters). Subject to change without notice.

<table>
<thead>
<tr>
<th>Length</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th># Keyholes</th>
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<td>7 7/16 (11.94)</td>
<td>2 5/8 (6.67)</td>
<td>6 1/8 (15.56)</td>
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<td>10 11/16 (27.15)</td>
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<tr>
<td>33 1/2 (85.10)</td>
<td>28 1/4 (71.76)</td>
<td>2 5/8 (6.67)</td>
<td>17 (43.18)</td>
<td>2</td>
</tr>
<tr>
<td>42 1/2 (107.96)</td>
<td>37 1/4 (94.62)</td>
<td>2 5/8 (6.67)</td>
<td>21 1/4 (53.98)</td>
<td>2</td>
</tr>
</tbody>
</table>

ORDERING INFORMATION

Example: UC 33K OP 120

<table>
<thead>
<tr>
<th>UC</th>
<th>12K</th>
<th>Diffuser</th>
<th>120</th>
<th>SWR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series</td>
<td>Fixture length/ballast type</td>
<td>(blank) Standard, milk-white, DR acrylic</td>
<td>Voltage</td>
<td>Options</td>
</tr>
<tr>
<td>UC Undercabinet Light</td>
<td>12</td>
<td>(1) 8W TS, Preheat</td>
<td>120, 277</td>
<td>GLR Internal fast-blow fuse</td>
</tr>
<tr>
<td></td>
<td>12K</td>
<td>(1) 8W TS, Instant-On</td>
<td></td>
<td>GMF Internal slow-blow fuse</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>(1) 13W TS, Preheat</td>
<td></td>
<td>CSW 6-foot, 3-wire, grounded cordset, right end</td>
</tr>
<tr>
<td></td>
<td>2K</td>
<td>(1) 13W TS, Instant-On</td>
<td></td>
<td>LPPW Warm white 3000K TS lamp(s); factory supplied</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>(2) 8W TS, Preheat</td>
<td></td>
<td>VALREF213 Electronic ballast</td>
</tr>
<tr>
<td></td>
<td>24K</td>
<td>(2) 8W TS, Instant-On</td>
<td></td>
<td>PAF White powder paint finish after fabrication</td>
</tr>
<tr>
<td></td>
<td>33</td>
<td>(1) 8W and (1) 13W TS, Preheat</td>
<td></td>
<td>CO Grounded convenience outlet. Installed, bottom right, 120V only</td>
</tr>
<tr>
<td></td>
<td>33K</td>
<td>(1) 8W and 13W TS, Instant-On</td>
<td></td>
<td>SWR Rocker switch, installed bottom right, 120V only</td>
</tr>
<tr>
<td></td>
<td>42</td>
<td>(2) 13W TS, Preheat</td>
<td></td>
<td>CSA Listed and labeled to comply with Canadian Standards</td>
</tr>
<tr>
<td></td>
<td>42K</td>
<td>(2) 13W TS, Instant-On</td>
<td></td>
<td>NOM Listed and labeled to comply with Mexican Standards</td>
</tr>
</tbody>
</table>

LITHONIA LIGHTING

COMMERCIAL & INDUSTRIAL FLUORESCENT LIGHTING

P.O. BOX A, CONYERS, GEORGIA 30012, TELEPHONE 770-822-9000, FAX 770-929-8799
www.lithonia.com • IN CANADA: 1190 SOTHE AVE, LACHUTE, QUEBEC H5B 2V3
FEATURES
- Low-profile wraparound is suitable for offices, schools and corridors. Matches CB in appearance.
- Acrylic, prismatic diffuser with sonic-welded injection-molded luminous ends.
- White enamel endplates — optional appliques available.
- Linear-side prisms control brightness, pyramidal bottom prisms minimize lamp image.
- Continuous, interlocking diffuser support prevents accidental opening and simplifies maintenance.
- For surface or stem mounting, individual or row installation. Snap-in aligners permit row mounting without tools.
- Available in tandem-wired lengths.
- High-gloss, baked white enamel finish.
- Guaranteed for one year against mechanical defects in manufacture.

SPECIFICATIONS
BALLAST — Thermally protected, resetting, Class P, HPF, non-PCB, UL listed, CSA-certified ballast is standard. Sound rated A. Standard combinations are CBM approved and conform to UL 935.
WIRING & ELECTRICAL — Fixture conforms to UL 1570 and is suitable for damp locations. AWM, TFN or THHN wire used throughout, rated for required temperatures.
MATERIALS — Metal parts are die-formed from code gauge steel. Diffuser is 100% acrylic. No asbestos is used in this product.
FINISH — Five-stage, iron-phosphate pre-treatment ensures superior paint adhesion and rust resistance. Painted parts finished with high-gloss, baked white enamel.
LISTING — UL listed and labeled. Listed and labeled to comply with Canadian and Mexican Standards (see Options).

Specifications subject to change without notice.

ENERGY
- Luminaire Efficacy Rating (LER) and Annual Energy Cost:
Based on 32W T8 lamp, 2850 lumens, and energy-saving electronic ballast. Ballast factor = .88, input watts = 61.
Calculated in accordance with NEMA Standard LE-5.

PHOTOMETRICS
Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Floor reflectances are 20%. Lamp configurations shown are typical. Full photometric data on these and other configurations available upon request.

<table>
<thead>
<tr>
<th>Zone</th>
<th>Lumens per Lamp</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1140</td>
<td>24.9</td>
</tr>
<tr>
<td>4</td>
<td>1898</td>
<td>41.1</td>
</tr>
<tr>
<td>6</td>
<td>3017</td>
<td>67.8</td>
</tr>
<tr>
<td>8</td>
<td>3947</td>
<td>84.0</td>
</tr>
<tr>
<td>9−100</td>
<td>756</td>
<td>16.3</td>
</tr>
<tr>
<td>10</td>
<td>4562</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Zone</th>
<th>Lumens per Lamp</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1147</td>
<td>25.3</td>
</tr>
<tr>
<td>4</td>
<td>1889</td>
<td>41.6</td>
</tr>
<tr>
<td>6</td>
<td>3095</td>
<td>68.1</td>
</tr>
<tr>
<td>8</td>
<td>3949</td>
<td>84.7</td>
</tr>
<tr>
<td>9−100</td>
<td>794</td>
<td>15.3</td>
</tr>
<tr>
<td>10</td>
<td>4543</td>
<td>100.0</td>
</tr>
</tbody>
</table>
**LB Low-Profile Wraparound, Narrow Body**

**MOUNTING DATA**

For unit or row installation, surface or stem mounting. Stem mounting not available on TLB.

Individual installation — One double-stem (4 only) or two single-stem hangers required.

Row installation — One hanger per fixture plus one per row required.

See ACCESSORIES below for hanging devices.

**DIMENSIONS**

Inches (centimeters). Subject to change without notice.

**ORDERING INFORMATION**

Example: LB 2 32 120 GEB

<table>
<thead>
<tr>
<th>LB</th>
<th>2</th>
<th>32</th>
<th>120</th>
<th>GEB10RS Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series</td>
<td>Number of lamps</td>
<td>Lamp Type</td>
<td>Voltage</td>
<td>120, 277, 347</td>
</tr>
<tr>
<td>LB 2 lamps, 10&quot; wide</td>
<td>Z</td>
<td>17W T8 (24&quot;)</td>
<td>120</td>
<td>ES Energy-saving ballasts (40W lamps only).</td>
</tr>
<tr>
<td>For tandem, double-length unit, add prefix T. Example: TLB</td>
<td>Not included</td>
<td>20W T8 T12 (24&quot;)</td>
<td>277</td>
<td>GEB Electronic ballasts, &lt; 20% THD.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>32W T8 (48&quot;)</td>
<td>347</td>
<td>GEB10 Electronic ballasts, &lt; 10% THD.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40W T12 (48&quot;)</td>
<td>Others available</td>
<td>EL Emergency battery pack (nominal 300 lumens. See Life Safety Section).</td>
</tr>
<tr>
<td>Accessories</td>
<td></td>
<td></td>
<td></td>
<td>GLR Internal fast-blow fuse.</td>
</tr>
<tr>
<td>SQ Swivel-stem hanger (specify in Z' increments).</td>
<td></td>
<td></td>
<td></td>
<td>GMF Internal slow-blow fuse.</td>
</tr>
<tr>
<td>1B Ceiling spacer (adjusts from 1-1/2&quot; to 2-1/2&quot; from ceiling).</td>
<td></td>
<td></td>
<td></td>
<td>RIF Radio interference filter (1 per fixture).</td>
</tr>
<tr>
<td>DSH24 Double stem hanger for 4' fixtures, 24&quot; stems.</td>
<td></td>
<td></td>
<td></td>
<td>LSC Lens safety clips (2 per fixture).</td>
</tr>
<tr>
<td>LB2W Walnut endplate appliques, one pair.</td>
<td></td>
<td></td>
<td></td>
<td>CSA Listed and labeled to comply with Canadian Standards.</td>
</tr>
<tr>
<td>LB2T Textured, black endplate appliques, one pair.</td>
<td></td>
<td></td>
<td></td>
<td>NOM Listed and labeled to comply with Mexican Standards.</td>
</tr>
<tr>
<td>LB3B Textured, black endplate appliques, one pair.</td>
<td></td>
<td></td>
<td></td>
<td>SSR Specular silver interior finish (95% reflective).</td>
</tr>
</tbody>
</table>

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LBN.P65
FEATURES & SPECIFICATIONS

INTENDED USE
- Recessed frame-in rated Non-IC for new construction and remodel applications.
- Approved for all ceiling and wiring types.

CONSTRUCTION
- Steel frame. Cutout section on frame for remodel applications.
- Galvanized bar hangers span up to 24" O.C. and feature built in nailer and T-bar clips.
- Galvanized steel junction box with removable access door, four built-in romax clamps; two 1/2" and four 3/4" knockouts with slots for pryout.
- Maximum 8 (4in 4oud) No 12 AWG conductors. Rated for 90°C.
- Ground wire provided.

ELECTRICAL SYSTEM
- Socket attaches to reflector with pre-mounted screw to ensure proper and consistent lamp placement.
- Multi-volt, 120V through 277V, electronic ballast with end of life protection.
- Class P thermally protected ballast protects against improper contact with insulation. Approved for through branch circuit wiring.

INSTALLATION
- 2 x 8 wood joist or T-bar installation.
- Expandable bar hangers allow for off-center mounting in wood joist or T-bar ceilings.
- Length of 25-1/4" maximum 13-1/4" minimum or cut to 10-1/2" on center joist construction.
- Reflector is secured to frame-in by mechanical trim retention.
- Vertically adjustable yoke allows for flush mounting of trims to ceiling face.
- Accommodates ceilings up to 1-1/2" thick.

LISTING
- UL Listed to US and Canadian safety standards.
- Damp location listed. (See trim selection for wet location listed.)

ORDERING INFORMATION
For shortest lead times, configure product using standard options (shown in bold).
Example: LF6 2/26DTT MVOLT F602AZ

<table>
<thead>
<tr>
<th>LF6</th>
<th>22/13DT</th>
<th>120</th>
<th>GEB10RS-WLP</th>
<th>F6LF1PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series</td>
<td>Lamps</td>
<td>Volt</td>
<td>Options</td>
<td>Reflectors</td>
</tr>
<tr>
<td>LF6</td>
<td>2/130DT</td>
<td>MVOLT²</td>
<td>DMHL Lutron Compact SE™ electronic dimming ballast, 120V or 277V, minimum dimming level 5%</td>
<td>F6L1DF PF Drop opal lens⁴</td>
</tr>
<tr>
<td></td>
<td>2/160DT</td>
<td></td>
<td>ADEZ Advance Mark 10™ electronic dimming ballast, 120V or 277V, minimum dimming level 5%</td>
<td>F6L1DF PF Drop prismatic lens⁴</td>
</tr>
<tr>
<td></td>
<td>2/260DT</td>
<td>277</td>
<td></td>
<td>F6L1DF PF Drop prismatic lens⁴</td>
</tr>
<tr>
<td></td>
<td></td>
<td>347³</td>
<td></td>
<td>F6L1DF PF Drop prismatic lens⁴</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F6L2F PF Flush opal lens³</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F6L2F PF Flush prismatic lens³</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F6L2D3 White splay, drop opal lens⁴</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F6LDB3 Black splay, drop opal lens⁴</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F6L3F White splay, flat white lens⁴</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F6LFB3 Black splay, flat white lens⁴</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F6L4 White splay, flat fresnel lens⁴</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F6L8B3 Black splay, flat fresnel lens⁴</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F6L7F3 White splay, tempered T73 flat prismatic lens⁴</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F6L6F3 Black splay, tempered T73 flat prismatic lens⁴</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F6L6F3 Black splay, tempered T73 flat prismatic lens⁴</td>
</tr>
</tbody>
</table>

NOTES:
1. Not available with ADEZ or DMHL.
2. Electronic multi-volt ballast capable of operating any line voltage from 120-277V, 50 or 60Hz.
3. Not available with EL or ELR.
4. Lens removal required before EL testing.

See trim specification sheet for maximum wattages.

Accessories:
- Order as separate catalog number.
- LBH 22" extended bar hangers, set of two
- LCMO Channel bar mounting brackets, set of two
- LSMC T-bar mounting clips, set of four

Downlighting and Track | Sheet #: LF6-COM | CCFL-120
**LF6 Series 6” Fluorescent LF6 Full Reflector Trims**

<table>
<thead>
<tr>
<th>Distribution curve</th>
<th>Distribution data</th>
<th>Output data</th>
<th>Coefficient of utilization</th>
<th>Single luminaire data 30° above floor</th>
</tr>
</thead>
<tbody>
<tr>
<td>F602AZ, (2) Philips PL-C 26W/27SH lamp, 1.2 s/mh, 3600 rated lumens, Test no. 2193120701</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Diagram showing distribution curve, distribution data, and output data.]

<table>
<thead>
<tr>
<th>Zone</th>
<th>Lumens</th>
<th>%Lamp</th>
<th>10%</th>
<th>30%</th>
<th>50%</th>
<th>90%</th>
<th>Initial fc at beam center</th>
<th>Beam angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>0°</td>
<td>597</td>
<td>1.00</td>
<td>59.7</td>
<td>119.4</td>
<td>238.8</td>
<td>477.6</td>
<td>100.0</td>
<td>Beam angle 58.6°</td>
</tr>
<tr>
<td>5°</td>
<td>493</td>
<td>1.00</td>
<td>49.3</td>
<td>98.6</td>
<td>197.2</td>
<td>394.4</td>
<td>100.0</td>
<td>Beam angle 58.6°</td>
</tr>
<tr>
<td>10°</td>
<td>396</td>
<td>1.00</td>
<td>39.6</td>
<td>79.2</td>
<td>158.4</td>
<td>316.8</td>
<td>100.0</td>
<td>Beam angle 58.6°</td>
</tr>
<tr>
<td>25°</td>
<td>146</td>
<td>1.00</td>
<td>14.6</td>
<td>29.2</td>
<td>58.4</td>
<td>116.8</td>
<td>100.0</td>
<td>Beam angle 58.6°</td>
</tr>
<tr>
<td>50°</td>
<td>52</td>
<td>1.00</td>
<td>5.2</td>
<td>10.4</td>
<td>20.8</td>
<td>41.6</td>
<td>100.0</td>
<td>Beam angle 58.6°</td>
</tr>
<tr>
<td>90°</td>
<td>1.4</td>
<td>0.10</td>
<td>1.4</td>
<td>2.8</td>
<td>5.6</td>
<td>11.2</td>
<td>100.0</td>
<td>Beam angle 58.6°</td>
</tr>
</tbody>
</table>

**F683, (2) Philips PL-C 26W/27SH lamp, 0.9 s/mh, 3600 rated lumens, Test no. 2195072601**

<table>
<thead>
<tr>
<th>Zone</th>
<th>Lumens</th>
<th>%Lamp</th>
<th>10%</th>
<th>30%</th>
<th>50%</th>
<th>90%</th>
<th>Initial fc at beam center</th>
<th>Beam angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>0°</td>
<td>784</td>
<td>1.00</td>
<td>78.4</td>
<td>156.8</td>
<td>313.6</td>
<td>627.2</td>
<td>100.0</td>
<td>Beam angle 58.6°</td>
</tr>
<tr>
<td>5°</td>
<td>668</td>
<td>1.00</td>
<td>66.8</td>
<td>133.6</td>
<td>267.2</td>
<td>534.4</td>
<td>100.0</td>
<td>Beam angle 58.6°</td>
</tr>
<tr>
<td>10°</td>
<td>555</td>
<td>1.00</td>
<td>55.5</td>
<td>111</td>
<td>222</td>
<td>444</td>
<td>100.0</td>
<td>Beam angle 58.6°</td>
</tr>
<tr>
<td>25°</td>
<td>274</td>
<td>1.00</td>
<td>27.4</td>
<td>54.8</td>
<td>109.6</td>
<td>219.2</td>
<td>100.0</td>
<td>Beam angle 58.6°</td>
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<tr>
<td>50°</td>
<td>131</td>
<td>1.00</td>
<td>13.1</td>
<td>26.2</td>
<td>52.4</td>
<td>104.8</td>
<td>100.0</td>
<td>Beam angle 58.6°</td>
</tr>
<tr>
<td>90°</td>
<td>54</td>
<td>0.10</td>
<td>5.4</td>
<td>10.8</td>
<td>21.6</td>
<td>43.2</td>
<td>100.0</td>
<td>Beam angle 58.6°</td>
</tr>
</tbody>
</table>

**F6L4, (2) Philips PL-C 26W/27SH lamp, .38 s/mh, 3600 rated lumens, Test no. 2197042405**

<table>
<thead>
<tr>
<th>Zone</th>
<th>Lumens</th>
<th>%Lamp</th>
<th>10%</th>
<th>30%</th>
<th>50%</th>
<th>90%</th>
<th>Initial fc at beam center</th>
<th>Beam angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>0°</td>
<td>799</td>
<td>1.00</td>
<td>79.9</td>
<td>159.8</td>
<td>319.6</td>
<td>639.2</td>
<td>100.0</td>
<td>Beam angle 58.6°</td>
</tr>
<tr>
<td>5°</td>
<td>664</td>
<td>1.00</td>
<td>66.4</td>
<td>132.8</td>
<td>265.6</td>
<td>531.2</td>
<td>100.0</td>
<td>Beam angle 58.6°</td>
</tr>
<tr>
<td>10°</td>
<td>539</td>
<td>1.00</td>
<td>53.9</td>
<td>107.8</td>
<td>215.6</td>
<td>431.2</td>
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<tr>
<td>25°</td>
<td>275</td>
<td>1.00</td>
<td>27.5</td>
<td>55.0</td>
<td>110</td>
<td>220</td>
<td>100.0</td>
<td>Beam angle 58.6°</td>
</tr>
<tr>
<td>50°</td>
<td>131</td>
<td>1.00</td>
<td>13.1</td>
<td>26.2</td>
<td>52.4</td>
<td>104.8</td>
<td>100.0</td>
<td>Beam angle 58.6°</td>
</tr>
<tr>
<td>90°</td>
<td>56</td>
<td>0.10</td>
<td>5.6</td>
<td>11.2</td>
<td>22.4</td>
<td>44.8</td>
<td>100.0</td>
<td>Beam angle 58.6°</td>
</tr>
</tbody>
</table>

---

Lithonia Lighting

Recessed Downlighting

One Lithonia Way, Conyers, GA 30012

Phone: 800-375-4535 Fax: 770-918-1209

www.lithonia.com

An Acuity Brands Company

Sheet #: LF6-COM
FEATURES & SPECIFICATIONS

INTENDED USE
Ideal where high brightness and good illumination levels are required such as retail, light industrial and warehouses.

ATTRIBUTES
Fixture can be assembled with snap together components and requires no tools. Available in one lamp or two lamp configuration.

CONSTRUCTION
Heavy-duty channel, die-formed from code-gauge steel. Optional aluminum construction available.
Sturdy channel cover secured by captive quarter-turn latch for easy access to wireway.
Combination endplate/channel connector furnished with each fixture.

FINISH
Five-stage iron phosphate pretreatment ensures superior paint adhesion and rust resistance. Painted parts finished with high-gloss, baked white enamel.

ELECTRICAL SYSTEM
Thermally protected, resetting, Class P, HPF, non-PCB, UL Listed and CSA Certified ballast is standard. Sound rating depends on lamp/ballast combination.
AWM, TFe, THHN wire throughout, rated for required temperatures.

INSTALLATION
For unit or row installations, surface or suspended mounting.

LISTING
120V, 277V and MVOLT are UL Listed and CSA Certified (standard). 347V is CSA Certified (see Options). NDM Certified (see Options). Suitable for damp locations.

WARRANTY
Guaranteed for one year against mechanical defects in manufacture.

ORDERING INFORMATION

Choose the boldface catalog nomenclature that best suits your needs and write it on the appropriate line. Order accessories as separate catalog numbers.

Example: C 2 32 120 GEB

C 2 32 120 GEB10RS

<table>
<thead>
<tr>
<th>Series</th>
<th>12</th>
<th>Lamp type</th>
<th>Voltage</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>C General-purpose strip</td>
<td>15W TS T12 (18&quot;)</td>
<td>120, 277, MVOLT</td>
<td>GEB10RS</td>
<td>Energy-saving ballasts (30W or 40W lamps only)</td>
</tr>
<tr>
<td></td>
<td>15PH 15WPH T12 (18&quot;)</td>
<td>Others available</td>
<td></td>
<td>GEB Electronic ballasts, ≤20% THD</td>
</tr>
<tr>
<td></td>
<td>17 17W T8 (24&quot;)</td>
<td></td>
<td></td>
<td>GEB10RS Electronic ballasts, ≤10% THD instant-start</td>
</tr>
<tr>
<td></td>
<td>20PH 20W PH T12 (24&quot;)</td>
<td></td>
<td></td>
<td>HPF High power factor ballasts (15W and 20W only)</td>
</tr>
<tr>
<td></td>
<td>20 20W TS T12 (24&quot;)</td>
<td></td>
<td></td>
<td>LFP Low power factor ballasts (15W, 20W and 30W only)</td>
</tr>
<tr>
<td></td>
<td>25 25W T8 (36&quot;)</td>
<td></td>
<td></td>
<td>EL Emergency battery pack (nominal 300 lumens)</td>
</tr>
<tr>
<td></td>
<td>30PH 30W PH T12 (36&quot;)</td>
<td></td>
<td></td>
<td>GLR Internal fast-blow fuse (add X for external)</td>
</tr>
<tr>
<td></td>
<td>30 30W RS HPF T12 (36&quot;)</td>
<td></td>
<td></td>
<td>GMF Internal slow-blow fuse (add X for external)</td>
</tr>
<tr>
<td></td>
<td>32 32W T8 (48&quot;)</td>
<td></td>
<td></td>
<td>CS1 6' cordset, NEMA 5-15P SJT, U-ground plug, 120V</td>
</tr>
<tr>
<td></td>
<td>40 40W T12 (48&quot;)</td>
<td></td>
<td></td>
<td>CS3 6' cordset, NEMA 6-15P SJT, twist-lock plug, 120V</td>
</tr>
<tr>
<td></td>
<td>18&quot; (457)</td>
<td></td>
<td></td>
<td>PLF Plug-in wiring; specify 1, 2 or 3 branch circuits and hot wires (A = Black, B = Red, C = Blue, AB or AC)</td>
</tr>
<tr>
<td></td>
<td>24&quot; (610)</td>
<td></td>
<td></td>
<td>AL Aluminum housing, white enamel finish</td>
</tr>
<tr>
<td></td>
<td>36&quot; (914)</td>
<td></td>
<td></td>
<td>CSA CSA Certified (only required for 347V)</td>
</tr>
<tr>
<td></td>
<td>48&quot; (1219)</td>
<td></td>
<td></td>
<td>NDM NDM Certified</td>
</tr>
<tr>
<td></td>
<td>72&quot; (1829)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>96&quot; (2438)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Width: 4-3/8&quot; (111)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Accessories
- Swivel stem hanger (specify length in 2" increments).
- Ceiling spacer (adjusts from 1-1/2" to 2-1/2" from ceiling).
- 12" screw-on channel connector.
- Chain hangers (1 pair, 36" long).
- Hooker T-bar hanger (flush to ceiling).
- Hooker T-bar hanger (1-1/2" from ceiling).
- Wire guard, 4" white.
- Symmetric reflector, 4" white, 7" aperture.
- Asymmetric reflector, 4" white, 5-3/4" wide.

NOTES:
1. PH ballasts available in low power factor 120V only.
2. Specify HPF or LFP in options section for 120V, HPF standard on 277V.
3. Order 2 for 6 fixtures.
4. LFP is available for residential buildings only.
5. MVOLT available with GEB10RS only.
C Rapid Start

MOUNTING DATA
For unit or row installation, surface or suspended mounting.
Unit installation — Minimum of two hangers required.
Row installation — Two hangers per channel required. One per fixture plus one per row if CONLG installed.
Hooker® (HRC) and HC Hangers — Minimum two per channel (unit and row)
See ACCESSORIES below for hanging devices.

PHOTOMETRICS
Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Floor reflectances are 20%. Lamp configurations shown are typical. All data based on 25°C. Full photometric data on these and other configurations available upon request.

C 1 40
Report LTL 5423
Lumens per lamp - 2925 – Lumen. eff. - 94.6%
Coefficient of Utilization
Floor Ceiling Wall 80% 10% 80% 10% 80% 10% 80% 10% 80% 10% 80% 10%
1 96 89 86 82 78 74 71 67 63 59 55 51 47 1 92 87 83 79 75 71 67 63 59 55 51 47
2 86 82 78 74 70 66 62 58 54 50 46 42 38 2 83 78 74 70 66 62 58 54 50 46 42 38
3 77 72 68 64 60 56 52 48 44 40 36 32 28 3 75 70 65 61 57 53 49 45 41 37 33 29
4 70 65 61 57 53 49 45 41 37 33 29 25 21 4 69 64 59 55 51 47 43 39 35 31 27 23
5 64 59 54 50 46 42 38 34 30 26 22 18 14 5 63 58 53 49 45 41 37 33 29 25 21 17
10 42 29 21 14 8 5 1 40 28 21 14 8 5 10 40 28 21 14 8 5 1
Zonal Lumens Summary
Zone Lumens %Lamp %Fixture
0-30 400 13.7 14.5
0-40 679 23.2 24.6
0-60 1348 46.1 47.7
0-90 2263 77.4 81.8
90-180 503 17.2 18.2
180-2706 94.6 100.0

Energy (Calculated in accordance with NEMA standard LE-51)
LER PL ANNUAL ENERGY COST* LAMP DESCRIPTION LUMENS BALLAST FACTOR WATTS
96.7 $2.79 (2)T8 F32 2900 .38 55

* Comparative yearly lighting energy cost per 1000 lumens

Lithonia Lighting
An Acuity Brands Company
Sheet #: C-RS
©1996 Acuity Lighting Group, Inc., Rev. 07/06

Lithonia Lighting
Fluorescent
One Lithonia Way, Conyers, GA 30012
Phone: 770-922-9000, 800-315-4953, Fax: 770-602-1531
www.lithonia.com
FORM 10 ROUND

CA/MA ARM MOUNT

GENERAL DESCRIPTION: The Gardco Round arm mounted Form 10 products are cylindrical (CA) or semi-spherical (MA) cutoff luminaires using high intensity discharge lamps up to 1000 watts (400w in the MA). Housings are one-piece seamless spun aluminum and finished with either Architectural Class 1 anodizing or electrostatically applied polyurethane. Luminaires can accept one of six (6) interchangeable and rotatable precision segmented optical systems.

CUTOFF PERFORMANCE: Flat glass lens luminaires provide full cutoff performance. Sag Lens luminaires provide cutoff performance.

ORDERING

<table>
<thead>
<tr>
<th>PREFIX</th>
<th>CONFIGURATION</th>
<th>DISTRIBUTION</th>
<th>WATTAGE</th>
<th>VOLTAGE</th>
<th>FINISH</th>
<th>OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA17</td>
<td>2</td>
<td>FM</td>
<td>70MH</td>
<td>120</td>
<td>BLA</td>
<td></td>
</tr>
</tbody>
</table>

Enter the order code into the appropriate box above. Note: Gardco reserves the right to refuse a configuration. Not all combinations and configurations are valid. Refer to notes below for exclusions and limitations. For questions or concerns, please consult the factory.

<table>
<thead>
<tr>
<th>CONFIGURATION</th>
<th>1 Single Assembly</th>
<th>3 Triple at 90°</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Twin Assembly</td>
<td>2 @ 90 Twin Assembly at 90°</td>
<td>4 Quad Assembly</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DISTRIBUTION</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Horizontal Lamp</th>
<th>Type I</th>
<th>Type III</th>
<th>Type IV (22&quot; only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 22&quot; luminaires, 400W and below are supplied with flat glass lens standard. For wattages above 400W, &quot;FL&quot; flat lens is supplied standard.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. MA4PSMH 400W Type 4X luminaires require the E26/73/20 reduced jacket lamp</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vertical Lamp</th>
<th>Type V</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>FINISH</th>
</tr>
</thead>
</table>

| BRP | Bronze Paint |
| BLP | Black Paint  |
| WP  | White Paint  |
| NP  | Natural Aluminum Paint |
| OC  | Optional Color Paint |
| SC  | Special Color Paint |

<table>
<thead>
<tr>
<th>OPTIONS</th>
</tr>
</thead>
</table>

| HS | Internal House Side Shield |
| F  | Fusing In Head N/A above 400W |
| LF | In-Line/In-Pole Fusing |
| MF | Mast Arm Fitter |
| PC | Photocontrol and Receptacle N/A with MA units or 400V |

| PCR | Photocontrol Receptacle only N/A with MA units |
| POLY | Polycarbonate Sag Lens in lieu of flat glass, N/A with 4X optics, 750 - 1000w |
| GS | Quartz Standby |
| GST | Quartz Standby - Timed Delay N/A not available above 400w |

| PTF2 | Pole Top Fitter - 2.5" - 3" Dia. Tenon |
| PTF3 | Pole Top Fitter - 3" - 3.5" Dia. Tenon |
| PTF4 | Pole Top Fitter - 3.5" - 4" Dia. Tenon |

For CA22 with 4X Optics, 1000 Metal Halide, use:

<table>
<thead>
<tr>
<th>For CA22 with 4X Optics, 1000 Metal Halide, use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>Venture</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

WARNING: Use of other lamps voids warranty

Gardco Lighting reserves the right to change materials or modify the design of its products without notification as part of the company's continuing product improvement program. The 4X optical system is protected by U.S. patent number 5,894,022.


Gardco Lighting
1611 Clovis Banker Road
San Marcos, TX 78666
(800) 227-0758
(512) 753-1000
FAX: (512) 753-7855
www.steelighting.com
79115-409607
FORM 10 ROUND
CA/MA ARM MOUNT

SPECIFICATIONS

GENERAL: Each Gardco Form 10 arm mounted Hardtop is a cylindrical (CA) or semi-spherical (MA) cutoff luminaire for high intensity discharge lamps. Internal components are totally enclosed, rain-tight, dust-tight and corrosion resistant. No venting of optical system or electrical components is required or permitted. Luminaires are completely assembled with no disassembly required for installation. Lamping requires no lifting or hinging the luminaire housing, disturbing wiring or exposing uninsulated live parts.

HOUSING: Housing is one piece, .100" (.25cm) seamless aluminum with integral rolled circumferential reveal and lower section aperture incorporating a returned flange stiffener to protect against housing edge deformation. Units are offered in profiles of 17" (43.18cm) or 22" (55.88cm) diameter.

ARM: Extruded aluminum arm is secured to prewired fixture by contractor. Assembly is suitable for mounting to pole without requiring access to luminaire. Internal extruded channels capture tie rods for proper luminaire to pole alignment.

LENS: One piece, diecast aluminum door frame retains the optically clear, heat and impact resistant tempered flat glass, extended flat glass, sag glass or sag polycarbonate lens in a sealed manner using hollow section, high compliance, memory retentive extruded silicone rubber. Concealed stainless steel hinge and two (2) flush quarter-turn fasteners secure lens assembly to luminaire.

OPTICAL SYSTEMS: The segmented Form Ten optical system is homogeneous sheet aluminum, electrochemically brightened, anodized and sealed. The segmented reflectors are set in faceted arc tube image duplicator patterns to achieve IES Types I, III, IV and V distributions. With the 4X optics, the reflector facets form a conical fan around the arc tube with each facet positioned to be precisely tangent to the top of the arc tube. The mogul base lampholder is glazed porcelain with a nickel plated screw shell and is securely attached to the reflector assembly. 50MH, 70MH and 100MH units have medium base lampholders. All horizontal Metal Halide units in the 22" housings have lamp stabilizers ensuring precise arc tube positioning.

ELECTRICAL: Each high power factor ballast is the separate component type, capable of providing reliable lamp starting down to -20°F/-29°C. The ballast is mounted on a unitized tray and secured within the luminaire, above the reflector system. Component-to-component wiring within the luminaire will carry no more than 80% of rated current and is listed by UL for use at 500 VAC at 201°F/99°C or higher. Plug disconnects are listed by UL for use at 600 VAC, 15A or higher.

FINISH: Anodized housings are created with an Aluminum Association Architectural Class I anodizing process to achieve a bronze, black or natural aluminum finish. Painted units are finished with hardcoat, fade resistant, electrostatically applied polyurethane.

LABELS: All luminaires bear UL or CUL (where applicable) Wet Location labels.

DIMENSIONS

<table>
<thead>
<tr>
<th>MA Style</th>
<th>EPA</th>
<th>Avg Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Size</td>
<td>A</td>
</tr>
<tr>
<td>MA17</td>
<td>17&quot;</td>
<td>11&quot;</td>
</tr>
<tr>
<td></td>
<td>43.18 cm</td>
<td>27.94 cm</td>
</tr>
<tr>
<td>MA22</td>
<td>22&quot;</td>
<td>14&quot;</td>
</tr>
<tr>
<td></td>
<td>55.88 cm</td>
<td>35.56 cm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CA Style</th>
<th>EPA</th>
<th>Avg Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Size</td>
<td>A</td>
</tr>
<tr>
<td>CA17</td>
<td>17&quot;</td>
<td>8&quot;</td>
</tr>
<tr>
<td></td>
<td>43.18 cm</td>
<td>20.32 cm</td>
</tr>
<tr>
<td>CA22</td>
<td>22&quot;</td>
<td>11&quot;</td>
</tr>
<tr>
<td></td>
<td>55.88 cm</td>
<td>27.94 cm</td>
</tr>
</tbody>
</table>

Gardco Lighting reserves the right to change materials or modify the design of its products without notification as part of the company's continuing product improvement program.

Gardco Lighting
1611 Clover Barker Road
San Marcos, TX 78666
(800) 227-0758
(512) 753-1000
FAX: (512) 753-7855
www.gardcolighting.com

79115-600067
POLES
TAPERED ROUND STEEL

GENERAL DESCRIPTION: The Gardco/Emco Lighting TRS tapered round steel pole consists of a one-piece design fabricated steel tubing circumferentially welded to a structural quality hot rolled carbon steel plate. The poles are finished with an electrostatically applied, thermally cured TGIC polyester powdercoat. All poles include anchor bolts, full base cover, hand hole, ground lug and top cap or tenon.

ORDERING

<table>
<thead>
<tr>
<th>PREFIX</th>
<th>HEIGHT</th>
<th>GAUGE</th>
<th>DRILLING</th>
<th>FINISH</th>
<th>OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRS</td>
<td>15</td>
<td>11</td>
<td></td>
<td>BLP</td>
<td></td>
</tr>
</tbody>
</table>

Enter the order code into the appropriate box above. Note: Gardco reserves the right to refuse a configuration. Not all combinations and configurations are valid. Refer to notes below for exclusions and limitations. For questions or concerns, please consult the factory.

FINISH

<table>
<thead>
<tr>
<th>PP</th>
<th>Prime Painted</th>
<th>OC</th>
<th>Optional Color Paint</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRP</td>
<td>Bronze Paint</td>
<td>SC</td>
<td>Special Color Paint</td>
</tr>
<tr>
<td>BLP</td>
<td>Black Paint</td>
<td></td>
<td>Specify RAL designation at OC-PAT/92Y</td>
</tr>
<tr>
<td>WP</td>
<td>White Paint</td>
<td></td>
<td>specify most supply color clip</td>
</tr>
<tr>
<td>NP</td>
<td>Natural Aluminum Paint</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GV</td>
<td>Galvanized (No Paint)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPGV</td>
<td>Finished Paint over Galvanized (specify color)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OPTIONS

- FES Fasten Outlet
- AHH Additional Hand Hole
- GM-080* Single Side Mount Bullhorn Bracket
  - "*Add .19" for 1.9" OD or .24" for 2.4" OD. Refer to Accessory sheet 79415-26 for details
- CL Coupling - Internal thread:
  - Indicate height above base, orientation to original hand hole
  - (1/2", 3/4", 1", 11/4", 11/2")

POLE DATA

<table>
<thead>
<tr>
<th>CATALOG NUMBER</th>
<th>POLE SIZE</th>
<th>MAXIMUM LUMINAIRE LOADING</th>
<th>ANCHOR BOLT DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ACTUAL HEIGHT</td>
<td>100 MPH</td>
<td>90 MPH</td>
</tr>
<tr>
<td>05TRS-20-11</td>
<td>20'</td>
<td>5.9 x 3.1</td>
<td>12.2</td>
</tr>
<tr>
<td>06TRS-20-11</td>
<td>20'</td>
<td>6.5 x 3.7</td>
<td>15.6</td>
</tr>
<tr>
<td>06TRS-25-11</td>
<td>25'</td>
<td>5.9 x 2.4</td>
<td>8.0</td>
</tr>
<tr>
<td>07TRS-25-11</td>
<td>25'</td>
<td>7.0 x 3.5</td>
<td>13.1</td>
</tr>
<tr>
<td>07TRS-30-11</td>
<td>30'</td>
<td>6.6 x 2.4</td>
<td>7.5</td>
</tr>
<tr>
<td>08TRS-30-11</td>
<td>30'</td>
<td>8.0 x 3.8</td>
<td>12.0</td>
</tr>
<tr>
<td>07TRS-35-11</td>
<td>35'</td>
<td>7.3 X 2.4</td>
<td>7.1</td>
</tr>
<tr>
<td>08TRS-35-11</td>
<td>35'</td>
<td>8.5 X 3.6</td>
<td>12.2</td>
</tr>
<tr>
<td>08TRS-39-11</td>
<td>38&quot; 9'</td>
<td>7.8 x 2.4</td>
<td>6.6</td>
</tr>
<tr>
<td>09TRS-39-11</td>
<td>38&quot; 9'</td>
<td>9.0 X 3.6</td>
<td>10.8</td>
</tr>
</tbody>
</table>

*Warning: Additional wind loading, in terms of EPA, from banners, cameras, floodlights and other accessories attached to the pole, must be added to the luminaire(s) EPA before selecting the pole with the appropriate wind load capability. **Factory supplied template must be used when setting anchor bolts. Gardco/Emco Lighting will not honor any claim for incorrect anchorage placement resulting from failure to use factory supplied templates.
POLES

SPECIFICATIONS

POLE SHAFT: The pole shaft conforms to ASTM A595 Grade A and is supplied in 11 gauge (0.1196") thickness.

It is one-piece construction with a full length longitudinal high frequency resistance weld and is round in cross section having a uniform taper of 0.14 inches per foot of length.

ANCHOR BASE: The anchor base (base plate) is fabricated from structural quality hot rolled carbon steel plate conforming to ASTM A36. The base plate telescopes the pole shaft and is circumferentially welded top and bottom.

ANCHOR BOLTS: Anchor bolts are fabricated from a commercial quality hot rolled carbon steel bar with a minimum yield strength of 55,000 PSI. Bolts have an "L" bend on one end and threaded on the opposite end. Anchor bolts are hot dipped galvanized a minimum length of 12" on the threaded end. Four (4) property sized bolts, each furnished with two (2) hex nuts and flat washers, are provided per pole, unless otherwise specified.

BASE COVER: A two-piece base cover completely seals the entire base plate and anchorage, secured with two (2) fasteners.

HAND HOLE: Round poles less than 6.25" in diameter have a 3" x 5" handhole. Larger round poles have a 4" x 6.5" oval handhole. A nut holder is provided near the handhole and includes a 5/8" - 13 UNC hex head bolt and nut for grounding. The handhole is circumferentially welded in the pole shaft and includes a steel cover with attachment screws. The handhole is located at 1' 6" above the base of the pole.

FINISH: The standard finish for pole and accessories is an electostatically applied, thermally cured TGIC polyester powdercoat. Prime painted poles are available.

FASTENERS: All structural fasteners are galvanized high strength carbon steel. All fasteners are galvanized or zinc plated carbon steel or stainless steel.

DESIGN: The poles as charted are designed to withstand dead loads and theoretical dynamic loads developed by variable wind speeds with an appropriate gust factor under the following conditions:

The luminaire(s) and/or mounting bracket(s) center of gravity is assumed to be located a maximum of 2' 6" above the pole top. For purposes of this design, their effective projected area (EPA) is considered to be the product of the actual projected area and the drag coefficient.

The charted weights include luminaire(s) and/or mounting bracket(s) and are based on an approximate weight to EPA ratio of 25 pounds per square foot.

The wind velocities are based on 10 mph increments from 80 mph through 100 mph. Poles to be located in areas of known abnormal conditions may require special consideration. For example: coastal areas, airports and areas of special winds.

Poles are designed for ground-mounted applications. Poles mounted on structures (such as buildings and bridges) may also necessitate special consideration requiring Gardco/Emco Lighting’s recommendation. Height correction factors and drag coefficients are applied to the entire structure. An appropriate safety factor is maintained based on the minimum yield strength of the material incorporated in the pole.

Mounting height is the vertical distance from the base of the pole to the center of the luminaire arm at the point of luminaire attachment.

For loadings other than those covered in the design section, such as overhead wiring, guying of the poles or other field installed attachments, consult the factory for recommendations.

WARNING: This design information is intended as a general guideline only. The customer is solely responsible for proper selection of pole, luminaire, accessory and foundation under the given site conditions and intended usage. The addition of any items to the pole, in addition to the luminaire, will dramatically impact the EPA load on that pole. It is strongly recommended that a qualified professional be consulted to analyze the loads given the user’s specific needs to ensure proper selection of the pole, luminaire, accessories, and foundation. Gardco/Emco Lighting and Genlyte Thomas Group, LLC assume no responsibility for such proper analysis or product selections. Failure to insure proper site analysis, pole selection, loads and installation can result in pole failure, leading to serious injury or property damage.

DIMENSIONS

Gardco Lighting/Emco Lighting reserves the right to change materials or modify the design of its product without notification as part of the company's continuing product improvement program.
A Genlyte Company

Gardco Lighting
2661 Alvarado Street
San Leandro, CA 94577
800/227-0758
510/357-6966 in California
Fax: 510/357-3068
www.sitelighting.com

EMCO LIGHTING
73415-228764
EUCLID – ROUND

HOUSING – One-piece round aluminum die-cast housing is available in shallow, medium, or deep versions. Fixtures with shallow housing are ADA compliant.

WALL MOUNTING – Each fixture has a cast-in drilling template for 3-7/8" or 4" round or octagonal junction box, wireway, and wall mounting. A "level bar" is provided in the castings to aid installation of the housing in a level position, which ensures proper bezel position. A "Top" indicator is also provided to aid in proper orientation. The medium and deep models are provided with four 1/4" trade-size threaded and plugged conduit entry points placed 90 degrees apart along housing sides for surface conduit. A silicone gasket, to be installed between the housing and junction box, and a die-cut EPDM foam gasket, with adhesive applied on one side, to be installed between the housing and the mounting surface, are provided to prevent the entry of moisture, dirt, and insects into the unit. Consult factory for concrete pour applications.

LENS RETAINING BEZEL – The lens retaining bezel is injection molded UV resistant polycarbonate for vandal resistance. Lens bezels are available in CB – Cross Bezel, EB – Eyelid Bezel, and OB – Open Bezel styles. Ordering a high wattage single lamped fixture is recommended for the eyeland bezel. HID or multiple CFL lamp configuration is recommended for open and cross bezels. Exposed fasteners are Tork™ pin-in-head tamper resistant stainless steel. Nylon washers keep fasteners captive to the lens retaining bezel. See Accessories to order T15 pin-in-head screwdriver.

LENS/GASKET – The lens is injection molded UV resistant frosted or white polycarbonate with internal ribs and a minimum .125" thickness for structural strength. Lenses are slightly textured to reduce direct lamp image. Lens is secured to retaining bezel with stainless steel clips and fasteners to form a single mechanical unit for quick and easy installation and maintenance. Continuous ribbed extruded EPDM rubber C-channel gasket seals the lens to retaining bezel and the retaining bezel assembly to housing to prevent the entry of moisture, dirt, and insects.

SOCKETS – HID socket is porcelain, medium base, 4KV pulse rated with spring center contact. Compact Fluorescent socket is one piece thermoplastic.

LIGHT SOURCES – Metal Halide, High Pressure Sodium, and Compact Fluorescent in single, double, and triple lamp configurations. HID lamps are available in deep housing only. Clear HID lamp is supplied as standard, CFL lamps are available in either shallow or medium depth housings. Triple tube, 4-pin (4100K) compact fluorescent amalgam lamps are standard in 26 to 57-watt fixtures due to their superior performance over a wider ambient temperature range. 13 and 18-watt CFL quad-tube (3500K) lamps are shipped standard.

BALLASTS – HID ballast is High Power Factor magnetic, designed for -20°F operation. CFL ballast is universal electronic for 120-277V 50 or 60Hz, or 347V 60 Hz, with 0°F starting. Battery back-up is available in the medium housing with single or double lamps up to 42 watts and with 120 or 277 voltage specific units for U.S. applications. On the double unit, one lamp will be energized by the B8 option. Battery back-up starting temperature is 32°F.

REFLECTOR – 040" thick white aluminum reflector plate is provided. HID units include a hammer tone reflector disk.

FINISHES – Available in black, bronze or white. The color is molded into the lens retaining bezel. The housing has a polyester powdercoat baked-on finish.

PHOTOMETRICS – Please visit our web site at www.lsindustries.com for detailed photometric data.

EXTRA VALUE FEATURES –
- Lifetime Warranty on Housing, Lens and Retaining Bezels – Euclid Series vandal resistant luminaires are designed to survive in harsh environments. When installed with a four-point mount according to our instructions, LSI will repair or replace any Euclid Series fixture rendered inoperable due to physical abuse for the life of the original installation.*
- Quick Connects between ballast and socket are supplied for ease of installation on medium and deep models. (Not required with shallow model.)
- Aqueducts molded into lens retaining bezel allow moisture to drain, reducing accumulation of dirt and debris.
- Shallow housings are ADA compliant.

* Excluding damage by fire, acid, gasoline, paint spray (i.e. graffiti) and damage or destruction of installation site by acts of war, terrorism, and acts of God. Not intended for car wash or pool applications.

LSI


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# EUCLID – ROUND

## Ordering Information

<table>
<thead>
<tr>
<th>Luminaire Prefix</th>
<th>Bezel</th>
<th>Lamp Wattage</th>
<th>Light Source</th>
<th>Lens</th>
<th>Line Voltage</th>
<th>Luminaires Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>EURS (Shallow)</td>
<td>CB - Cross Bezel&lt;sup&gt;1&lt;/sup&gt;</td>
<td>13</td>
<td>CFL - Compact Fluorescent&lt;sup&gt;5&lt;/sup&gt;</td>
<td>F - Frosted Polycarbonate&lt;sup&gt;6&lt;/sup&gt;</td>
<td>UE - Universal Electronic (120-277V) 50/60Hz(2)</td>
<td>BLK - Black</td>
</tr>
<tr>
<td></td>
<td>EB - Eyed Bezel&lt;sup&gt;2&lt;/sup&gt;</td>
<td>18</td>
<td>CFL2 - Compact Fluorescent&lt;sup&gt;5&lt;/sup&gt;</td>
<td>W - White Polycarbonate</td>
<td></td>
<td>BRZ - Bronze</td>
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<tr>
<td></td>
<td>CB3 - Open Bezel</td>
<td>26</td>
<td>Double 13, 18, 26, 32, 42 Watt</td>
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<td></td>
<td>WHT - White</td>
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<tr>
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<td>42</td>
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<tr>
<td>EURM (Medium)</td>
<td>13</td>
<td>CFL - Compact Fluorescent&lt;sup&gt;5&lt;/sup&gt;</td>
<td>Double 13, 18, 26, 32 Watt</td>
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<td></td>
<td></td>
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<td>18</td>
<td>Single 13, 18, 26, 32, 42, 57 Watt</td>
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<tr>
<td></td>
<td>26</td>
<td>CFL2 - Compact Fluorescent&lt;sup&gt;5&lt;/sup&gt;</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>32</td>
<td>Double 13, 18, 26, 32, 42 Watt</td>
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<td></td>
<td></td>
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<td></td>
<td>42</td>
<td>CFL3 - Compact Fluorescent&lt;sup&gt;5&lt;/sup&gt;</td>
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</tr>
<tr>
<td></td>
<td>57</td>
<td>Triple - 13, 18, 26 Watt</td>
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<tr>
<td>EURD (Deep)</td>
<td>35</td>
<td>MH - Metal Halide</td>
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<tr>
<td></td>
<td>50</td>
<td>50, 70, 100 Watt</td>
<td></td>
<td></td>
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<td></td>
<td>70</td>
<td>HPS - High Pressure Sodium</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>38&lt;sup&gt;4&lt;/sup&gt;, 50&lt;sup&gt;5&lt;/sup&gt;, 70, 100 Watt</td>
<td></td>
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</tr>
</tbody>
</table>

**Example of a Typical Order**

EURO-OB-26CFL2-W-UE-BLK

## Footnotes

1. HID or multiple CFL lamp configuration is recommended for open & cross bezel.
2. Eyed bezel must be mounted in the up position. A high wattage single lamp fixture is recommended for use in eyed bezel.
3. 70-watt to 57-watt triple tube 4-pin compact fluorescent amalgam lamps are standard due to their superior performance over a wide ambient temperature range.
4. Available in 120 volt only.
5. Available in MT only. TT is not available.
6. Not available with battery back-up option.
7. MT - Multi Tap is shipped standard unless otherwise specified. Multi Tap consists of 120V, 208V, 240V and 277V. Multi Tap is pre-wired for highest voltage. Alternate voltages will require field re-wiring.
8. Tri-Tap is shipped standard for Canadian applications. Tri-Tap consists of 120V, 277V, and 347V. Tri-Tap is pre-wired for highest voltage. Alternate voltages will require field re-wiring.
9. Available on 50 watt minimum HID fixtures. HID lamp wattages 50 and 70 are supplied with a 50 watt, 120V quartz lamp. 100 watt HID units are supplied with a 100 watt, 120V quartz lamp. Quick connect are not supplied on fixtures with this option.
10. Available in medium housing only with double lamps up to 42 watts and with 120 or 277 volt specific units for U.S. applications. Please change Line Voltage of UE to 120 or 277 when ordering this option. One lamp will be energized by the BB option.

## Accessory Ordering Information (Accessories are field installed)

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCE120 - External Photoelectric Control</td>
<td>122547+</td>
</tr>
<tr>
<td>PCE208 - External Photoelectric Control</td>
<td>122548+</td>
</tr>
<tr>
<td>PCE240 - External Photoelectric Control</td>
<td>122549+</td>
</tr>
<tr>
<td>PCE277 - External Photoelectric Control</td>
<td>122550+</td>
</tr>
</tbody>
</table>

* Available on Medium and Deep units only.
++ Available on HID fixture only.

## Options

- EQ - Emergency Quartz (separate circuit with 120V lamp)<sup>9</sup>
- SQT - Standby Quartz (Time Delay)<sup>8</sup>
- SQD - Standby Quartz (Non-Time Delay)<sup>9</sup>
- BB - Battery Back-up<sup>10</sup>
- LL - Less Lamp

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**LSI Industries, Inc.**

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[Image: LSI Industries, Inc. Logo]
EXITRONIX

EMERGENCY LIGHTING EQUIPMENT

20 GAUGE GALVANIZED STEEL DIRECT VIEW EXIT

ARCHITECTURAL SPECIFICATIONS

STANDARD FEATURES
- Housing constructed of 20 gauge galvanized steel
- Red or Green high intensity LEDs
- Constant uniform illumination
- Minimum of 129 LEDs spelling for word “EXIT”, 7 LEDs for each arrow
- 1/8" protective polycarbonate shield
- White or Black enclosure colors
- Optional enclosure colors available
- Chevron style universal arrow
- Reusable arrow covers
- 120/277V dual primary 60Hz input .069/.030 amps
- Short circuit protection
- Voltage surge protection
- 25 year warranty
- 5 year prorated warranty on battery

BATTERY BACK-UP
- Automatic diagnostic tester available
- Trickle charge circuitry for extended battery life
- Overcharge protection provided by zener diode
- Test button located on bottom for easy testing
- LED AC/DC indicators located on exit face protected by polycarbonate shield
- Flasher/buzzer options meet ADA regulations
- Low voltage disconnect eliminates deep discharge
- Brown-out protection
- ETL recognized maintenance-free lead acid battery
- ETL listed 90 minute emergency run time, 24 hour recharge time
- EL option available

Shown: 502/LB/WH

The 500 Series is the brightest most visible sign in the industry in both normal and smoke-filled environments. Constructed of durable 20 gauge steel. The 500 Series direct view exit provides bright illumination with individual LEDs spelling the word EXIT.

DIMENSIONS
HEIGHT: 8¾" • WIDTH: 12¾" • DEPTH: 3¾"

MOUNTING CANOPY DIMENSIONS

WARRANTY
Any component that fails due to manufacturer’s defect is guaranteed for 25 years with a separate 5 year pro-rated warranty on the battery. The warranty does not cover physical damage, abuse or acts of God.

CONFORMANCE TO CODES & STANDARDS

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

APPROVAL | JOB INFORMATION
ENERGY EFFICIENT
Starting at only 4 watts, the Exitronix 500 series will save up to 95% of energy costs over conventional bulb signs.

CONSTRUCTION
Enclosure, cover, face plate, and mounting canopy are 20 gauge galvanized steel with baked-on, powder coated paint. Face plate has 3/4" black letters with red or green LEDs. 1/8" polycarbonate shield protects LEDs from impact. *Optional face plates are available.

MAINTENANCE-FREE
NEVER CHANGE ANOTHER BULB!!! LEDs (Light Emitted Diodes) are rated for 1.7 million hours (194 years) without failure, cutting replacement costs 100% over conventional bulb signs.

INSTALLATION
Installs in minutes with easy-to-read instructions and detailed diagrams. No special hardware or tools necessary. Internally housed components and battery eliminate the use of a canopy when back mounting single faced exits. Mounting canopy included.

AUTOMATIC DIAGNOSTIC TESTER
This multifunctional option automatically analyzes the operating condition of the sign every seventh day and provides a visual warning if failure has occurred.

EMERGENCY LIGHTS
Emergency lights are single or double face compatible with field selective top or side mounting. Choice of 1 or 2 lights with each utilizing a 5 volt, 5.4 watt high intensity incandescent lamp. Flashing LED display in emergency mode is standard with emergency lights.

ORDERING INFORMATION:

<table>
<thead>
<tr>
<th>G</th>
<th>502</th>
<th>WB</th>
<th>WH</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED COLOR</td>
<td>502 = Single Face</td>
<td>With Battery</td>
<td>White</td>
</tr>
<tr>
<td>SERIES</td>
<td>Face</td>
<td>Battery</td>
<td>Black</td>
</tr>
<tr>
<td>POWER REQUIREMENT</td>
<td>10 hour run time</td>
<td>with Flasher</td>
<td>Custom Color (Please specify)</td>
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<tr>
<td>ENCLOSURE COLOR</td>
<td>5 hours continuous</td>
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<td></td>
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FIXTURE SCHEDULE

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<tr>
<th>Type</th>
<th>Catalog Number</th>
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<tbody>
<tr>
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</tr>
<tr>
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<td></td>
</tr>
</tbody>
</table>

Comments:

YOUR LOCAL REPRESENTATIVE IS:

EXITRONIX™
EMERGENCY LIGHTING EQUIPMENT
2019 West Lone Cactus Drive
Phoenix, Arizona 85027
(623) 580-3948 • (800) 533-3948
Fax: (623) 587-4899
Email: ledexit@exitronix.com
www.exitronix.com
4456 STEP LIGHT
HID FLUORESCENT &
INCANDESCENT RECESSED

DESCRIPTION:
Hydrel's 4456 recessed step and wall light is a rugged fixture designed for concrete, block, or brick applications. These heavy wall cast aluminum lights are completely weatherproof, sealed with louvered door, silicone gasket, tempered lens, and stainless steel fasteners. The 4456 operates incandescent, compact fluorescent, and high intensity discharge lamps. Emergency egress fluorescent fixture with battery back-up also available.

SPECIFICATIONS:

MATERIAL: Cast aluminum.

Fluorescent: 42 Watt Max., CFL Triple Tube.
HID: 50 Watt Max., E17 Lamp.

SOCKET: Incandescent: Medium screw base
Fluorescent: 4-Pin base
HID: Medium screw base, pulse rated

BALLAST: Fluorescent: Electronic ballast high frequency with -18°C (0°F) minimum starting temperature.
HID: Magnetic ballast high power factor with -30°C (-20°F) minimum starting temperature.

VOLTAGE: See ordering guide for options.

REFLECTOR: Flat stainless steel.
Fluorescent: white finish.

LENS: Diffused, tempered glass for non-louvered door. Clear, tempered glass for louvered door.

CONDUIT ENTRIES: 3/4" NPT side entries standard.

ACCESSORIES: LLV-Louver door, 45° cut-off.
ELN-Nickel Cadmium Battery Backup
ELNSD- Nickel Cadmium battery back-up with integral self diagnostics

FASTENERS: Stainless Steel.

FINISH: Natural Cast Aluminum, black permabraded body. See ordering guide for color options.

LISTING: U.L., C.S.A.

NOTE: HYDREL RESERVES THE RIGHT TO MODIFY SPECIFICATION WITHOUT NOTICE. Any dimension on this sheet is to be assumed as a reference dimension. "Used for information purposes only. It does not govern manufacturing or inspection requirements." (ANSI Y14.5-1973)

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11/14/06
4456

4456 LLV Louver Door
Accessory shown
# 4456 ORDERING INFORMATION

*60 Hz Application*

Choose the boldface catalog nomenclature that best suits your needs.

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>4456</th>
<th>42TRT</th>
<th>120</th>
<th>LLV</th>
<th>LPI</th>
<th>BL</th>
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</table>

**EXAMPLE:**

<table>
<thead>
<tr>
<th>4456</th>
<th>50M</th>
<th>120</th>
<th>LLV</th>
<th>EL N</th>
<th>LPI</th>
<th>Finish</th>
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<tbody>
<tr>
<td>Model</td>
<td>Voltage</td>
<td>Options</td>
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<tr>
<td>4456</td>
<td>120</td>
<td>Emergency²</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>277</td>
<td>ELN Nickel Cadmium</td>
<td>Battery Backup</td>
<td></td>
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<tr>
<td></td>
<td>347</td>
<td>ELN SD Nickel Cadmium Self Diagnostic</td>
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<tr>
<td></td>
<td></td>
<td>SF Single Fuse</td>
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</tbody>
</table>

**Lamp Type**

- INCANDESCENT¹
  - 75K A19 med. base
- FLUORESCENT
  - 18TRT GX24Q-2 4PIN
  - 26TRT GX24Q-3 4PIN
  - 32TRT GX24Q-3 4PIN
  - 42TRT GX24Q-4 4PIN
- MH
  - 50M E17 med. base
- HPS
  - 35S E17 med. base
  - 50S E17 med. base

**Accessories**

- LLV² Louver Door

**Lamp**

- LPI Lamp Included

**NOTES:**

¹ Available in 120 Volt only.
² LLV Louver Door available with clear lens only.
³ ELNSD available for fluorescent models only.
⁴ Finish is natural aluminum unless finish specified.
⁵ SF only available with MH and HPS lamps.

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11/14/06
4456

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Sylmar, CA 91342
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Fax 818-362-6548
www.hydrel.com

Hydrel is an ISO 9001 Certified Manufacturer