



Inpatient Building Fletcher Allen Health Care

Burlington, Vermont

City of Burlington
Final Site Plan Application

June 30, 2014



Department of Planning and Zoning

149 Church Street, City Hall
Burlington, VT 05401-8415
Phone: (802) 865-7188
Fax: (802) 865-7195

www.burlingtonvt.gov/pz

Zoning Permit Application

Use this form for ALL zoning permit applications. See the relevant checklist for specific requirements.

PROJECT LOCATION ADDRESS: 111 Colchester Avenue

PROPERTY OWNER*: FAHC, c/o Dave Keelty

OWNER*: UVM, c/o Linda Seavey

*If condominium unit, written approval from the Association is also required

POSTAL ADDRESS: UVM
109 South Prospect Street

CITY, ST, ZIP: Burlington, VT 05405

DAY PHONE: 802.656.0215

EMAIL: linda.seavey@uvm.edu

SIGNATURE: *Linda Seavey for the University of Vermont*

I am the owner. In addition, I duly authorize the applicant (if noted) to act on my behalf for all matters pertaining to this zoning permit application.

APPLICANT: Co-Applicant: FAHC c/o Dave Keelty
Co-Applicant: UVM c/o Linda Seavey

POSTAL ADDRESS: FAHC
199 Main Street, Suite 150

CITY, ST, ZIP: Burlington, VT 05401

DAY PHONE: 802.847.8443

EMAIL: Dave.Keelty@vtmednet.org

SIGNATURE: *Linda Seavey for the University of Vermont*

Description of Proposed Project: New approximately 208,000 sq. ft. Inpatient Building west of the Ambulatory Care Center building at the Medical Center Campus with associated parking, lighting and landscaping.

Existing Use of Property: Single Family Multi Family: # Units Other: Hospital/Medical Center

Proposed Use of Property: Single Family Multi Family: # Units Other: Hospital/Medical Center

Will 400 sq ft or more of land be disturbed, exposed and/or developed? Yes No
(If yes, you will need to provide the 'Erosion Prevention and Sediment Control Plan' questionnaire with a site plan)

For Single Family & Duplex, will total impervious area be 2500 sq ft or more? Yes No
(If yes, you will need to provide the 'Stormwater Management Plan' questionnaire with a site plan)

Are you proposing any work within or above the public right of way? Yes No
(If yes, you will need to receive prior approval from the Department of Public Works)

Estimated Construction Cost (value)*: \$ 104 million

(*Estimated cost a typical contractor would charge for all materials and labor, regardless of who physically completes the work)

- Within 30 days of submission, the permit application will be reviewed for completeness, and, if complete, will be processed administratively or referred to a board for review. All permit approvals or denials are subject to an appeal period (15 days for administrative permit; 30 days for board permit).
- A building (and/or electrical, mechanical, plumbing, curb cut) permit will also be required. Contact the Department of Public Works at 802-863-9094 to inquire.
- Please ask for assistance if you have any questions about filling out this form. Call the Planning and Zoning at 802-865-7188, or visit the office in the lower level of City Hall, 149 Church Street.

Office Use Only Zone Eligible for Design Review? Age of House Lot Size

Type: SN AW FC BA COA 1 COA 2 COA 3 CU MA VR HO SP DT MP

Check No. Amount Paid Zoning Permit #

Fletcher Allen Health Care
Inpatient Building Project
Final Site Plan Narrative
June 30, 2014

I. Overview

Fletcher Allen Health Care (Fletcher Allen) is proposing an approximately 208,000 square foot (sq. ft.) inpatient building project (the Project) to be located next to the Emergency Department on the west side of its Medical Center Campus. The Project will consist of approximately 128 inpatient replacement beds to be hosted in single rooms with connections to the McClure Building and the West Pavilion of the Ambulatory Care Center. The Project includes a small boundary line adjustment with the University of Vermont.

This Project has been anticipated and discussed with the City and Fletcher Allen's neighbors over the past six years. The factors that influenced the need for and the design of this Project are as follows:

- The replacement of outdated infrastructure to meet the needs of current medical practices. Fletcher Allen's oldest inpatient buildings are more than 50 years old. The beds that will be replaced in Shepardson are located in facilities that were built in 1961. New facilities are needed to provide care that is consistent with today's hospital design standards and match the high-quality care provided by Fletcher Allen's physicians and staff;
- The replacement of double rooms to private single rooms to meet the 2010 or most recent edition of the FGI Guidelines for Design and Construction of Health Care Facilities which are current hospital design standards within the industry and State Hospital licensing agencies including the Vermont Green Mountain Care Board. Currently, 60% of Fletcher Allen's inpatient rooms are double or multiple bed rooms that do not meet contemporary standards for patient care;
- By creating more single bed rooms, Fletcher Allen can provide sufficient space for medical equipment and more effectively practice infection prevention; and
- Offering more single rooms will help Fletcher Allen create a healing environment that is patient-centered, provides quiet and comfort to patients and their families, and offers more privacy and confidentiality.

Introduction to the Project

The Project as currently planned consists of an approximately 208,000 sq. ft. seven-story building (two lower circulation and mechanical floors, four inpatient bed floors and a mechanical penthouse) with related site work, utility/MEP upgrades and extensions, renovations and interfacing within the existing ACC and McClure Buildings. The Project would be constructed above the existing Emergency Department parking lot and would connect with the existing ACC and McClure buildings in several locations.

The Project's exterior elements will consist of a combination of thin clad masonry, glass curtain wall and "punched window" openings employing some aspects of the architectural vocabulary of the adjoining ACC building. The Project will apply for LEED certification.

Site improvements will consist of a realignment of the Emergency Department access road – Hospital Drive, with circulation and drop off areas beneath and next to the new building. Vehicular access will be maintained from Colchester Avenue. New pedestrian walkways provide connections to the existing network of sidewalks and multi-use path. Exterior lighting and landscaping will be included consistent with current standards used on the FAHC Medical Center Campus and the University's exterior lighting standards. Landscape plantings along the access driveway, pedestrian walkways and parking area will provide shading and soften the hardscape. Rain gardens within the parking area and along Hospital Drive will help address stormwater treatment.

FAHC and the University of Vermont currently have 136 parking spaces in the project area. The project parking for both will be reconfigured with no net change in the number of spaces. There are no plans to add medical or clinical full time equivalent (FTE) staff. There may be some additional support staff, but it is unclear at this phase of design. Regardless, no additional parking spaces are proposed and parking will continue to be managed within the 2,094 cap for Fletcher Allen on-campus parking spaces.

The Project includes minor modifications to the Emergency Department entrance on Level 1, an extension of the utility tunnel on Level L from the existing ACC building to the Project, installation of a new 1,400 ton centrifugal chiller, related cooling tower infill in the Central Plant, a new boiler, and related MEP extensions from the ACC utility tunnel to the Project. The Project also includes footings and utility pathways to enable future additional vertical expansion.

The Project is replacing existing beds in Shepardson 3North and Shepardson 4North. This replacement, as outlined in the Fletcher Allen Master Facility Plan, is the first of several planned bed replacement facilities at the Medical Center Campus which may occur over the coming

decades. The vacated space in Shepardson 3North and Shepardson 4North will be used for decompressing overcrowding within the existing campus. There will be no new office or clinical programs.

The total proposed square footage (208,000 sq. ft.) includes unoccupied and low-occupancy areas such as mechanical spaces (including the mechanical penthouse), vertical circulation spaces, and the skybridge connector to McClure.

The proposed square footage also includes several possible add-alternates which are being studied. For the purposes of this application we are assuming all of these add-alternates will be constructed and are requesting approval of them. In the event any of these add-alternates are deleted the final project square footage may be less. In such event we will seek any required project amendments.

A boundary line adjustment will be needed with UVM in order to accommodate the building and associated parking improvements. The proposed boundary line is shown on the plans and a separate application will be submitted for this.

Schedule for Design and Construction

Fletcher Allen has an approved Certificate of Need (CON) from the Green Mountain Care Board that allows for planning only, no construction has been approved. Fletcher Allen has retained a design team and a construction manager to assist with pre-construction planning, and will continue to coordinate with UVM on their housing master plan and on landscaping between their planned STEM project and the Project. Fletcher Allen anticipates submitting a construction CON for the Project by the end of September 2014. If approved, construction is planned for the spring of 2015 subject to the issuance of City and State permits. The estimated timetable for completion of the Project is to commence construction in the Spring of 2015 with anticipated completion in Fall of 2018. The total estimated construction cost is \$104,585,229. The total project cost, including construction, equipment and furnishings, will be higher.

II. Initial Planning, Sketch Plan Review

Fletcher Allen has been involved in master planning for its Medical Center Campus and for inpatient bed replacement options since 2006 with extensive discussions with the Burlington Planning Commission and with the Combined City Council / Planning Commission Institutional Development Committee. The Project is consistent with Fletcher Allen's Master Facility Plan as discussed with the City during this process.

Fletcher Allen met with the City Planning and Zoning Staff in the fall of 2013 to receive early input regarding the conceptual design of the Project. In November of 2013, Fletcher Allen met with the City Technical Review Committee to present and discuss the project. Several issues that staff felt need to be addressed as the design of the Project progresses included stormwater mitigation, possible impacts to Converse Hall, and fire truck access. A sketch plan application was submitted to the City in March 2014. The Design Advisory Board (DAB) and Development Review Board (DRB) held hearings in March and April 2014. In March 2014, Fletcher Allen met with the Ward 1 Neighborhood Planning Assembly (NPA) and a letter has been submitted by the Steering Committee of the NPA and is included in this application. Comments received from the DAB, DRB, City Planning and Zoning Staff and the Ward 1 NPA are focused on the relationship of the Project design and Converse Hall, the demolition of the UVM dorms and how this will be addressed, and views of the Project from Colchester Avenue. Each of these comments has been considered in the final site plan design.

III. City Development Review Criteria

We have provided information on the Project that addresses the City's Development Review Criteria in conformance with The Comprehensive Development Ordinance.

Exemption Request

The City's Comprehensive Development Ordinance has a provision for an exemption from Conditional Use and Major Impact Review - *Article 3, Part 5: Conditional Use and Major Impact Review, Section 3.5.3 Exemptions*. We believe the Inpatient Building project qualifies for an exemption from Major Impact Review under the exemption listed in Section 3.5.3 (d) of the Comprehensive Development Ordinance. Please consider this a request for an official ruling with regard to whether the project so qualifies.

Section 3.5.3 (d) says "...*Major Impact Review shall not apply to applications involving one or more of the following... (d) Projects that do not result in a change of use or increased parking demand as determined by the administrative officer....*"

The Inpatient Building project qualifies for this exemption because a) it does not involve a change of use and, b) will not increase overall parking demand on campus. The first of these is clear: the use on the Fletcher Allen medical center campus is and will remain a hospital. The beds that are planned for the Inpatient Building exist on the campus today as part of the hospital use and will simply be relocated on campus as a result of this project.

During planning and permitting for the Renaissance Project, Fletcher Allen agreed to a cap of 2,094 parking spaces on the Medical Center Hospital (MCHV) campus. All on-campus parking demand must be met within this number. The calculations that arrived at this number assumed various factors, including pre-existing uses, new or expanded uses in the ambulatory care center, growth in services over time, occasional peak demands, off campus parking, a dynamic transportation demand management (TDM) program, and a built-in on-campus vacancy factor of approximately 10%. This built-in vacancy factor allows for occasional surges of demand and for easier flow at all times. Less vacancy than this results in delays in finding spaces (a problem when people are trying to make appointments on time) and increased frustration for all concerned.

As part of this 2,094 space cap, Fletcher Allen actively manages its parking through its TDM programs to ensure that increases in parking needs over time are offset by TDM efforts that reduce demand among other users. This is what Fletcher Allen committed to during permitting for the Renaissance Project and remains committed to today.

As previously stated, the Inpatient Build project will not increase the number of parkers over the course of a typical day because it will not result in an increase in beds on the campus. The parking for the Inpatient Building will be accommodated within the 2,094 parking space cap as part of Fletcher Allen's ongoing management of its parking facilities and TDM programs. No increase in parking spaces is proposed as part of this project.

Accordingly, this project does not involve a change of use and will not cause increased parking demand. Therefore, we believe this project qualifies for the exemption to Major Impact Review set forth in Section 3.5.3 (d) and we are requesting this exemption.

Building Design

The overall approach to the design of the Inpatient Building is that the addition is conceived as a continuation of the architectural language established by the existing ACC. The existing Fletcher Allen campus, having been built over many decades, is comprised of a variety of disparate architectural styles and materials. The Inpatient Building is designed to help unify and extend the most recent major architectural development on the campus rather than adding yet another language to the mix. The use of the similar materials, proportions and façade gestures will allow the Inpatient Building to be viewed in this manner.

The massing and scale of the Inpatient Building seeks to blend with the existing ACC. The south façade will read as an extension of the ACC entrance arc that provides the main entry face for

Fletcher Allen. The main mass of the building forms a gentle curve that works with this arc and foreshortens the views from many angles of the western façade thus reducing its perceived size.

At the base of the Inpatient Building highly articulated columns faced in thin clad masonry, similar to those at the existing ACC, will front the vehicular access drive and provide a consistent campus architectural statement for vehicular drop off areas as cars approach the building and drive underneath for Emergency Department access. The west façade will feature a series of vertical glazed elements set in a thin clad masonry façade. The glazing will reflect the functional layout of the plan where paired patient room windows provide views towards the lake. Projecting brows at the top of each glazed area will recall similar features on the existing ACC building.

The Inpatient Building will have a flat roof with a fully adhered roof membrane utilizing tapered insulation sloped to interior roof drains. The uppermost level of the building will be an enclosed mechanical penthouse clad in articulated metal panel with louvers for air movement integrated into the façade design. There will be no exposed mechanical equipment viewable from the ground or adjacent buildings.

There will be two main entry points at the ground level of the building. One will be the public entrance to the emergency department which will be entered directly from a vehicular drop off area sheltered by the new building above. Glass areas will allow for visibility into the public waiting area of the Emergency Department during the day and provide a lighted beacon for way finding in the evening. Prominent and appropriate signage will also be present. The other main entry point will be the ambulance entrance, which will remain in its current location with existing canopy and signage.

The building fenestration will be a reflection of the hierarchy of the programmatic uses inside. The largest glazed areas will be at the locations of the patient rooms and the family visitor lounge to allow as much daylight and exposure to views for these areas as practical to promote an evidence-based design healing environment. These will be consistent from floor to floor and provide for a vertical emphasis to the façade fenestration. Opportunities for natural light in other areas such as ends of corridors and elevator lobbies will be provided to aid in orientation to the outside and way finding utilizing less prominent glazed areas.

The Project will incorporate various features which will allow it to be an example of energy efficiency for the Fletcher Allen campus. The building's exterior will feature triple glazed windows for greater thermal efficiency. The mechanical system will incorporate chilled beam

technology allowing for a more efficient distribution of cooling loads through the building. Energy efficient LED lighting will also be utilized throughout the facility.

The Inpatient Building will have an enclosed mechanical penthouse with a roof elevation of 101' above grade or 459' – 4" above mean sea level. This complies with the Institutional Core Campus Overlay District height restriction of no greater than 540' above mean sea level as well as the ICC-UVM central campus height overlay district height restriction of no greater than 140' above grade.

The Inpatient Building will be only briefly visible from Colchester Avenue and from University Place. The most prominent view of the Inpatient Building will be from the UVM Central Quad. Each of these views of the Inpatient Building will be softened with landscape plantings.

Relationship to Converse Hall

The immediate vicinity of the project area includes several buildings that are 50 or more years old including Converse Hall and the: Chittenden-Buckham-Wills Residential Complex (CBW). Converse Hall is considered to be a significant historic resource. The design process for the Inpatient Building project carefully considered the potential impacts on these buildings. The initial design attempted to balance impacts on all of the buildings and could have been constructed with all four remaining. Feedback from City staff, Fletcher Allen's historic preservation consultant and others suggested that it was more important to further reduce impacts on the historic building of greater value: Converse Hall. Furthermore the University's 2006 Campus Master Plan and 2013 Housing Master Plan calls for future demolition of CBW Residential Complex since the structures are not feasible to renovate to modern standards primarily due to the pre-cast concrete construction. Doing so resulted in moving the Inpatient Building further away from Converse Hall at the expense of greater impacts on the buildings of lesser historic value: Chittenden-Buckham-Wills Residential Complex.

Numerous elements in the proposed design reflect the efforts to preserve the visual prominence of Converse Hall as an important historic resource. The original proposed location of the Inpatient Building has been moved northerly away from Converse Hall in order to provide more space between the two structures and protect views to the west and east. The historic walkway from Converse Hall's main entrance westerly to the UVM campus will be retained and enhanced, preserving the historic link between the residence hall and the UVM Central Quad.

The materials and design elements selected for the Inpatient Building respond to the existing features of the Ambulatory Care Center (ACC) and Converse Hall in the proposed use of similarly hued thin clad masonry, and the design esthetic that employs curved forms to

strengthen the relationship between Converse Hall, the ACC and the Inpatient Building. In addition, the vertical windows that will be regularly spaced across the south elevation of the Inpatient Building reflect similar fenestration patterns of both Converse Hall and the south elevation of the ACC.

Lot Coverage Calculations

Fletcher Allen is allowed up to 65% total lot coverage under Section 4.5.2(C)(2) of the Comprehensive Development Ordinance. This section of the ordinance provides an incentive for Fletcher Allen to maintain substantial green space in a “transitional buffer” along Colchester Ave. and East Ave. For every 1% that lot coverage in the transitional buffer is below 40%, Fletcher Allen gains 1% in allowable overall lot coverage up to a maximum 65%.

The boundary line adjustment will increase the entire Fletcher Allen campus from 32.34 acres to 33.37 acres. The campus “transitional buffer” lot coverage does not change: the total buffer is 8.74 acres with 2.24 acres of impermeable area for a total of 26%, which is below the 40% maximum. The proposed overall lot coverage, including the Inpatient Building and associated parking, on the Fletcher Allen campus will increase slightly from 19.02 acres to 19.71 acres, and will increase slightly from 58% to 59%. This is under the total maximum lot coverage of 65%.

UVM’s lot coverage before the land transfer is 48.09%. The UVM lot coverage changes after the land transfer (exclusive of UVM projects: removal of the CBW residence halls and installation of the Green Mountain Walkway) to 48.04%. They will still be under the total maximum lot coverage of 65%.

Circulation and Parking

Traffic access to the site will remain from Colchester Avenue with an adjusted Hospital Drive. The Inpatient Building does not have direct pedestrian access to the site: it is internally connected to the ACC West Pavilion and to McClure with a skybridge. Vehicular access is associated with the Emergency Department for Fletcher Allen and UVM’s parking as described below.

The proposed site plan incorporates a turnaround directly the north of the Inpatient Building for fire truck access and movement. We have worked with the Fire Marshall to insure that the proposed design meets the needs of public safety. The existing ambulance entry to the Emergency Department will remain in its present location with reconfigured access and ambulance drop off.

There are no changes to the total count of 136 parking spaces available in the project area, spanning both UVM and Fletcher Allen property, 6 of which are handicapped accessible spaces. The parking area has adjusted to accommodate the Inpatient Building, and there are 47 spaces allocated to Fletcher Allen for the Emergency Department and 89 spaces for UVM as exists today. The proposed Inpatient Building will not add additional bed capacity nor will there be any increase in on campus parking.

Existing City permits limit Fletcher Allen's on-campus parking to a maximum of 2,094 spaces. Existing permits also allow Fletcher Allen to vary the number of physical parking spaces on site at any given time based on its ongoing dynamic management of parking, which includes limiting on-campus parking permits for staff and other Transportation Demand Management (TDM) programs, so long as the quantity does not exceed the 2,094 parking space cap. Parking will continue to be managed within the 2094 cap for on-campus parking spaces. As always, from time to time there may be fewer physical spaces on campus, depending on Fletcher Allen's ongoing management of parking.

Pedestrian and bicycle access routes to and from the site are updated with the multi-use path shifted to the west side of Hospital Drive to avoid conflicts with the Emergency Department. Sidewalks connect the parking area with the Emergency Department and to the existing sidewalks around Converse Hall, ACC and the UVM campus. Bike racks are provided near the Emergency Department entrance. The Inpatient Building, site parking, and pedestrian sidewalks and multi-use path are handicapped accessible meeting the Americans with Disabilities Act (ADA) requirements.

Landscape

Thoughtful landscape design has been incorporated into the project. As one approaches the Inpatient Building from Colchester Avenue, shade trees line Hospital Drive. Within the parking lot adjacent to Converse Hall is a central, colorful raingarden that collects surface water for treatment. A second raingarden is placed in the interior of the fire truck turnaround north of the Inpatient Building. A paved walk radiates out from the covered plaza by the Emergency Department through a shaded tree grove to the Fletcher Allen parking, across the Converse Hall axial walk, through the UVM parking area adjacent to the raingarden, and south to the UVM campus and beyond. Columnar, shade and specimen trees provide shade throughout the parking areas and along pathways, and tree and shrub plantings along the western edge of the parking area screen paved areas visible from the UVM campus. Tree and raingarden plantings are prominently visible from the Inpatient Building patient rooms and intended to provide a gentle transition to the UVM campus.

Stormwater and Erosion Control

The project causes only a small increase in impervious area from 19.02 acres to 19.71 acres. Stormwater control will be accomplished using two approaches. One approach will be connecting to the existing collection system that conveys runoff to the North Campus Treatment and Detention Facility. The North campus Facility provides treatment to both UVM and Fletcher Allen. The Facility is designed, permitted and constructed in accordance with the State of Vermont's unified sizing criteria. Additionally, some on-site treatment will be included to the extent practicable. These on-site measures will likely include rain garden or bio-retention type systems located at some of the grass median areas as well as the vegetated down gradient edge of some of the parking areas.

For erosion prevention and sediment control, the project will follow best practices to prevent and or minimize erosion during construction. Currently Fletcher Allen has hired a construction manager that is working on a detailed logistics/phasing plan. Due to the size of the project as well as constructing the building over an active Emergency Department, there are a series complex steps the contractor will have to undertake in order to construct the project while maintaining access to the Emergency Department. Once the logistics plan is completed and signed off on, a detailed Erosion Prevention and Sediment Control Plan set will be developed and submitted to the State Agency of Natural Resources as part of their construction general permit program (CGP). This plan will take into account the phases/steps that will be required for construction and reflect the measures that will be applied as part of each phase of the project. The City's Stormwater Program Manager will be consulted with as part of this plan development as well as receiving copies of the final plan.

Outdoor Lighting

Energy efficient LED lighting will be utilized throughout the site and is proposed to coordinate with Fletcher Allen's and UVM's existing lighting. Pole-mounted LED light fixtures, identical to those currently used on the FAHC campus, are placed along Hospital Drive, throughout the parking areas, and along walkways to provide safe, efficient lighting conditions.

All areas under the Inpatient Building for vehicular drop off and public access to the Emergency Room will be adequately lit during the evening hours. The relocated parking lot for the Emergency Department will also get appropriate lighting utilizing fixtures consistent with types already in use on the Fletcher Allen campus.

Infrastructure

The Inpatient Building project will disrupt a number of existing utilities including, water, sewer, storm drains, power (both Fletcher Allen and BED) and Fletcher Allen Communication duct

banks. Measures are being taken to reroute impacted utilities as well as servicing the Project with water, sewer and power.

MEMO

TO: Dave Keelty
FROM: Dave Saladino, PE & Mark Smith, PE
DATE: June 28, 2014
SUBJECT: FAHC Inpatient Building – Traffic Assessment

On behalf of Fletcher Allen Health Care (FAHC), RSG has conducted the following assessment of expected traffic impacts related to the proposed Inpatient Building project in Burlington, Vermont.

1.0 SUMMARY OF KEY FINDINGS

We offer the following summary of key findings based on the analysis presented in this memorandum:

- Existing traffic conditions at key entry points to the main FAHC campus are within acceptable norms during peak conditions.
- Traffic generated by the Medical Center is dictated almost entirely by the number of employees and beds within the facility and can be reduced by extensive Transportation Demand Management Programs a key element of which is limited on-campus parking.
- No net change in the total number of beds or maximum parking spaces are expected at the Medical Center as a result of the new Inpatient Building.
- No net increase in vehicle traffic or parking demand is expected due to the proposed Inpatient Building project.

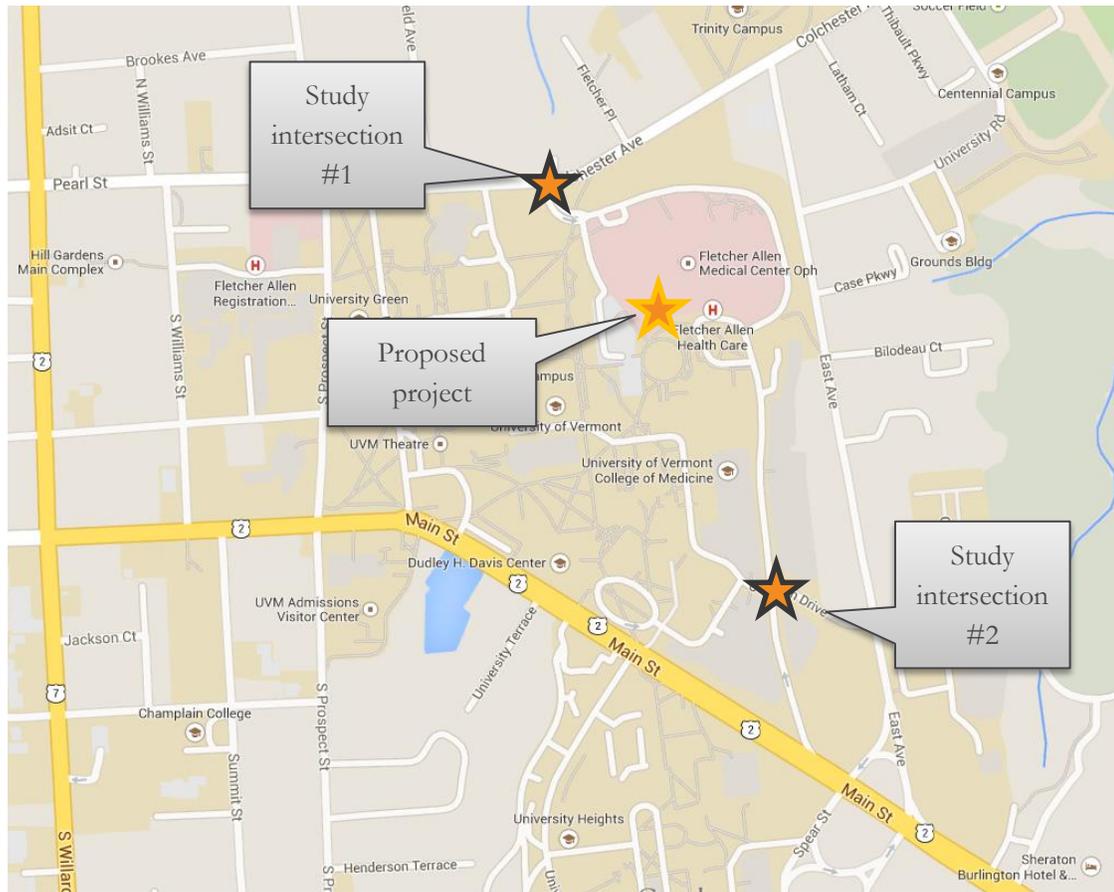
2.0 PROJECT BACKGROUND

Fletcher Allen Health Care (FAHC) is proposing an approximately +/- 208,000 square foot (sq. ft.) inpatient building project to be located next to the Emergency Department on the west side of its Medical Center Campus. (See Figure 1). The inpatient building will consist of approximately 128 inpatient replacement beds to be hosted in single rooms with connections to the McClure Building and the West Pavilion of the Ambulatory Care Center.

The Project consists of a seven-story building (two lower circulation and mechanical floors, four inpatient bed floors and a mechanical penthouse) with related site work, utility/MEP¹ upgrades and extensions, renovations and interfacing within the existing Ambulatory Care Center (“ACC”) building and McClure Building. The proposed building would be constructed above the existing Emergency Department parking area and would connect with the existing ACC and McClure buildings in several locations.

The building addition will replace existing double bed rooms, with no net gain in beds across the Medical Center complex. Since no increase in the total number of beds is planned, no change in employee, patient or visitor parking accommodations is proposed.

FIGURE 1: PROJECT LOCATION



¹ Mechanical, electrical and plumbing

Per the recently approved 2014-2019 Joint Institutions Parking Management Plan (JIPMP), FAHC is not anticipating any projects that will affect parking demand over the next five years, and their current parking supply of 2,874 spaces for the Medical Center is 89 spaces more than their projected demand.

FAHC, as a member of Campus Area Transportation Management Association (CATMA), will continue to manage its traffic and parking consistent with its management practices. FAHC's basic management strategy is to ensure an adequate number of parking spaces to enable patients and families to park in accessible and convenient parking facilities. Through use of Transportation Demand Management (TDM) practices in cooperation with CATMA, FAHC provides incentives to encourage mass transportation, pedestrian, biking and carpooling alternatives to reduce Single Occupant Vehicle (SOV) employee traffic to the site. FAHC maintains 1,108 number of employee satellite parking spaces. This, combined with stringent employee parking management protocols and a robust shuttle system to encourage off-site parking, allows FAHC to provide convenient patient parking while maintaining overall onsite parking within the bounds of its permitted onsite parking space inventory.

In addition, total parking on campus is capped at 2,094 spaces by virtue of the hospital's Act 250 land use permit, #4C0506. The parking spaces required to serve this expansion will be accommodated within the existing parking inventory.

3.0 TRAFFIC ANALYSIS

This study relies upon design standards and analysis procedures documented in the 2010 Highway Capacity Manual,² Trip Generation,³ A Policy on Geometric Design of Highways and Streets,⁴ Manual on Uniform Traffic Control Devices (MUTCD),⁵ Traffic Impact Evaluation: Study and Review Guide,⁶ and the Vermont State Design Standards,⁷ which are the generally accepted traffic analysis references relied upon by traffic engineering professionals and VTrans for projects of this type in Vermont.

VTrans guidelines specify that a traffic study should be considered if the proposed development will generate 75 or more peak hour trips. The geographic scope of the study should also include the

² Transportation Research Board, National Research Council, *Highway Capacity Manual* (Washington, DC: National Academy of Sciences, 2010).

³ Institute of Transportation Engineers, *Trip Generation* 9th Edition (Washington, D.C.: Institute of Transportation Engineers, 2012).

⁴ American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets*, 6th Edition (Washington DC: AASHTO, 2011).

⁵ American Traffic Safety Services Association (ATSSA), ITE, and AASHTO, *Manual on Uniform Traffic Control Devices*, 2009 Edition (Washington DC: FHWA, 2009).

⁶ Vermont Agency of Transportation, Development Review Section, *Traffic Impact Evaluation Study and Review Guide* (October 2008).

⁷ State of Vermont Agency of Transportation, *Vermont State Standards* (Montpelier: VTrans, 1 July 1997).

immediate access points and those intersections or highway segments receiving 75 or more project-generated peak hour trips.⁸

Since no additional vehicle trips are expected due to the proposed project, trends in surrounding traffic, and the performance at FAHC entry points were reviewed in this assessment. The following analysis examining traffic performance during the peak hours at the following two key intersections (see Figure 1):

1. The northern health care facility entrance (Mary Fletcher Drive) on Colchester Avenue, and
2. The intersection of Beaumont Street and Carrigan Drive.

Monitoring these two locations captures the main access points to the hospital campus, including the two parking garages, as well as the vast majority of surface parking lots. Note that these intersections also serve parking lots for the University of Vermont staff and faculty.

3.1 | TRAFFIC VOLUMES AND ADJUSTMENTS

Resource Systems Group performed turning movement counts at each study intersection in June of 2014.

Following VTrans traffic study guidelines, raw peak hour traffic volumes were adjusted to represent the design hour volume (DHV)⁹ in the expected project build year of 2018, using two adjustment factors:

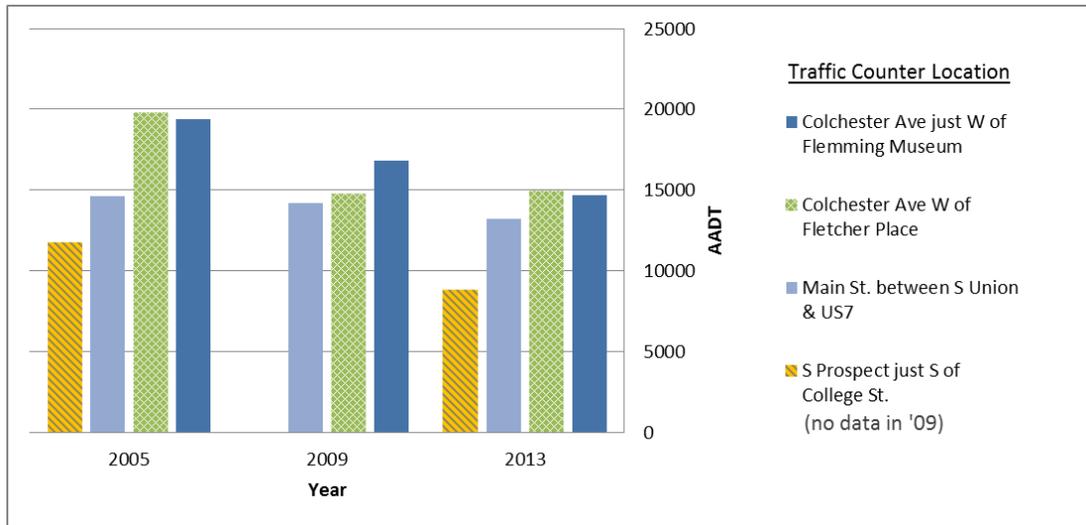
1. Design hour adjustment factors are based on VTrans count station S6C022 (located on Colchester Avenue just east of the hospital entrance), which had an Average Annual Daily Traffic (AADT) volume of 15,000 vehicles per day in 2013. Design hour adjustment factors are based on the VTrans “k” factor¹⁰ and DHV equation for Urban Roads presented in the 2013 VTrans Red Book.
2. An annual adjustment factor, which represents general background traffic growth (i.e. non-hospital related traffic). The recent trend in traffic volumes (AADT) at various nearby traffic counter locations is illustrated in Figure 2. As projected in the latest VTrans Continuous Traffic Counter Grouping Study and Regression Analysis Report, background traffic growth is expected to be flat to negative over the short term (0-5 years), as well as long term (5-20 years). No adjustment was made in this case.

⁸ Vermont Agency of Transportation, Development Review Section, *Traffic Impact Evaluation Study and Review Guide* (January 2003).

⁹ The DHV is the 30th highest hour of traffic for the year and is used as the design standard in Vermont.

¹⁰ $DHV = AADT * k$

FIGURE 2. TREND IN BACKGROUND TRAFFIC¹¹



3.2 | SCENARIO VOLUME GRAPHICS

Figures 3 and 4 present the project build year traffic turning movement volumes (AM and PM peaks) at the two study area intersections.

FIGURE 3: 2018 AM PEAK HOUR

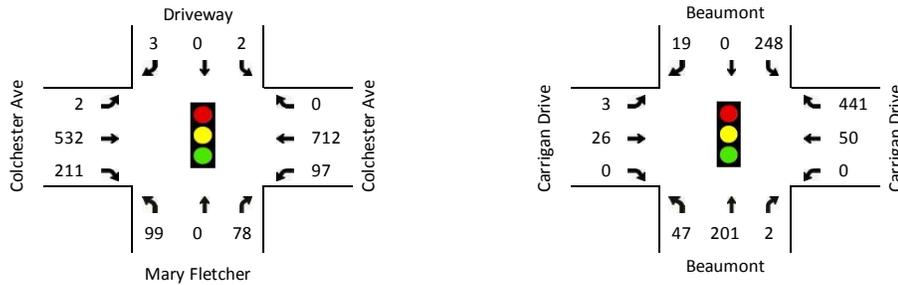
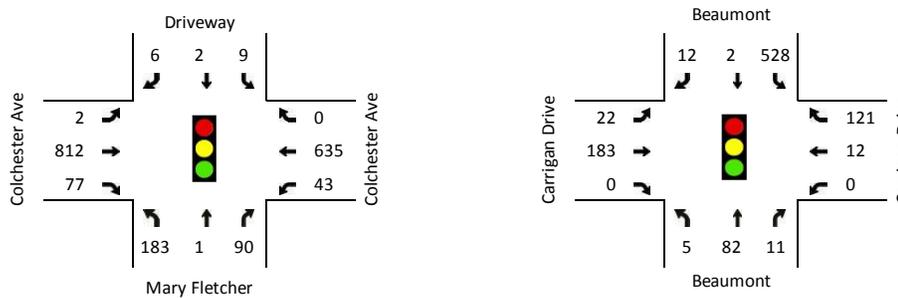


FIGURE 4: 2018 PM PEAK HOUR



¹¹ Source: VTrans Automatic Traffic Recording (ATR) Station History 2004-2013

3.3 | INTERSECTION PERFORMANCE

Level-of-service (LOS) is a qualitative measure describing the operating conditions as perceived by motorists driving in a traffic stream. LOS is estimated using the procedures outlined in the 2000 Highway Capacity Manual. In addition to traffic volumes, key inputs include the number of lanes at each intersection and the intersection control types at each study intersection. Existing traffic phasing and timings were used in this analysis.

The 2000 Highway Capacity Manual defines six qualitative grades to describe the level of service at an intersection. Level-of-Service is based on the average control delay per vehicle. Figure 5 shows the various LOS grades and descriptions for signalized intersections.

FIGURE 4: LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

LOS	Characteristics	Total Delay (sec)
A	Little or no delay	≤ 10.0
B	Short delays	10.1-20.0
C	Average delays	20.1-35.0
D	Long delays	35.1-55.0
E	Very long delays	55.1-80.0
F	Extreme delays	> 80.0

The VTrans policy on level of service is:

- Overall LOS C should be maintained for state-maintained highways and other streets accessing the state’s facilities.
- Reduced LOS may be acceptable on a case-by-case basis when considering, at minimum, current and future traffic volumes, delays, volume to capacity ratios, crash rates, and negative impacts as a result of improvement necessary to achieve LOS C.
- LOS D should be maintained for side roads with volumes exceeding 100 vehicles/hour for a single lane approach (150 vehicles/hour for a two-lane approach) at two-way stop-controlled intersections.

The Highway Capacity Manual congestion reports within Synchro (v8), a traffic analysis software package from Trafficware, were used to assess congestion at the study intersections. Figure 6 present the performance results for the adjusted volumes during the weekday AM and PM Peak hour scenarios, respectively.

In addition to delay and LOS, the volume to capacity ratio (V/C) for each intersection and approach is shown. Volume to capacity represents the ratio of actual vehicles to the capacity to process vehicles given the amount of green time for that approach in the study hour. A V/C greater than one indicates the approach or intersection is over capacity.

Based on this analysis, both study intersections are expected to operate at LOS C or better during AM and PM design hours, with V/C ratios well below 1.0.

FIGURE 6. STUDY INTERSECTION PERFORMANCE (2018)

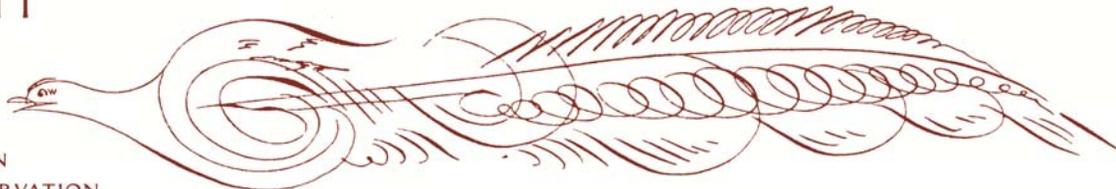
Intersection approach	AM Peak Hour			PM Peak Hour		
	LOS	Delay (sec)	Volume / Capacity	LOS	Delay (sec)	Volume / Capacity
Beaumont Dr / Carrigan Drive:						
overall	B	15	0.35	B	13	0.66
EB, Carrigan	B	16	0.1	B	17	0.57
WB, Carrigan	B	16	0.18	B	14	0.11
NB, Beaumont	B	13	0.39	B	19	0.45
SB, Beaumont	B	15	0.36	B	11	0.49
Colchester Ave / Mary Fletcher (FAHC entrance):						
overall	B	14	0.73	C	21	0.82
EB, Colchester	B	17	0.78	C	24	0.86
WB, Colchester	A	8	0.57	A	9	0.52
NB, FAHC	C	29	0.54	D	39	0.73
SB, Driveway	C	26	0	C	30	0.01

4.0 CONCLUSIONS

- Traffic conditions at the key entry points to the main FAHC campus are within acceptable norms during peak conditions.
- Traffic generated by the Medical Center is dictated almost entirely by the number of employees and beds within the facility.
- No net change in the total number of beds or employees are expected at the Medical Center as a result of the new Inpatient Building.
- No net increase in vehicle traffic or parking demand is expected due to the proposed Inpatient Building project.
- FAHC uses Transportation Demand Management (TDM) programs to manage its on-site parking demand so that it can be efficiently satisfied by the on-site parking inventory at any point in time.

Based on the analysis presented above we project construction of the FAHC Inpatient Building, as proposed, will not cause unreasonable congestion or unsafe conditions on the local roadway network and will not adversely impact the public investment in roadway infrastructure in the adjacent area.

END OF MEMO



HISTORIC BUILDINGS EVALUATION SUMMARY

For City Review

Inpatient Building **Fletcher Allen Health Care** **Burlington, Vermont**

June 30, 2014

As part of the City of Burlington development review process, a project that involves sites listed or eligible for listing on the state or national register of historic places shall meet design standards following the Secretary of the Interior's Standards for the Treatment of Historic Properties. A historic site is defined as "any site, structure, district or archeological landmark which has been officially included in the National Register of Historic Places and /or the State Register of Historic Places or which is established by the Vermont Advisory Council on Historic Preservation as being historically significant." [10 VSA Section 6001 (9)]. This summary describes the work undertaken by Liz Pritchett according to standards set forth for review of historic sites, structures and districts in the vicinity of the proposed Inpatient Building Project, and her assessment of any potential impacts to identified historic sites.

To conduct this review, standards were followed that are used by the Vermont Division for Historic Preservation (DHP) and have been applied in Act 250 cases. These standards are essentially borrowed from those set forth in regulations established by the Advisory Council on Historic Preservation to implement Section 106 of the National Historic Preservation Act (36 CFR 800). Project review identifies potential impacts to historic buildings, structures, historic districts, historic landscapes and settings, and to known or potential archeological resources.

Fieldwork involved site visits to the project area to identify districts or sites with significant historic buildings over fifty years of age, which were determined to either be within the Project's footprint or potentially have clear views of the Project. The Area of Potential Effect (APE) comprises the portion of the Fletcher Allen Health Care campus that is bounded by East Avenue on the east, Colchester Avenue on the north, the northeasterly portion of the University of Vermont Main Campus defined by the area south from the Fleming Museum on Colchester Avenue to the long, rectangular lawn known as the Central Quad, the three residence halls east of the lawn, known as Chittenden-Buckham -Wills Residential Complex (CBW), and the UVM academic buildings east of the CBW, Rowell Building, Given Building and Converse Hall. The construction site of the Inpatient Building is approximately in the center of the APE.

HISTORIC BUILDINGS EVALUATION SUMMARY

For City Review: *Inpatient Building*

Fletcher Allen Health Care, Burlington, Vermont

June 30, 2014

Page 2

Literature review involved research of Burlington files at the DHP offices in Montpelier, Vermont. The purpose of the DHP file search was to inventory significant historic sites in the APE that are currently listed on the National Register of Historic Places (NR) and the Vermont Historic Sites and Structures Survey (also called the State Register/ SR), or have been determined NR or SR eligible by the Vermont Advisory Council on Historic Preservation. Project files previously reviewed by the DHP for Act 250 or Section 106 within in the APE were also investigated.

After conducting fieldwork, literature review, and review of other relevant materials, the Project's potential effects to historic resources were assessed. The three-part test for evaluating impacts on historic sites known as the *Middlebury* analysis was applied to determine the potential effect of the Project.

Of the four historic buildings directly abutting the Inpatient Building, Converse Hall is considered to be a very significant historic resource. The design process for the Inpatient Building project carefully considered the potential impacts on these buildings. The initial design attempted to balance impacts on all of the buildings and could have been constructed with all four residence halls remaining. Feedback from City staff, Fletcher Allen's historic preservation consultant and others suggested that it was more important to further reduce impacts on the historic building of greater value: Converse Hall. Furthermore, UVM's 2006 Campus Master Plan and 2013 Housing Master Plan calls for future demolition of Chittenden-Buckham-Wills Residential Complex since the structures is not feasible to renovate to modern standards primarily due to the pre-cast concrete construction. Doing so resulted in moving the Inpatient Building further away from Converse Hall at the expense of greater impacts on the buildings of lesser historic value: Chittenden-Buckham-Wills Residential Complex.

Located on the UVM campus and directly adjacent to the project area, Converse Hall is a significant High Victorian Gothic style building that is listed in the State Register and eligible for listing in the National Register. In order to handle the potential for an undue adverse effect to Converse Hall, Fletcher Allen and Morris Switzer Architects has designed the project to mitigate potential effects. The site realignment moved the footprint of the Inpatient Building further away from Converse Hall, preserving more of the traditional view corridor between the two buildings. In addition, the design for the Inpatient Building features massing, materials and details that are compatible with Converse Hall, such as limestone veneer and traditional window treatments, while also employing the contemporary curved facade elements and ample use of glass seen on the Ambulatory Care Center so that the new structure will blend with the adjacent buildings on the FAHC campus and Converse Hall. The historic walkway from the Converse Hall's main

HISTORIC BUILDINGS EVALUATION SUMMARY

For City Review: *Inpatient Building*

Fletcher Allen Health Care, Burlington, Vermont

June 30, 2014

Page 3

entrance westerly to the UVM campus will be retained and enhanced, preserving the historic link between the residence hall and the UVM Central Quad.

FAHC Inpatient Bed Project – Permitting 14.0630 Landscape Narrative

Entering the site from Colchester Avenue and Beaumont Avenue, the tree-lined Hospital Drive provides a clearly delineated separation between vehicular traffic and an 8' wide multi-use path along the west edge of the drive. An allee of trees along the multi-use path creates lacy shade, and provides a safe separation from parking and emergency traffic. Several richly planted stormwater treatment areas work to slow water and sediment, minimizing impacts offsite, and providing colorful focal points within paved areas.

The entry drive comfortably arcs with the curving geometry of the new Inpatient Building, and UVM and FAHC parking is separated to ensure sufficient parking for FAHC Emergency Department (ED) visitors. All UVM parking exits the main drive first, opposite from the ED vehicle bay, with parking along the western edge of the site leading to the main UVM lot adjacent to Converse Hall. Within this main lot, a central, colorful raingarden bounded by a concrete retaining wall collects surface water for treatment. Beyond the UVM parking along Hospital Drive, the ED visitor dropoff and adjacent FAHC parking area lie at its terminus, separated from UVM main lot by the east-west axial pedestrian corridor between Converse Hall and UVM central campus. A vehicular-free, accessible pedestrian route connects FAHC parking and the main ED visitor entry. Leaving from the ED main doorway, pedestrians move through a covered plaza adjacent to the vehicular dropoff, a flexible outdoor space that houses bicycle racks and modular seating. A paved walk radiates out from the covered plaza through a shaded tree grove to the FAHC parking, across the Converse Hall axial walk, through the UVM parking area adjacent to the raingarden, and south to the UVM campus and beyond.

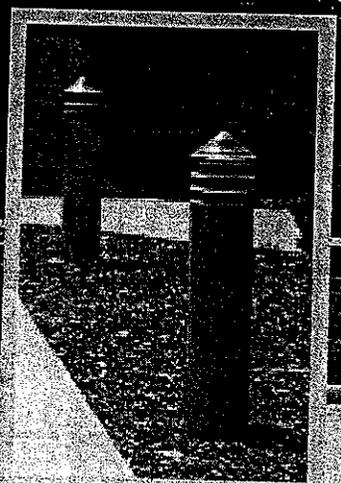
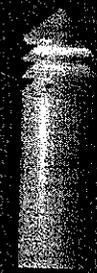
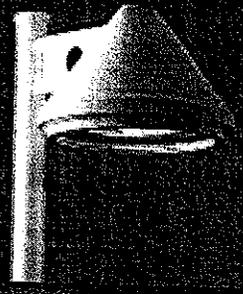
A 12' paved drive extends from the end of Hospital Drive, parallel to the tree-lined multi-use path, to providing fire truck access to the existing Converse Hall circle above. To accommodate grade near the top of the fire access drive, a curved retaining wall will extend from the existing FAHC wall. Below the wall, a secluded outdoor terrace will serve as an outdoor waiting area for the ED, adjacent to and accessible from the interior ED waiting room. Pole-mounted LED light fixtures, identical to those currently used on the FAHC campus, are placed along Hospital Drive, throughout the parking areas, and along walkways to provide safe, efficient lighting conditions. Columnar, shade and specimen trees provide shade throughout the parking areas and along pathways, and tree and shrub plantings along the western edge of the parking area screen paved areas visible from the UVM campus. Tree and raingarden plantings are prominently visible from the Inpatient Building patient rooms. A clearly marked multi-use path and adjacent walkways connect and improve safe pedestrian and biking conditions from across both campuses and beyond, designed with flexibility to connect with future UVM multi-use pathways.

FAHC Inpatient Bed Building
Light Fixture Type A

FLETCHER ALLEN HEALTH CTR
Type: C Mfg: LUMEC
175MH-OPC-SE3-1A-AM6W-20

Opticone Series

OPC/OPCS/OPCB



OPC™-SG1-2 luminaire on a ATR pole

OPCB™ bollard

LUMEC

OPC/OPCS/OPCB

OPC Luminaire

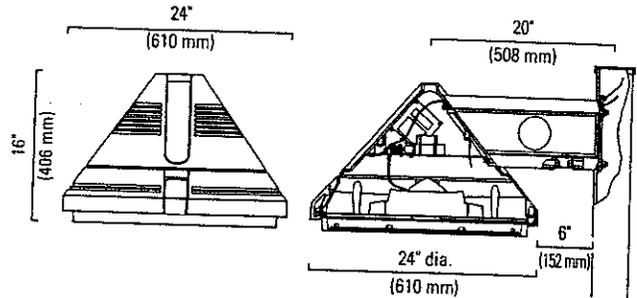
The Opticone OPC™ luminaire consists of a one-piece cast-aluminum pinched-cone housing, a round lens-frame assembly and a latch mechanically assembled together. The luminaire is fully gasketed.

The one-piece cast-aluminum lens-frame comes with a copolymer ethylene propylene gasket (EPDM) and a tempered glass lens.

A 3-point spring-type double-position cast-aluminum latch permits tool-free access to the lamp and ballast plate.

The ballast plate hinges down to provide tool-free access to the ballast.

OPC luminaire is UL and CSA approved.



OPC - SG1
EPA: 2.40 sq. ft.
Weight 62 lbs (28.1 kg)

Lamp Guide

Optics	OPC		OPCS	
	SG1/2/3/ Q/FM	SE	SCB/ SHB	SG1/2/3/ Q/FM
70 MH, medium	—	—*	•	—
100 MH, medium	—	—*	•	—
175 MH, mogul	—	—*	•	—
250 MH, mogul	—	—*	•	—
400 MH, mogul	— ¹	• ¹	N/A	• ¹
750 MH, mogul	— ¹	N/A	N/A	N/A
1000 MH, mogul	— ¹	N/A	N/A	N/A
50 HPS, mogul	—	—*	•	—
70 HPS, mogul	—	—*	•	—
100 HPS, mogul	—	—*	•	—
150 HPS, mogul	—	—*	•	—
250 HPS, mogul	—	—*	•	— ²
310 HPS, mogul ¹	—	—*	•	• ¹
400 HPS, mogul	—	—*	•	• ¹
750 HPS, mogul	•	N/A	N/A	N/A

- Remote ballast in pole.
- * Requires a polycarbonate (175W max.) or tempered glass sag lens.
- ¹ Requires a reduced jacket lamp.
- ² Not available in 347 volts.
- ³ Not available with SGFM optics.

OPC™ and OPCS™ luminaires accommodate H.I.D. or incandescent lamps as shown in the above table.

The UL or CSA-recognized CWA-type ballast features a -30F (-34C) lamp-starting capacity, a power factor of 90% or better and a regulation of lamp power within ±10% of rated input voltage. HPS ballasts operate within ANSI trapezoidal limits.

The luminaire's lens frame, secured by a 3-point spring-type double-position cast-aluminum latch, pivots along a housing integrated hinge to permit tool-free access to the lamp and ballast plate.

The ballast is integrated in the hood of the luminaire, on a unitized ballast tray, or is remote in the pole base.

For the OPCB™ bollard, please consult bollard literature or www.lumec.com web site.

Optical Systems

SG optics

Segmented cut-off reflector system set in faceted arc-image duplicating patterns



SG1:
Asymmetrical (I)



SG2:
Asymmetrical (II)



SG3:
Asymmetrical (III)



SGQ:
Symmetrical (V)



SGFM:
Forward-throw

SE optics



Small segmented cut-off reflector set in faceted arc-image duplicating patterns

SE5: Symmetrical (V)

SE3: Asymmetrical (III)

SCB and SHB optics (OPC only)



Sealed optical chamber consisting of a reflector permanently assembled on top of a tempered glass drop lens

SCB3M: Asymmetrical cut-off (III)

SHB3M: Asymmetrical hyperextensif (III)

For the SCB and SHB optics, the sleeve and shutter permit exact positioning of the lamp.

(clear lamp not included).

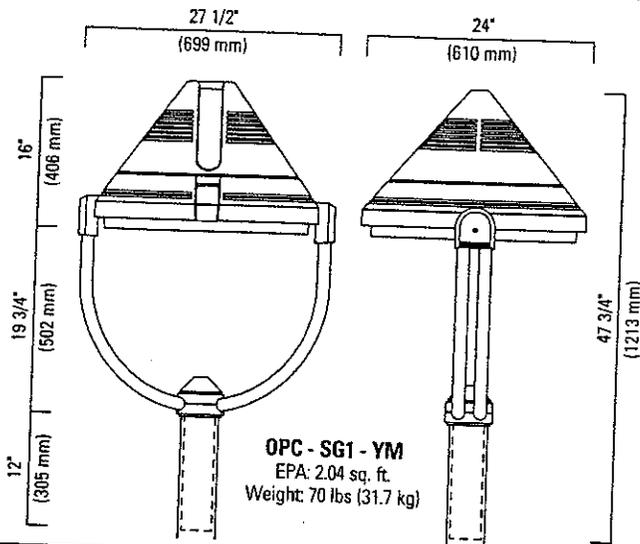
For further information, refer to the Outdoor Lighting Application Guide.

Ordering Sample

Lamp	Luminaire	Optical System	Voltage	Mounting & Configuration	Pole	Finish	Options
250 HPS	OPC	SCB	240V	1A	SM6-15	BKTX	FS

Lumec reserves the right to substitute materials or change the manufacturing process of its products without prior notification.

OPC-YM Luminaire on Yoke-mount



OPCS Luminaire

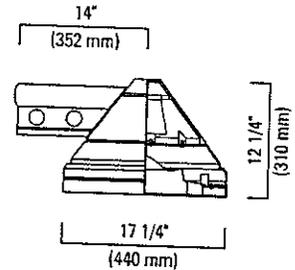
The **Opticone OPCS™** luminaire is similar to the OPC but in a smaller size and consists of a two-piece spun and cast-aluminum pinched-cone housing, a round lens-frame assembly and a latch mechanically assembled together. The luminaire is fully gasketed.

The one-piece cast-aluminum lens-frame comes with a copolymer ethylene propylene gasket (EPDM) and a tempered glass lens.

A 3-point spring-type double-position cast-aluminum latch permits tool-free access to the lamp and ballast plate.

The ballast plate hinges down to provide tool-free access to the ballast.

OPCS luminaire is UL and CSA approved.



Poles

Model	BC (mm)	Height (ft)	Height (m)
APS4	8 1/2" (216 mm)	18	5.48
APS5	10 1/2" (267 mm)	16	4.88
SPS5	11 1/2" (292 mm)	14	4.27
SPS6	12 1/2" (317 mm)	12	3.66
SAMS8	15" (381 mm)	10	3.06
Aluminum Tapered	CF	8	2.44
Steel Tapered	CF	6	1.83
		4	1.22
		2	0.61

Finishes

16 Standard Colors Available

The specially-formulated textured (TX) Lumital powder coat is available in a range of 16 standard colors. This unique coating of thermosetting polyester resins provides a highly-durable UV-resistant exterior finish as per ASTM G7.

Lumital coatings are specially formulated for outstanding salt-spray resistance according to ASTM B117 standards.

All surfaces are chemically treated using a four-step (aluminum) or six-step (steel) process prior to painting. Consult Lumec for complete specifications.

SC Special Color

Provide a 4" (102 mm) square color chip.

It is possible to order smaller minimal quantities of powder paint at a premium. Your representative will be able to tell you if a powder coating can be developed for your project.

Lumiseal, a biofriendly reactive organic conversion coating, is applied on all aluminum parts that are subject to salt-spray corrosion. Consult Lumec for complete specifications.

Please note that where quantities do not warrant it, Lumec reserves the right to use an oven-cured liquid polyurethane finish.

Luminaire Options

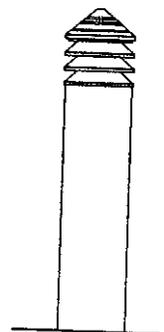
FS	Fusing (Consult Factory)
HS	House shield (SG optics only)
DL	Drop lens

Pole Options

HB	Hinged base (APR4 & APS4 poles only)
DR*	Duplex receptacle (120 volts only)
GFI*	Duplex receptacle with ground fault interrupter (120 volts only)
PH	Photoelectric cell
LS*	Provision for loudspeaker outlet
BA*	Banner arm
LBC9	Decorative base cover (Available with APR4 and SPR4 poles only)
IP	Interior paint (pole only, consult factory for applicable poles)

* Consult the Pole Guide for feasibility with cast-aluminum shafts.

OPCB Bollard



For the OPCB™ bollard. Consult bollard literature or www.lumec.com web site.

Consult the Pole Guide for details and the complete line of poles.

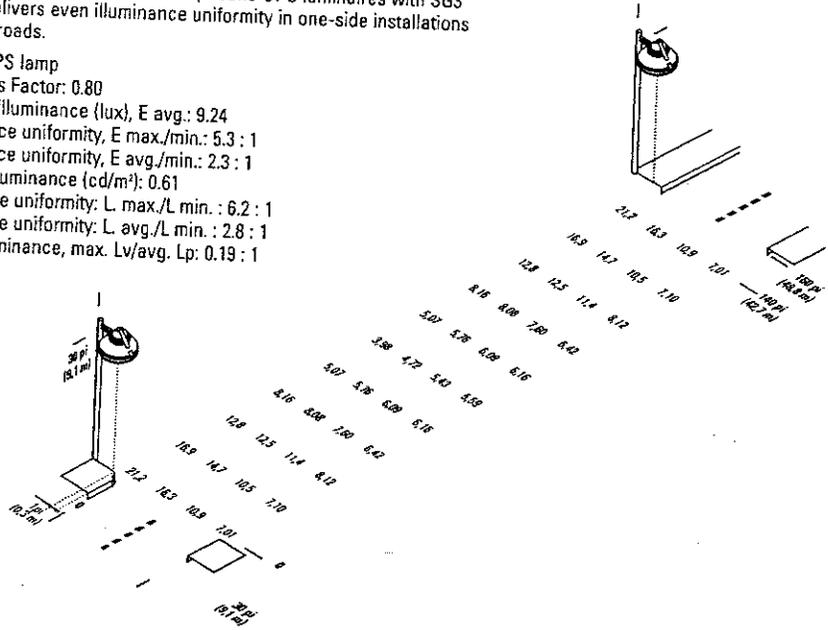
OPC/OPCS/OPCB

Opticone OPC with SG3 optical systems
 Pavement luminance for two-lane road lit from one side

Opticone OPC with SG3 optical systems Pavement luminance for two-lane road lit from one side

This illustration shows how the Opticone OPC luminaires with SG3 optics delivers even illuminance uniformity in one-side installations on wide roads.

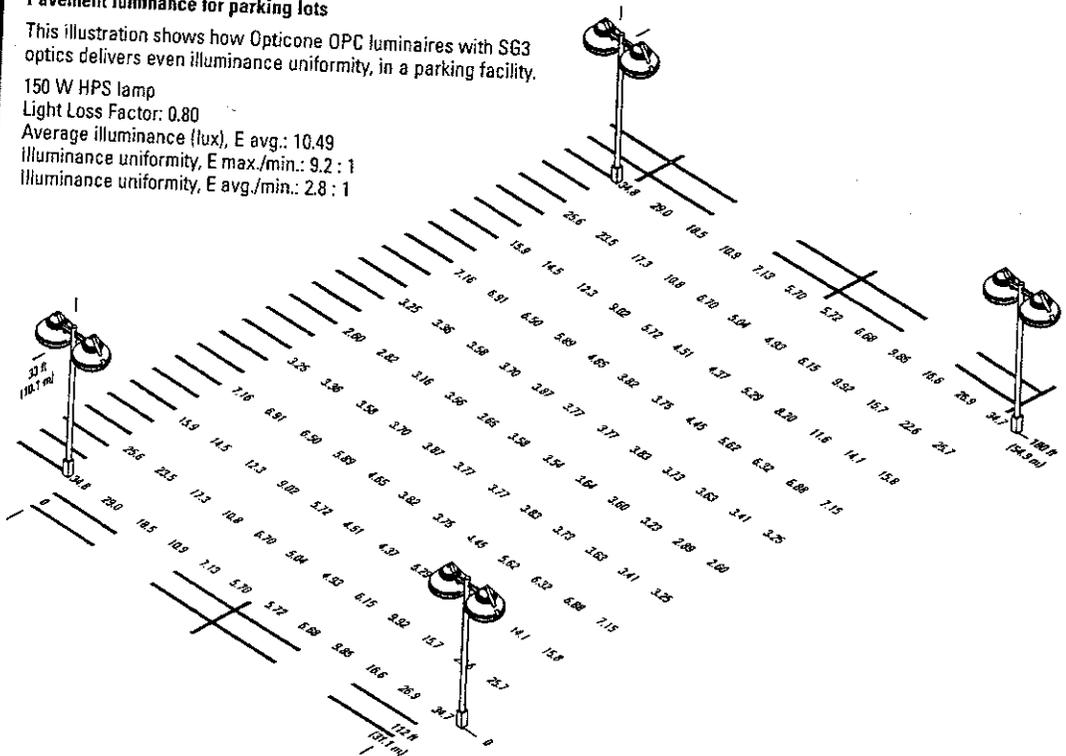
- 150 W HPS lamp
- Light Loss Factor: 0.80
- Average illuminance (lux), E avg.: 9.24
- Illuminance uniformity, E max./min.: 5.3 : 1
- Illuminance uniformity, E avg./min.: 2.3 : 1
- Average luminance (cd/m²): 0.61
- Luminance uniformity: L max./L min.: 6.2 : 1
- Luminance uniformity: L avg./L min.: 2.8 : 1
- Veiling luminance, max. Lv/avg. Lp: 0.19 : 1



Opticone OPC with SG3 optical systems Pavement luminance for parking lots

This illustration shows how Opticone OPC luminaires with SG3 optics delivers even illuminance uniformity, in a parking facility.

- 150 W HPS lamp
- Light Loss Factor: 0.80
- Average illuminance (lux), E avg.: 10.49
- Illuminance uniformity, E max./min.: 9.2 : 1
- Illuminance uniformity, E avg./min.: 2.8 : 1



LUMEC

Opticone OPC with SG3 optical systems
 Pavement luminance for parking lots

SG 300 Proximal

The quality of the lighting
 is what counts.

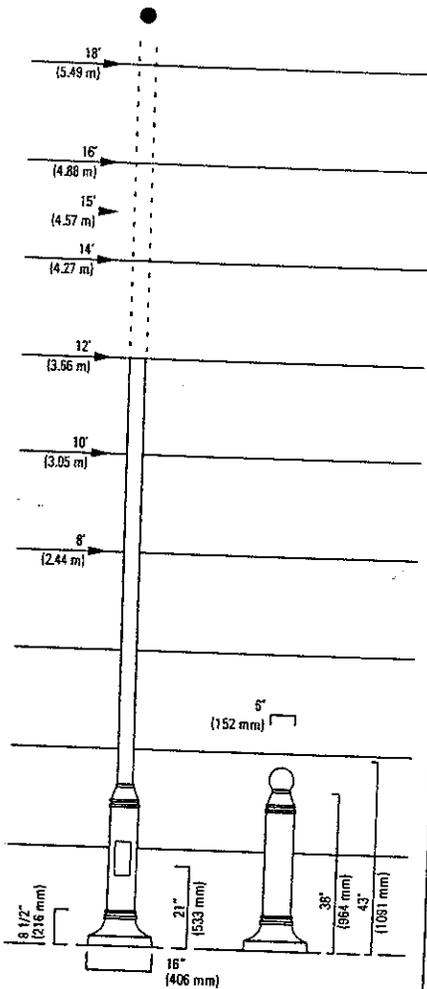
Opticone OPC with SG3 optical systems

AM6

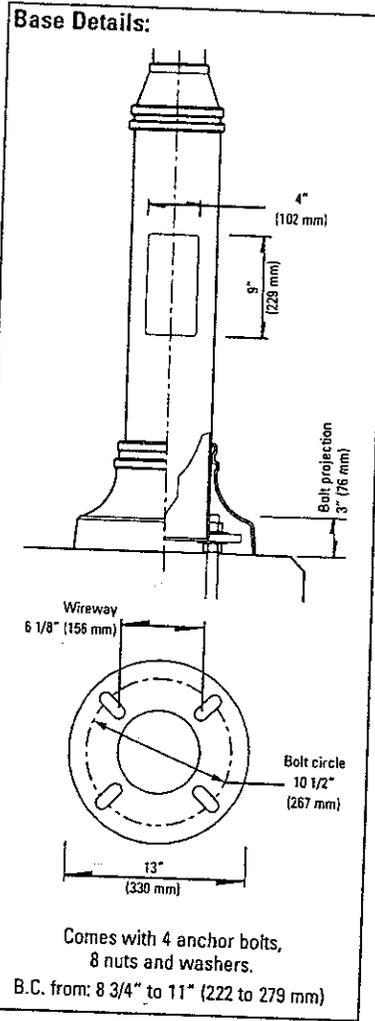
Round Aluminum Bottleneck Pole

Pole
Guide

LUMEC



AM6 BORAM6-DSH
Non-luminous bollard
Bollard Anchor Bolts: 5/8-12 (16-305)



Specifications:

Pole: made from a one-piece, seamless 4"-round (102 mm) tube of extruded aluminum welded over and in a 6 5/8"-round (168 mm) extruded-aluminum pole base.

The assembly is welded to both the top and bottom of a reinforced base cast from zinc-rich aluminum.

A 4" by 9" (102 by 229 mm) maintenance opening, complete with cover and copper ground lug, is centered 21" (533 mm) from the bottom of the anchor plate.

Joint cover: made from two pieces of cast aluminum mechanically fastened to the junction with stainless steel screws.

Base cover: made from two pieces of cast aluminum mechanically fastened to the base with stainless steel screws.

Finish: "Hot Dip" chemical etching preparation.

Lumital polyester powder coat textured finish.

Available in 16 standard colors.

Durable UV-resistant exterior finish as per # ASTM G7 and outstanding salt-spray resistance according to # ASTM D2247 testing procedures.

Options:

DE: Pole base buried 5' (1524 mm) in the ground (see details on page 83).

LS: Provision for loudspeaker outlet

PH7: Button-type photoelectric cell (specify operating voltage)

PH8: Quarter-turn type photoelectric cell (specify operating voltage)

PH9: Shorting cap for single phase only

DR: Duplex receptacle (120V line volt. only)

GR: DR with common ground fault interrupter (120V line voltage only)

BASXX: One single banner arm

BABSXX: One single break-away banner arm

BADXX: One double banner arm

BABDXX: One double break-away banner arm

Note: EPA recommendations are calculated according to AASH-T0 standards and include a 30% gust factor, with a 50-lb. (22.7 kg) load applied at 1ft. (305 mm) above the center of the pole.

The maximum EPA rating shown is 30.0 sq. ft. Some poles may exceed this rating.

Bollard: The pole base is available with a DSH cast-aluminum decorative sphere (non-luminous).

For other options, please consult the factory.

Ordering Information

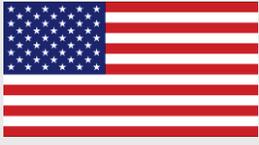
Catalogue number	Nominal height		Section	Wall thickness		Weight		EPA rating			Base size		Bolt circle		Anchor bolts		
	ft.	m		in.	mm	lbs.	kg	70mph	80mph	100mph	in.	mm	in.	mm	in.	mm	
AM6F-8	8	2.44	4	102	0.125	3.2	27	12	18.4	14.3	9.2	13	330	10 1/2	267	3/4-20	19-508
AM6U-8	8	2.44	4	102	0.226	5.7	37	17	30.0	25.0	16.3	13	330	10 1/2	267	3/4-20	19-508
AM6F-10	10	3.05	4	102	0.125	3.2	31	14	13.2	10.2	6.4	13	330	10 1/2	267	3/4-20	19-508
AM6U-10	10	3.05	4	102	0.226	5.7	41	19	23.4	18.0	11.3	13	330	10 1/2	267	3/4-20	19-508
AM6F-12	12	3.66	4	102	0.125	3.2	35	16	9.9	7.4	4.4	13	330	10 1/2	267	3/4-20	19-508
AM6U-12	12	3.66	4	102	0.226	5.7	45	20	15.8	11.8	7.3	13	330	10 1/2	267	3/4-20	19-508
AM6F-13	13	3.97	4	102	0.125	3.2	36	16	8.1	6.0	3.5	13	330	10 1/2	267	3/4-20	19-508
AM6U-13	13	3.97	4	102	0.226	5.7	46	21	13.1	9.9	5.9	13	330	10 1/2	267	3/4-20	19-508
AM6F-14	14	4.27	4	102	0.125	3.2	38	17	5.3	3.9	2.2	13	330	10 1/2	267	3/4-20	19-508
AM6U-14	14	4.27	4	102	0.226	5.7	48	22	8.7	6.5	3.9	13	330	10 1/2	267	3/4-20	19-508
AM6F-15	15	4.57	4	102	0.125	3.2	40	18	4.3	3.0	1.6	13	330	10 1/2	267	3/4-20	19-508
AM6U-15	15	4.57	4	102	0.226	5.7	50	23	7.3	5.3	3.0	13	330	10 1/2	267	3/4-20	19-508
AM6F-16	16	4.88	4	102	0.226	5.7	52	24	6.0	4.3	2.4	13	330	10 1/2	267	3/4-20	19-508
AM6W-16	16	4.88	4	102	0.318	8.1	74	34	7.9	5.8	3.2	13	330	10 1/2	267	3/4-20	19-508
AM6U-18	18	5.49	4	102	0.226	5.7	55	25	4.2	2.8	1.3	13	330	10 1/2	267	3/4-20	19-508
AM6W-18	18	5.49	4	102	0.318	8.1	87	39	5.6	3.9	2.0	13	330	10 1/2	267	3/4-27	19-686
16GW-20	20	6.10	4	102	0.318	8.1	96	44	3.9	2.6	1.0	13	330	10 1/2	267	3/4-27	19-686

Other pole thicknesses are available for use with banner arms. Consult factory.
Lumec neither designs nor makes recommendations as to the design of concrete bases.

16 Note: Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

EcoFit® LED Light Engine

The smart solution. The right fit.™



Made in the USA

Meets ARRA Guidelines
Manufactured in Lee's Summit, MO

Universal Application

Roadway

Parking Lot – shoebox, pendant, post-top (*with adapter plate*)

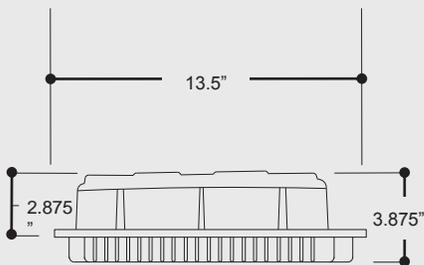
Parking Garage – housing required

Indoor High Bay – housing required

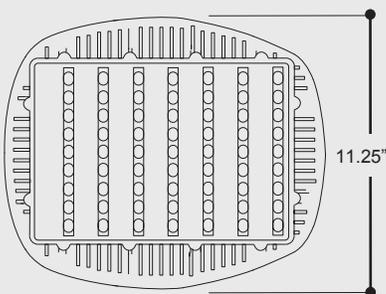
Independent Performance Tests

EcoFit provides 3rd party validation from the most recognized testing laboratories available on www.ecofitlighting.com.

- Photometrics (LM-79)
- Thermal management (LM-80)
- Safety (UL 8750/1598, CSA C22.2)
- Corrosion (ASTM-B117)
- ISO 9000-2001 manufacturer
- RoHS compliant
- Ingress protection (IP-66)
- Pole vibration (ANSI-C136.3)
- Mechanical stress
- Surge Protection (IEEE C62.45)
- Transient protection (IEEE C62.41)
- Noise (47CFR-15B)



Product weight = 13 pounds.



Approvals and Endorsements

Design Lights Consortium approved
DOE Lighting Facts listed (all models)
Cree LED City/University approved
International Dark Sky Association approved
PG&E Pre-qualified vendor
SCE Pre-qualified vendor



Specifications subject to change without notice.
U.S. Patents D611647, D611648. Other U.S. and International patents pending.

© EcoFit Lighting LLC 2011
Revision 4.0 (3/11)

EcoFit Lighting
8527 Bluejacket Street
Lenexa, Kansas 66214
(866) 789-9449
www.ecofitlighting.com

EcoFit® LED Light Engine

The smart solution. The right fit.™

Photometrics

Isofootcandle Plots
Initial footcandles at grade.
90/525mA unit example.

Gridlines represent units of mounting height of 20 feet.



Standard Features

- 0-10V dimming
- Overtemp protection
- Lightning Arrestor (10kV/5kA)
- Warranty – 5 year on power supply, LEDs, 10 year on chassis/housing

LED & Electrical Performance

Model	Drive Current (mA)	CRI	Input Power (W)	Input Current (120V)	Input Current (240V)	Type III		Type V	
						Delivered Lumens	Total System Efficacy (Lm/W)	Delivered Lumens	Total System Efficacy (Lm/W)
30	350	≥80	37	0.317A	0.185A	2,265	61	2,262	60
30	525	≥81	56	0.481A	0.235A	3,005	54	2,973	52
42	350	≥81	48	0.408A	0.223A	3,144	65	3,180	65
42	525	≥81	73	0.620A	0.322A	4,145	57	4,192	56
63	350	≥81	70	0.588A	0.308A	4,533	64	4,488	65
63	525	≥82	106	0.892A	0.450A	5,900	56	5,784	55
90	350	≥70	91	0.761A	0.380A	6,365	70	7,375	82
90	525	≥70	136	1.133A	0.567A	8,252	61	9,764	71

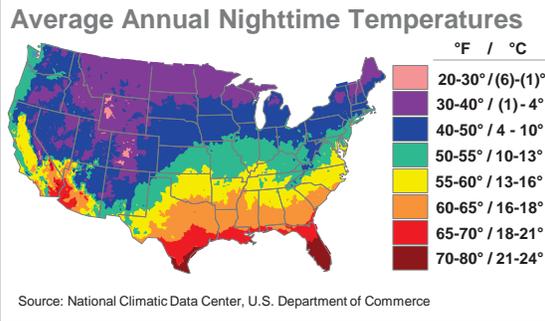
1. Input voltage (120-277 VAC).

2. 480V also available. Operating frequency 50-60 Hz.

3. Power factor > 0.90, THD < 20%.

4. All BUG ratings are B2-U0-G1 or below.

LED Junction Temperature (T_J) & Projected L₇₀ Life

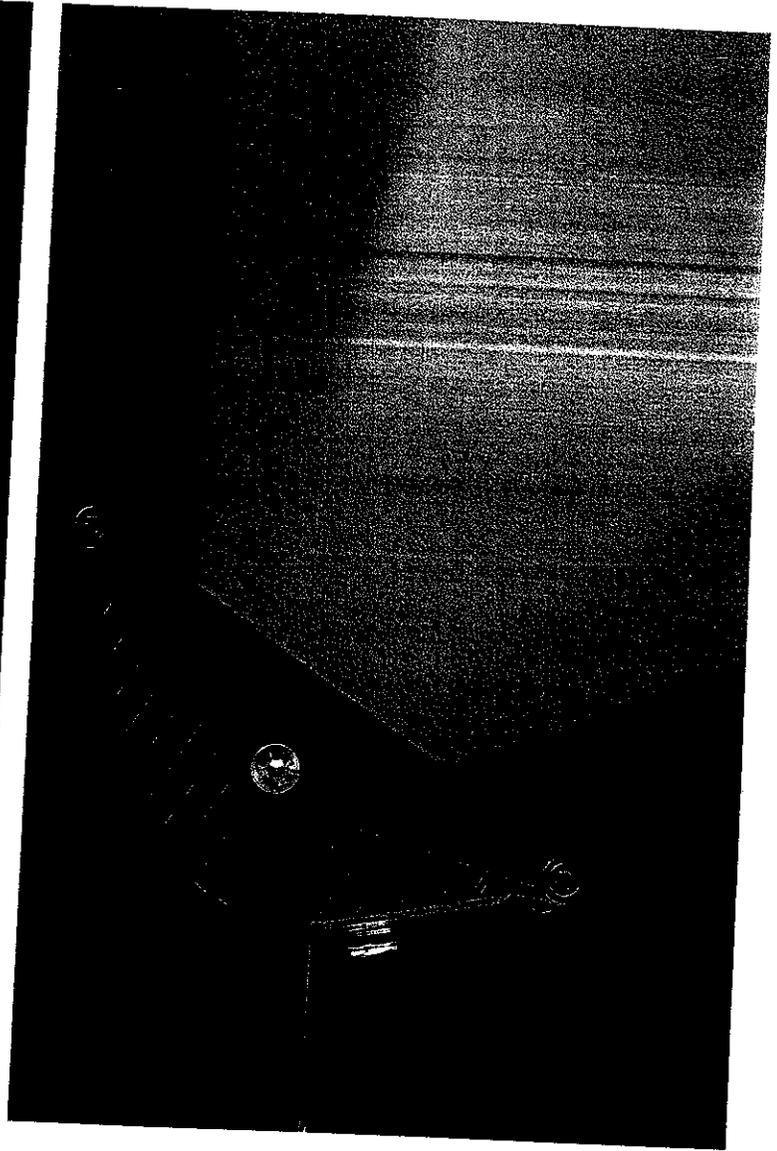
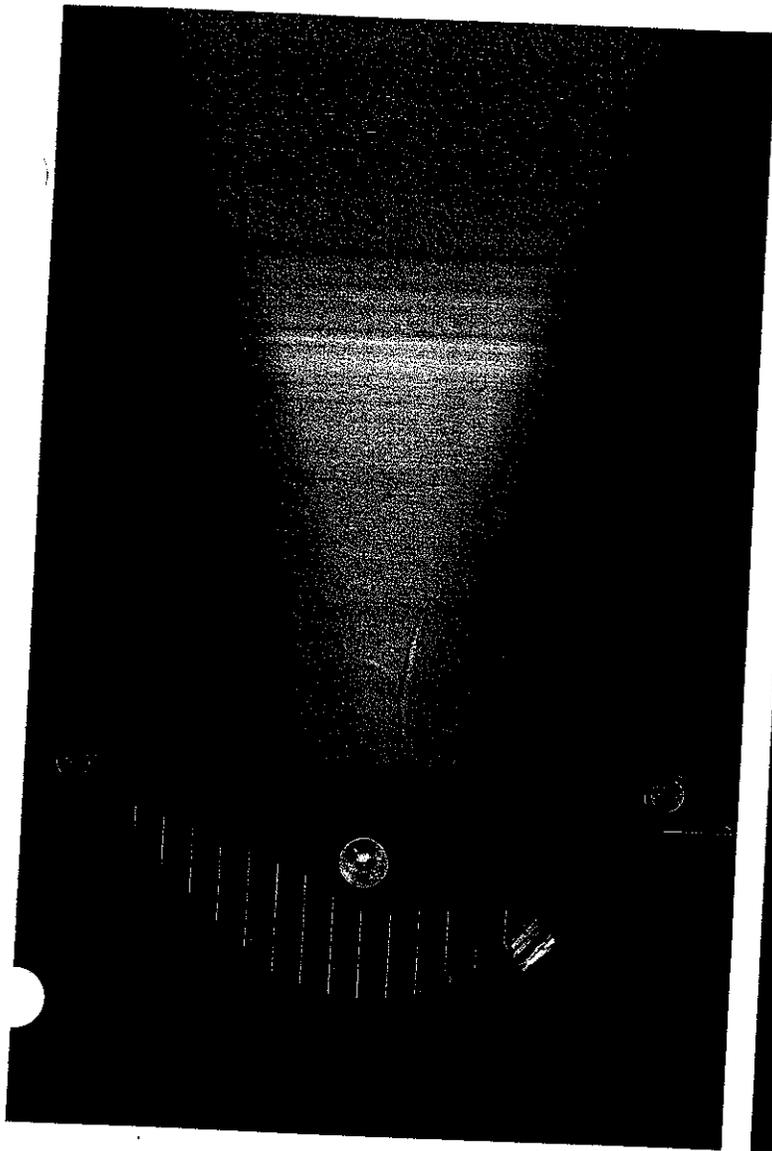


Model		L70 Lifetime Expectancy (LM-80 Test Data)							
LEDs	Drive Current	Average Nighttime Outdoor Temperature							
		<32°F (0°C)	41°F (5°C)	50°F (10°C)	59°F (15°C)	68°F (20°C)	77°F (25°C)	86°F (30°C)	95°F (35°C)
30	350	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000
30	525	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000
42	350	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000
42	525	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000
63	350	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000
63	525	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000
90	350	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000
90	525	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000	≥75,000

Note: L₇₀ life projections are provided by Philips Lumileds, and are based on IES LM-80 testing and IES TM-21 extrapolation methods. Using these methods, Lumileds projects a worst case of 75,000 L₇₀ hours for 4100K LEDs operated at 700mA and at LED temperatures (T_{SP}) of 105°C. Since these levels of drive current and LED temperature are well above EcoFit's highest levels, the L₇₀ hours shown above should be regarded as conservative. For more information, see www.EcoFitLighting.com.

Ordering Information

D	2/3	120/240	350	CXRE	30	4600	CE
Product Series	Distribution 2/3 = Type II/III 5 = Type V	Input Voltage 120-240 = Universal (120-240 VAC) 277 = 277 VAC	LED Drive Current 350 = 350mA 525 = 525mA	LED Supplier CXPE = Cree X-PE REBEL = Lumileds Rebel	LED Quantity 30 = 30 LEDs 42 = 42 LEDs 63 = 63 LEDs 90 = 90 LEDs	LED Color Temperature 4600 = 4600K (Neutral) Nominal Other color temperatures available by request.	Housing AP = Adaptor Plate CE = Ceiling FL = Floodlight CO = Cobra Head



Moonshine

High performance
floodlights and spotlights
for discharge lamps

Concept: Roland Jéol
Design: Roy Fleetwood

FAHC Inpatient Bed Building
Light Fixture Type B
Uplight

TYPE LG6

1290019940

BLACK Finish 277V

* specify Distribution

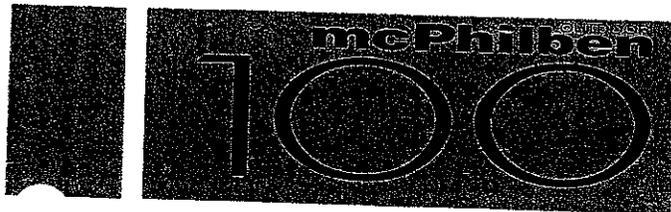
Note Remote BALLAST

designplan 

79 Trenton Avenue
Frenchtown, NJ 08825

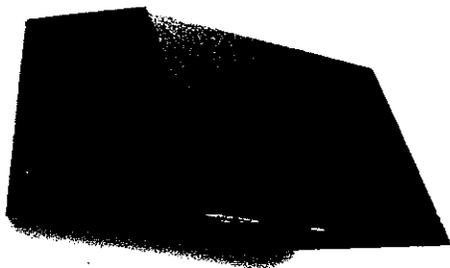
Tel: (908) 996-7710
Fax: (908) 996-7042

designplan  MEYER LIGHTING

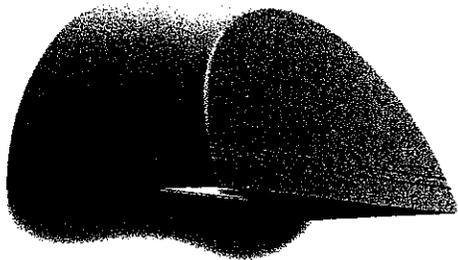


LINE

101/102
PERFORMANCE
SCONCES



101 Trapezoidal Sconce



102 Rounded Wedge Sconce

The mcPhilben Outdoor 101 Trapezoidal and 102 Rounded Wedge high performance sconces offer an excellent alternative to unsightly wall mounted fixtures. These architecturally refined luminaires are designed to integrate naturally to wall surfaces. The 101 and 102 luminaires are available with three (3) different distribution patterns - a wide throw, a medium throw and a forward throw. Each luminaire is designed to accept sources up to 175W MH. Housings are sealed throughout, completely excluding moisture, dust, insects and contaminants.

- Wide luminaire spacings from sharp cutoff wall mounted luminaires
- Handsome, compact forms integrate to mounting surfaces
- Rugged die cast aluminum construction

**FAHC Inpatient Bed Building
Light Fixture Type C**

FLETCHER ALLEN HEALTH CTR
Type: LG7 Mfg: GARDCO
102-WT-70MH-277-XXX-SL

ORDERING

PREFIX	DISTRIBUTION	WATTAGE	VOLTAGE ¹	FINISH	OPTIONS
102	WT	150 MH	277	BRP	PCB
101 (Trapezoidal) 102 (Rounded Wedge)	FT (Forward Throw) ⁴ WT (Wide Throw) ⁴ MT (Medium Throw)	HID 35 HPS ² 50 MH 50 HPS 70 MH 70 HPS 100 MH 100 HPS 150 MH ³ 150 HPS 175 MH	120 277	BRP Bronze Paint BLP Black Paint WP White Paint NP Natural Aluminum Paint BGP Beige Paint SC Special Color (specify) Paint	F Fusing (120, 277) PCB Button Type Photocontrol QR Quartz Standby ⁴ SL Solite [®] Diffusing Lens <i>Solite is a registered Trademark of AFG Industries</i> UT 5° Uptilt for FT optics WLU Wet location door for inverted mounting WS Wall mounted box for surface conduit
		FLUORESCENT (1)26 QF (Quad tube) (2)26 QF (Quad tube) (2)26 QF-DIM (Quad tube-Dimming) ² (1)42 TRF (Triple tube) (1)42 TRF-DIM (Triple tube-Dimming) ²			DIM-E REVERSED PHASE CONTROL Lightoller ZP260ESI 260W ZP425ESI 425W OS300ESI 300VA OHS00ESI 500VA
<p>Notes: 1) Contact factory for other voltages 2) 120V only 3) ANSI # M102 4) Not available w/fluorescent lamps</p> <p>RECOMMENDED DIMMER CONTROL: (Other controls are available, please contact ESI for listing) Derate the rated power by 80%. For example, a 1000w dimmer may only drive 800w of these ballasts.</p>					

mcPhilben Outdoor
2661 Alvarado Street
San Leandro, CA 94577
800/227-0758
510/357-6900 (California)
510/357-3088 FAX
<http://www.mcphilbenoutdoor.com/>

In Canada:
Lumec C&I
640 Curé Boivin Blvd.
Boisbriand
Quebec, Canada J7G 2A7
Tel: 514/430-7040
Fax: 514/430-1453

mcPhilben OUTDOOR 100 LINE

101/102
PERFORMANCE
SCONCES

SPECIFICATIONS

GENERAL

Each mcPhilben 100 Line luminaire is a wall mounted cutoff luminaire for high intensity discharge or fluorescent lamps. Internal components are totally enclosed, rain-tight, dust-tight and corrosion resistant. Housing, back plate and door frame are die cast aluminum. A choice of three (3) optical systems are available. Luminaires are suitable for wet locations.

HOUSING

Single piece soft trapezoidal (101) or rounded wedge (102) housings are die cast aluminum. A memory retentive gasket seals the housing with the doorframe to exclude moisture, dust, insects and pollutants from the optical system. A black, die cast ribbed backplate dissipates heat for longer lamp and ballast life.

DOOR FRAME

A single piece die cast aluminum door frame integrates to the housing form. The door frame is hinged closed and secured to the housing with two (2) captive stainless steel fasteners. The heat and impact resistant 1/8" tempered glass lens and one-piece gasket are mechanically secured to the door frame with four (4) galvanized steel retainers.

OPTICAL SYSTEMS

Reflectors are composed of specular extruded and faceted Alzak® components, electro-polished, anodized and sealed. Reflector segments are set in arc tube image duplicating patterns to achieve the wide throw (IES Type II), forward throw (IES Type IV), or medium throw distributions.

BALLAST

Each high power factor HID ballast is the separate component type capable of providing reliable lamp starting to -20°F (-29°C). Component-to-component wiring within the luminaire will carry no more than 80% of rated current and is listed by UL for use at 600VAC at 150°F (65°C) or higher. Standard and dimming fluorescent units have a starting temperature of 0° F (-18° C). Dimming range is 15% to 100%. Standard fluorescent ballasts are solid state. Consult factory for magnetic.

LAMPHOLDER

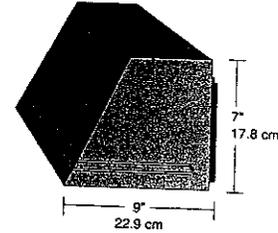
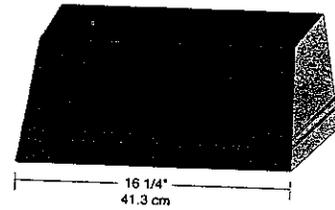
Pulse rated medium base sockets are glazed porcelain with nickel plated screw shell. Fluorescent sockets are high temperature plastic (PBT) with brass contacts.

FINISH

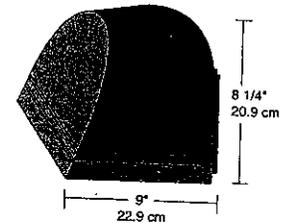
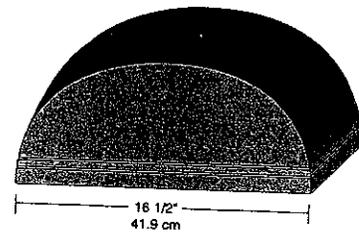
Each luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured, textured polyester powdercoat finish.

LABELS

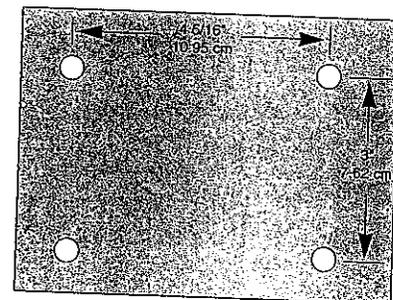
All fixtures bear CSA and UL Wet Location labels.



101 - Trapezoidal Sconce



102 - Rounded Wedge Sconce



Mounting Bolt Pattern

Thomas 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.

mcPhilben Outdoor
26 Colorado Street
San Leandro, CA 94577
300/227-0758
510/357-6900 (California)
510/357-3088 FAX
<http://www.mcphilbenoutdoor.com/>

In Canada:
Lumec C&I
640 Curé Boivin Blvd.
Boisbriand
Quebec, Canada J7G 2A7
Tel: 514/430-7040
Fax: 514/430-1453

D4216 Medium Beam, 1000 lm, 1300 lm

**Directional Downlight, 4 1/2" x 8 1/2" Rectangular Aperture
Two Xicato Remote Phosphor Modules
Fixed Function, MultiSource® Technology**

Optics and Applications

Independent directional systems are designed with locking capability to rotate 180° and angulate 30°. Beam distributions can be changed in the field. Crossing the beams creates interesting effects. Illuminate two different objects from one fixture. Medium beam distribution is standard. See accessories for narrow and wide distribution options.

Design Features - MultiSource® Capable

Fixture housings are designed with MultiSource® plug and play connectors allowing field conversion to other sources. New lighting technologies will be incorporated as they become available. Proprietary passive heat sinks ensure proper temperatures are maintained. Pressure springs assure tight trim to ceiling fit. Service from below only. Maximum ceiling thickness is 7/8".

Modules

Two Xicato remote phosphor modules use high efficiency blue LEDs that convert to white light when directed through a phosphor lens. Lumen packages are 1000 lm and 1300 lm operating on 1A drivers. Standard 3000K, 80 CRI. 2700K, 3500K, 4000K available. Rated Life is 50,000 hours at 70% lumen output.

Dimming Driver

Dimming is standard 0-10V/10%. See accessories for additional dimming options. Specify Voltage.

Finish

Standard trim is anodized Softglow® clear. Colors available, see accessories. Steel parts are phosphate conditioned then painted matte black to suppress light leaks.

Finish

5 year limited. See KV website for manufacturer's details.

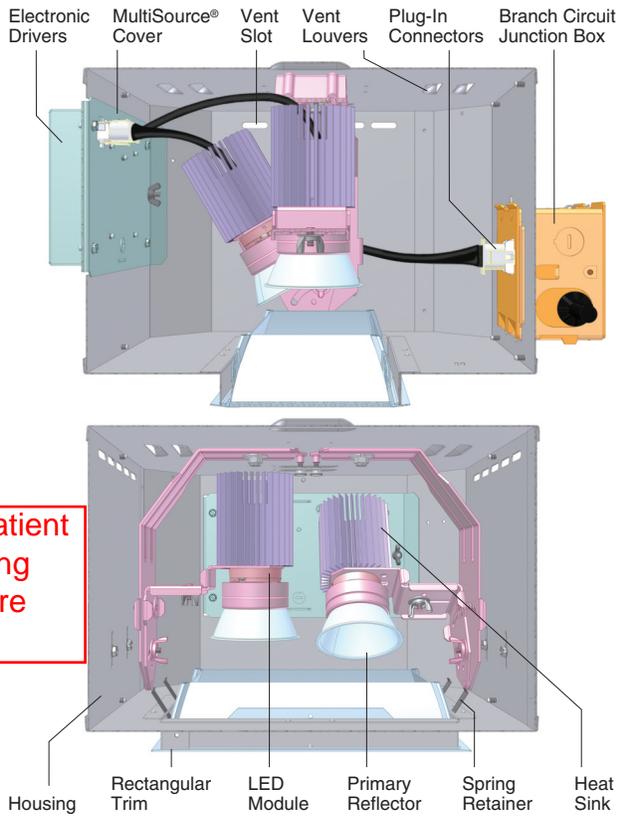
General

Fixture is pre-wired and thermally protected, UL and C-UL listed, for damp location and eight wire, 75°C, branch circuit wiring. All products are union made IBEW. Designed and manufactured in the USA.

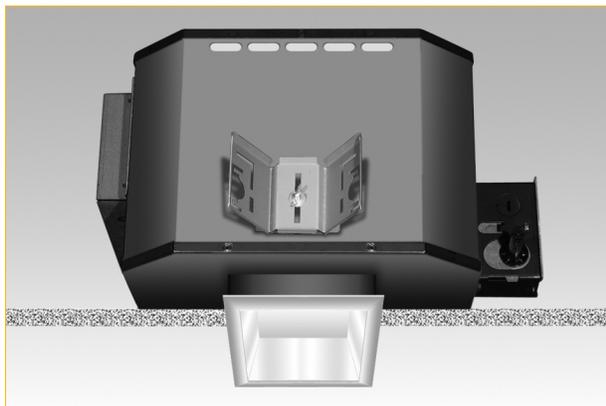
Accessories

- SB Softglow® black trim.
- SG Softglow® gold trim.
- SH Softglow® mocha trim.
- SP Softglow® graphite trim.
- WT White trim flange.
- R2 26" support rails.
- R5 52" support rails.
- F Fuse.
- SO Fine microprism lens*.
- LL Linear lens*.
- LP Large prism lens*.
- DP Fixed downlight position.
- ND Narrow beam distribution.
- WD Wide beam distribution.
- FMT4 Flush mount, contact factory.
- FLT8 Full lens trim 4 x 8", specify lens type.
- REM Remote Bodine EM. Includes battery pack, charger light, test switch and single lamp operation for 90 minutes. Remote mount only. Ceiling access required.
- ST Softglow® titanium trim.
- SW Softglow® wheat trim.
- SY Softglow® pewter trim.
- SZ Softglow® bronze trim.
- WHT White complete cone.
- 27 2700 Kelvin temp.
- 35 3500 Kelvin temp.
- 40 4000 Kelvin temp.
- FR Frosting on lens, specify lens type.
- DCE Double circuiting.
- D1 Lutron to 1%, 3 wire control.
- DE Lutron EcoSystem to 1%, digital 4 wire.
- AS Xicato Artist Series 95 CRI module for 1000 lm. Contact factory for energy information.

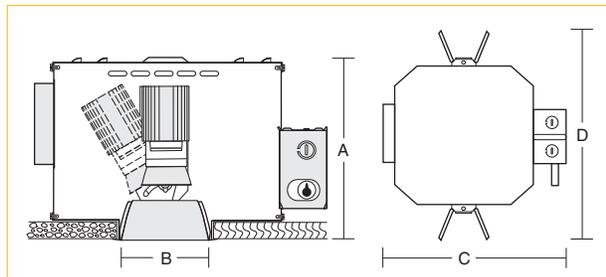
*FLT option required.



FAHC Inpatient Bed Building Light Fixture Type D



Dimensions and Sources



Number	A Depth	B Aperture	C Width*	D Length	LED Module
D4216	9 15/16" 252mm	4 1/2" x 8 1/2" 114 x 216mm	16 5/8" 422mm	18 1/4" 464mm	2x1000 lm or 1300 lm Xicato

*For Lutron dimming use 17 5/8".

Energy and Ordering Information

Fixture	Module Lumens	System Lumens	System Watts*	lm/W	Order Code		
					Model	L	K V
D4216	1000	1625 ^Δ	32	50.9	D4216	10	30 12
	1300	1871 [‡]	46	40.7	D4216	13	30 12

Fixture provided standard 3000K with Softglow® clear trim. Module lumens: specify 10 for 1000 lm, 13 for 1300 lm. Kelvin temperatures: specify 27 for 2700K, 30 for 3000K, 35 for 3500K, 40 for 4000K. ^ΔIndicates LM-79 Test Data. [‡]Indicates KV Test Data. [†]Wattage consumption based on current module series test data.



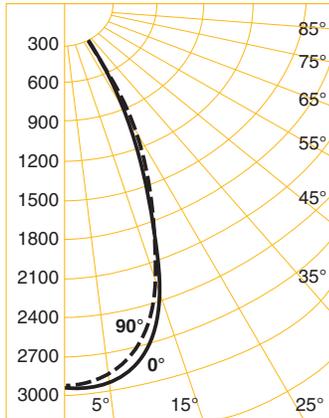
Kurt Versen Company Point Source Lighting Westwood, New Jersey 07675

D1 D4216 Medium Beam

Footcandle Values at Nadir, Fixtures Mounted in 15° Slope

Distance	5'			10'			15'			20'										
	Nadir	10°	15°																	
Lamps	FC	FC	Diam	FC	FC	Diam														
D4216 1000 lm 3000K	118	104	2'	83	3'	30	26	4'	21	5'	13	12	5'	9	8'	7	7	7'	5	11'
D4216 1300 lm 3000K	159	142	2'	115	3'	40	35	4'	29	5'	18	16	5'	13	8'	10	9	7'	7	11'

Candlepower Distribution

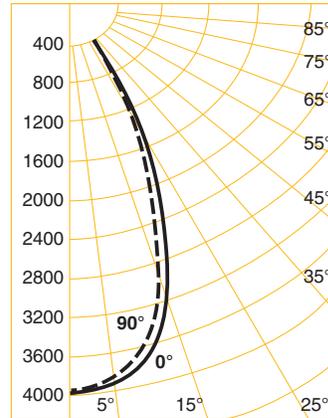


D4216 1000 lm 3000K
LER 50.9 S/M 0°.7
S/M 90°.7

Candelas

o	0°	90°
0	1625*	1625*
5	2958	2958
10	2758	2698
15	2340	2267
20	1678	1679
25	836	1130
30	403	593
35	108	253
40	63	107
45	38	25
50	28	15
55	20	10
60	15	7
65	12	4
70	10	3
75	8	3
80	6	3
85	4	2
90	0	0

o Vertical Angles
*Luminaire Lumens



D4216 1300 lm 3000K
LER 40.7 S/M 0°.6
S/M 90°.6

o	0°	90°
0	1871*	1871*
5	3971	3971
10	3707	3513
15	3185	2834
20	2179	1958
25	1474	1240
30	1054	536
35	354	244
40	134	73
45	93	23
50	65	13
55	45	9
60	33	4
65	25	1
70	19	0
75	14	0
80	10	0
85	6	0
90	0	0

o Vertical Angles
*Luminaire Lumens

Notes

- 1 Photometric Report: D4216 1000 lm KV Report No. 71113-A, D4216 1300 lm LTL Report No. 260910.
- 2 Data with Softglow® trim.
- 3 Colored trim multipliers vary with beam orientation and degree of angulation. Contact the factory for specific data.
- 4 All data derived with fixtures mounted in 15° sloped ceiling.

**FAHC Inpatient Bed Building
Light Fixture Type E**

Products	Search	Information	Contact	Partners
--------------------------	------------------------	-----------------------------	-------------------------	--------------------------

[Back to Recessed
Luminaires](#)



Recessed wall with louvers

Designed for low mounting heights for the illumination of steps, stairs, ramps, aisles and other interior and exterior locations.

Recessed luminaires with die cast aluminum faceplate with integral louvers. Etched tempered glass diffuser.

See individual product page for LED driver and color temperature information.

Fluorescent units include integral electronic ballasts.

U.L. listed, suitable for wet locations.

Protection class: IP65

Finish: Standard BEGA colors.



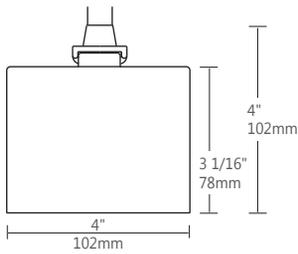
Click product # for details			Lamp	β	Temp°C	A	B	C
2038LED	EXPRESS	ADA	10.1W LED			13	4 7/8	4
2039LED	EXPRESS	ADA	13.4W LED			16 1/2	4 7/8	4
2040LED	EXPRESS	ADA	16.8W LED			20 1/2	4 7/8	4
2226P	EXPRESS	ADA	(1) 18W CF twin-4p			13	4 7/8	4
3126P		ADA	(1) 27W CF twin-4p			16 1/2	4 7/8	4
3125P		ADA	(1) 39W CF twin-4p			20 1/2	4 7/8	4

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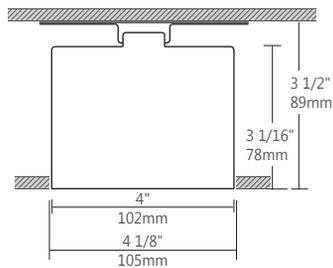


DIMENSIONS

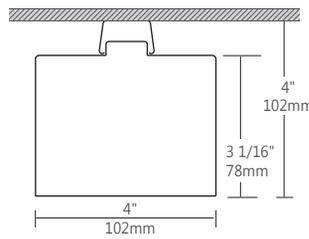
**FAHC Inpatient Bed Building
Light Fixture Type F, 2FT**



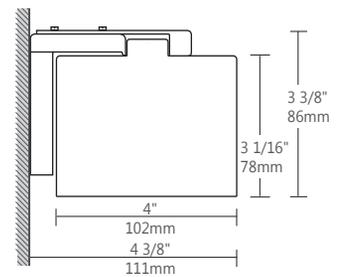
PENDANT



RECESSED



SURFACE



WALL



Wet Beam brought a sleek and compact Beam luminaire for wet locations to the market. It suits both indoor spaces such as bathrooms, spas, and indoor parking garages as well as outdoor spaces such as under-canopy installations. Like its fluorescent counterpart, the LED version of the Wet Beam complements the Beam LED family. It allows for applications such as the continuation of indoor lines of light in the ceiling to the under-canopy outdoors to maintain a consistent appearance throughout the space.

Maintenance requirements for Wet Beam LED are very low and it allows for significant energy savings. Color rendering with Wet Beam LED is very good and, unlike with fluorescent HID or HPS luminaires, it provides white light under any ambient temperature, allowing notably occupants to feel safer.

MAIN PRODUCT SPECIFICATIONS

1	PRODUCT ID	2	VERSION	3	NOM. LUMENS/FT	4	COLOUR TEMP.	5	SHIELDING										
WBLED	pendant led	B1	B1 (factory preset)	500	500 lm/ft	35	3500 k	F	frosted lens										
WBSLED	surface led									700	700 lm/ft	30	3000 k	S	satin lens				
WBWLED	wall led															900	900 lm/ft	40	4000 k
WBRLED	recessed led																		

6	LENGTH/FT	7	FINISH	8	VOLTAGE	9	DRIVER										
2	2'	AP	aluminum paint	120	120V	D	dimming										
3	3'							W	white	277	277V	LT	lutron				
4	4'													C	custom	UNV	universal
5	5'																
8	8'																
S#	System Run																



For complete luminaire specification sheets, please visit our web site at www.axislighting.com

MOUNTING OPTIONS



PENDANT



RECESSED



SURFACE



WALL

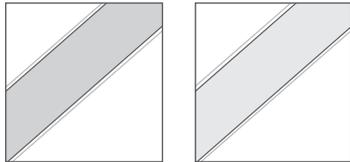
WET BEAM4 LED

PERFORMANCE AT 3500K

NOMINAL LUMEN OUTPUT	INPUT WATTS*	EFFICACY
500 lm/ft	6.6w/ft	76 lm/w
750 lm/ft	10.25w/ft	73 lm/w
900 lm/ft	12.8w/ft	70 lm/w

* Based on a 11" luminaire using one driver
Please consult factory for custom lumen output and wattage.

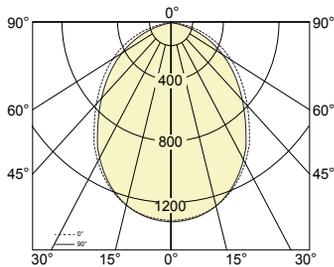
OPTICS OPTIONS



S satin lens

F frosted lens

PHOTOMETRICS

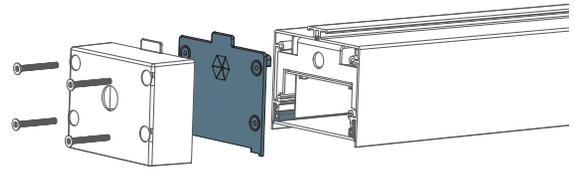


Wet Beam4 LED Direct
Luminaire Lumens: 2999 lm
Input Watts: 10.25 w
Efficacy: 74.9 lm/w
 IES FILE: WBLED-B1-750-35.IES

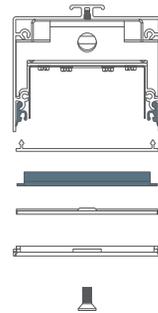
i All LED-related data in this document is valid as of Jan. 2013
 Given the fast pace of LED developments, up-to-date LED info
 is available on our website
 at www.axislighting.com.

GASKETED END CAP

With its gasketed end cap and lens the Wet Beam is made for wet locations, it is ideal for exterior soffits and canopies of malls, hospitals and other institutions.



LENS SIDE VIEW



GASKETED END CAP

CONSTRUCTION

Housing	Extruded Aluminum (0.062" nominal) Up to 70% Recycled Content
End Cap	Die Cast Zinc (0.070" nominal)
Interior Brackets	Die Formed Sheet Steel (16 ga)
Gaskets	Moulded Elastomer (0.100" nominal)
Lens Gaskets	Extruded Elastomer (0.045" nominal)
Frosted Lens	Frosted Acrylic 68% transmissive

ELECTRICAL

LED	Use of OptimaLED technology based on mid-flux LED
Input Voltage	120V, 277V, UNV.
Driver	Dimming, HiLume, EcoSystem, DALI,
CRI	Minimum 80 color rendering index
CCT	Choice of 3000k, 3500k and 4000k color temperature with a great color consistency (within 3.5-step MacAdam ellipse).
LED life	Minimum 50,000h with 70% of lumen maintenance in 25°C ambient temperature, in compliance with IES LM-80 testing measurements.

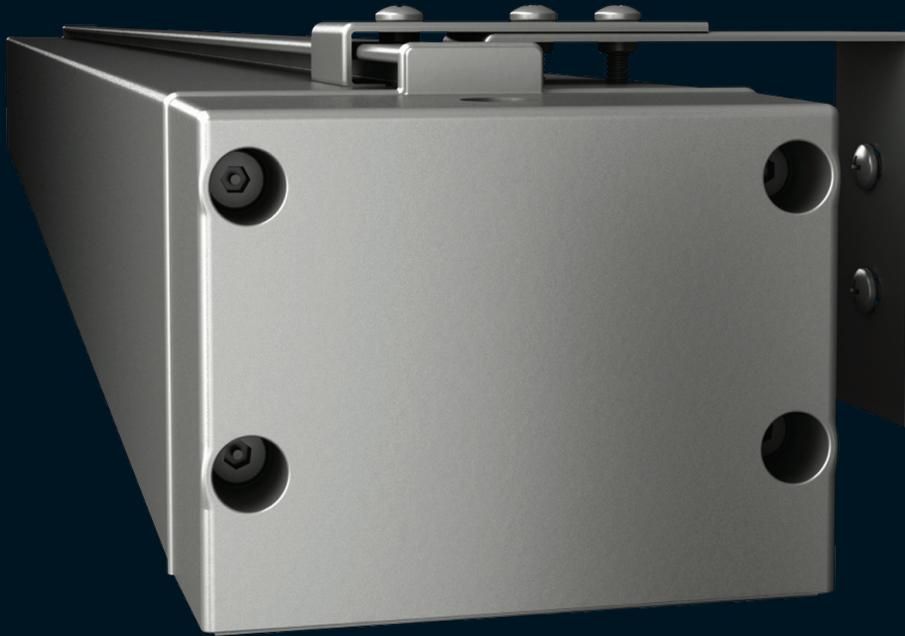
Thermal management

Aluminium housing acting as the heat spreader to maximize life.

Emergency

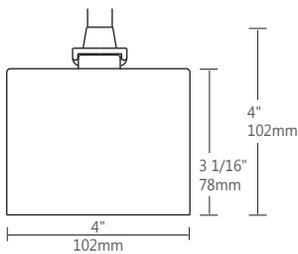
Emergency battery pack or emergency circuit optional.



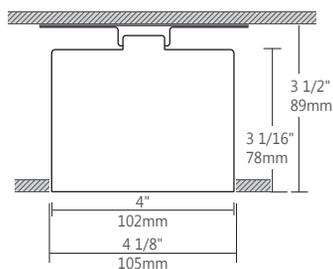


DIMENSIONS

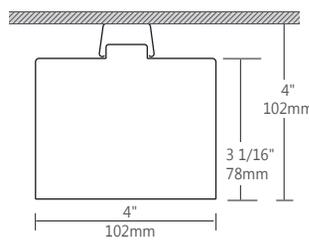
FAHC Inpatient Bed Building
Light Fixture Type G, 4FT



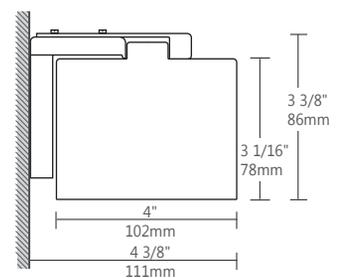
PENDANT



RECESSED



SURFACE



WALL



Wet Beam brought a sleek and compact Beam luminaire for wet locations to the market. It suits both indoor spaces such as bathrooms, spas, and indoor parking garages as well as outdoor spaces such as under-canopy installations. Like its fluorescent counterpart, the LED version of the Wet Beam complements the Beam LED family. It allows for applications such as the continuation of indoor lines of light in the ceiling to the under-canopy outdoors to maintain a consistent appearance throughout the space.

Maintenance requirements for Wet Beam LED are very low and it allows for significant energy savings. Color rendering with Wet Beam LED is very good and, unlike with fluorescent HID or HPS luminaires, it provides white light under any ambient temperature, allowing notably occupants to feel safer.

MAIN PRODUCT SPECIFICATIONS

1	PRODUCT ID	2	VERSION	3	NOM. LUMENS/FT	4	COLOUR TEMP.	5	SHIELDING
WBLED	pendant led	B1	B1 (factory preset)	500	500 lm/ft	35	3500 k	F	frosted lens
WBSLED	surface led								
WBWLED	wall led								
WBRLED	recessed led								
								S	satin lens

6	LENGTH/FT	7	FINISH	8	VOLTAGE	9	DRIVER
2	2'	AP	aluminum paint	120	120V	D	dimming
3	3'						
4	4'						
5	5'						
8	8'						
S#	System Run						
		W	white	277	277V	LT	lutron
		C	custom	UNV	universal		



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MOUNTING OPTIONS



PENDANT



RECESSED



SURFACE



WALL

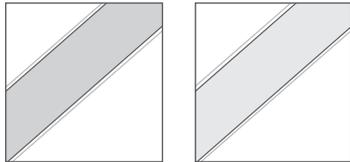
WET BEAM4 LED

PERFORMANCE AT 3500K

NOMINAL LUMEN OUTPUT	INPUT WATTS*	EFFICACY
500 lm/ft	6.6w/ft	76 lm/w
750 lm/ft	10.25w/ft	73 lm/w
900 lm/ft	12.8w/ft	70 lm/w

* Based on a 11" luminaire using one driver
Please consult factory for custom lumen output and wattage.

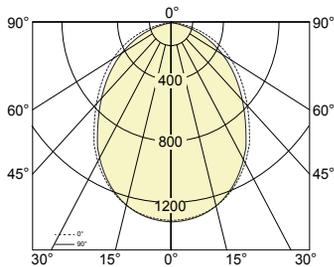
OPTICS OPTIONS



S satin lens

F frosted lens

PHOTOMETRICS

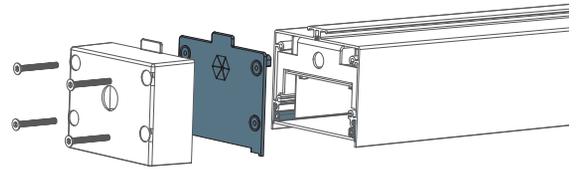


Wet Beam4 LED Direct
Luminaire Lumens: 2999 lm
Input Watts: 10.25 w
Efficacy: 74.9 lm/w
 IES FILE: WBLED-B1-750-35.IES

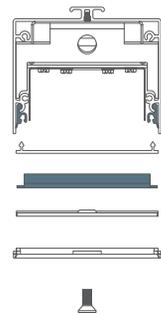
i All LED-related data in this document is valid as of Jan. 2013
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 is available on our website
 at www.axislighting.com.

GASKETED END CAP

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LENS SIDE VIEW



GASKETED END CAP

CONSTRUCTION

Housing	Extruded Aluminum (0.062" nominal) Up to 70% Recycled Content
End Cap	Die Cast Zinc (0.070" nominal)
Interior Brackets	Die Formed Sheet Steel (16 ga)
Gaskets	Moulded Elastomer (0.100" nominal)
Lens Gaskets	Extruded Elastomer (0.045" nominal)
Frosted Lens	Frosted Acrylic 68% transmissive

ELECTRICAL

LED	Use of OptimaLED technology based on mid-flux LED
Input Voltage	120V, 277V, UNV.
Driver	Dimming, HiLume, EcoSystem, DALI,
CRI	Minimum 80 color rendering index
CCT	Choice of 3000k, 3500k and 4000k color temperature with a great color consistency (within 3.5-step MacAdam ellipse).
LED life	Minimum 50,000h with 70% of lumen maintenance in 25°C ambient temperature, in compliance with IES LM-80 testing measurements.

Thermal management

Aluminium housing acting as the heat spreader to maximize life.

Emergency

Emergency battery pack or emergency circuit optional.

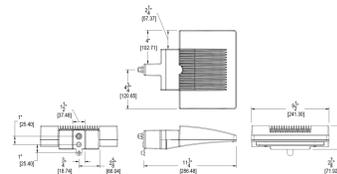


ALED26

ALED Area Lights mount to 4" square steel poles at 15-20'. 1 to 4 fixtures can be mounted to each pole. IES Full Cutoff, Fully Shielded optics. 5 year Warranty.

Color: Bronze

Weight: 6.5 lbs



LED Info

Watts: 26W
 Color Temp: 5000K (Cool)
 Color Accuracy: 70
 L70 Lifespan: 100000
 LM79 Lumens: 2,662
 Efficacy: 90 LPW

Driver Info

Type: Constant Current
 120V: 0.26A
 208V: 0.16A
 240V: 0.14A
 277V: 0.12A
 Input Watts: 30W
 Efficiency: 88%

Technical Specifications

UL Listing:

Suitable for wet locations.

Lifespan:

100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

IP Rating:

Ingress Protection rating of IP66 for dust and water.

IES Classification:

The Type IV distribution (also known as a Forward Throw) is especially suited for mounting on the sides of buildings and walls, and for illuminating the perimeter of parking areas. It produces a semiCircular distribution with essentially the same candlepower at lateral angles from 90° to 270°.

Warranty:

RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish.

Lumen Maintenance:

The LED will deliver 70% of its initial lumens at 100,000 hours of operation.

Housing:

Precision die cast aluminum housing, lens frame.

Gaskets:

High temperature silicone.

Effective Projected Area:

EPA = 0.27.

Finish:

Our environmentally friendly polyester powder coatings are formulated for high-durability and long-lasting color, and contains no VOC or toxic heavy metals.

Green Technology:

ALEDs are Mercury, Arsenic and UV free.

IESNA LM-79 & IESNA LM-80 Testing:

RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and 80, and have received the Department of Energy "Lighting Facts" label.

Color Consistency:

7-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Color Stability:

LED color temperature is warrantied to shift no more than 200K in CCT over a 5 year period.

Color Uniformity:

RAB's range of CCT (Correlated color temperature) follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2008.

Ambient Temperature:

Suitable for use in 40°C ambient temperatures.

Driver:

Multi-chip 26W high output long life LED Driver
 Constant Current, 720mA, Class 2, 6kV Surge Protection, 100V-277V, 50-60 Hz, 100-240V.4 Amps.

THD:

7.5% at 120V, 11% at 277V



ALED26 - continued

Cold Weather Starting:

The minimum starting temperature is -40°F/-40°C.

Thermal Management:

Cast aluminum Thermal Management system for optimal heat sinking. The ALED is designed for cool operation, most efficient output and maximum LED life by minimizing LED junction temperature.

Dark Sky Approved:

The International Dark Sky Association has approved this product as a full cutoff, fully shielded luminaire.

California Title 24:

California Title 24

Equivalency:

The ALED26 is Equivalent in delivered lumens to a 70 W Metal Halide Area Light.

HID Replacement Range:

The ALED26 can be used to replace 42 CFL - 100W Metal Halide Area Light based on delivered lumens.

Patents:

The ALED design is protected by U.S. PATENT D608,040 and patents pending in the U.S., Canada, China, Taiwan and Mexico.

DLC Listed:

This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities.

Country of Origin:

Designed by RAB in New Jersey and assembled in Taiwan.

Trade Agreements Act Compliant:

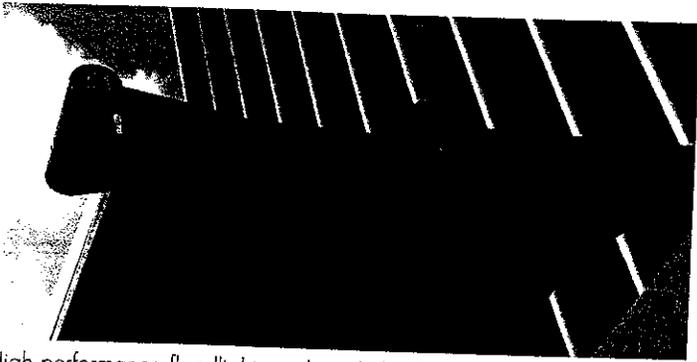
This product is a product of Taiwan and a "designated country" end product that complies with the Trade Agreements Act.

GSA Schedule:

Suitable in accordance with FAR Subpart 25.4.



Moonshine A



High performance floodlights and spotlights for compact fluorescent and Metal Halide. IP65, die cast low copper aluminum housing, all exterior steel parts are stainless steel, axially symmetrical or rotationally symmetrical reflector, tempered glass lens flush with frame, silicon gasket, either remote ballast or recessed ballast box for exterior integrated gear for HID. Recessed ballast box is 8" square to facilitate installation. Fluorescent version has integral electronic -25 F cold weather ballasts.

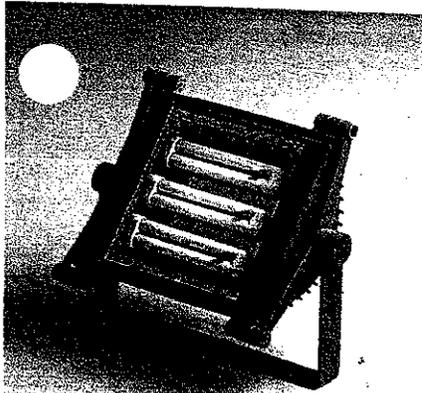
Moonshine is a range of floodlights and spotlights which offers new possibilities for the architectural illumination of buildings. Wide, medium and narrow beam axially symmetrical and rotationally symmetrical are available for the Metal Halide versions. The high IP rating makes them suitable for exterior use, up or down, and for applications in buildings where dust is a problem.

Both sizes of housing take double ended MH lamps. Concentrating on this type of lamp made it possible to design luminaires with a very shallow cross section. When installed horizontally on a

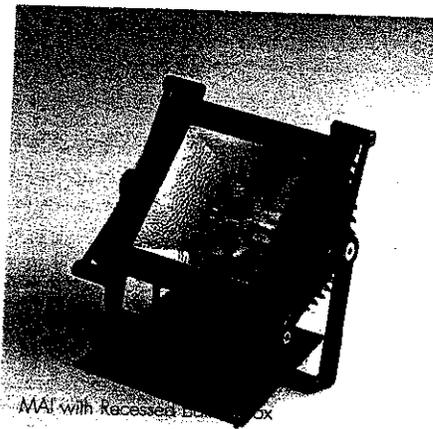
façade, the luminaires only have a minimal effect on the overall appearance of the building.

The 6mm (.236") thick tempered glass is ceramic printed and is flush with the frame. The absence of a lip around the edge makes it more difficult for water and dirt to build up on the glass. This reduces the amount of maintenance.

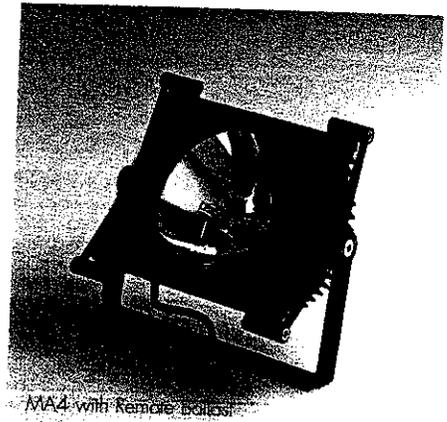
Moonshine is the result of international cooperation between the lighting consultant Roland Jéol and the architect and industrial designer Roy Fleetwood. Both are internationally recognized as being leaders in their field.



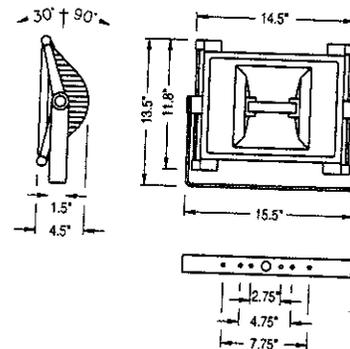
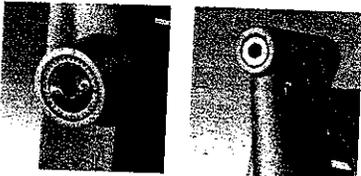
MA4 with Integral ballast



MA4 with Recessed Ballast box

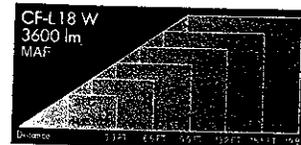
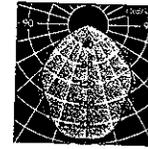


MA4 with Remote ballast



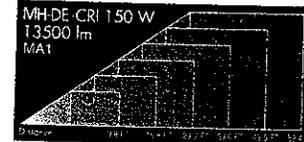
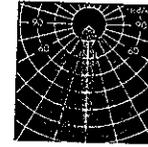
MAF Fluorescent

Lamp	CRI	Socket	Half beam angle	
			C0-180	C90-270
3x18 Dulux L RS	82	2G11	93	100



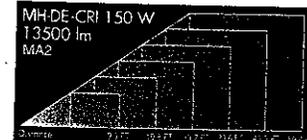
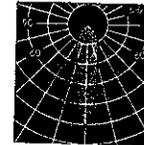
MA1 Axially symmetrical, narrow beam

Lamp	CRI	Socket	Half beam angle	
			C0-180	C90-270
70W MASTER COLOR MH DE 3000K	85	Rx7s	10	73
150W MASTER COLOR MH DE 3000K	85	Rx7s	10	73



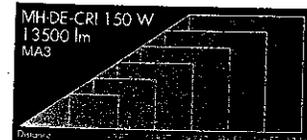
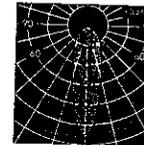
MA2 Axially symmetrical, medium wide beam

Lamp	CRI	Socket	Half beam angle	
			C0-180	C90-270
70W MASTER COLOR MH DE 3000K	85	Rx7s	22	73
150W MASTER COLOR MH DE 3000K	85	Rx7s	22	73



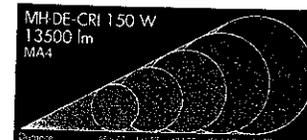
MA3 Axially symmetrical, wide beam

Lamp	CRI	Socket	Half beam angle	
			C0-180	C90-270
70W MASTER COLOR MH DE 3000K	85	Rx7s	40	76
150W MASTER COLOR MH DE 3000K	85	Rx7s	40	76



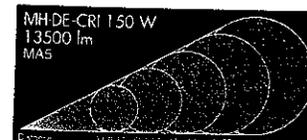
MA4 Rotationally symmetrical, narrow beam

Lamp	CRI	Socket	Half beam angle	
			C0-180	
70W MASTER COLOR MH DE 3000K	85	Rx7s	9	
150W MASTER COLOR MH DE 3000K	85	Rx7s	9	



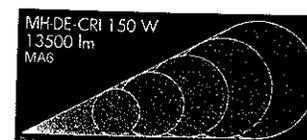
MA5 Rotationally symmetrical, medium wide beam

Lamp	CRI	Socket	Half beam angle	
			C0-180	
70W MASTER COLOR MH DE 3000K	85	Rx7s	20	
150W MASTER COLOR MH DE 3000K	85	Rx7s	20	



MA6 Rotationally symmetrical, wide beam

Lamp	CRI	Socket	Half beam angle	
			C0-180	
70W MASTER COLOR MH DE 3000K	85	Rx7s	45	
150W MASTER COLOR MH DE 3000K	85	Rx7s	45	



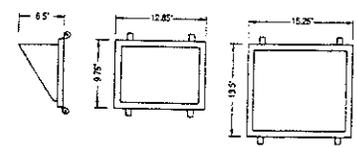
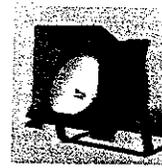
ORDERING CHART moonshine A

SERIES	Prod. ID XXX	Lamp X	Wattage XX	Body X	Finish XX	Grill X	Ballast X	Lens X	Options XX
Fluorescent	MAF	8 - FLOUR	G6 - 3x18W Biax 4Pin CRI 82 35K	B - Adjustable Floodlight	10 - Matte Silver	0 - None	C - 120V - 277V ELECT	T - Clear Temp Glass	0 - None
Axially Sym Narrow	MA1	9 - HID	L5 - 70W Master Color D/E CRI 85 30K	T - Recessed Ballast Box	78 - Textured Black		A - 277V MAG HPF		
Axially Sym Medium	MA2		U1 - 150W Master Color D/E CRI 85 30K	Adjustable Floodlight	EW - Euro White		R - 120V/277V MAG HPF REM		
Axially Sym Wide	MA3				99 - Custom				
Rotation Sym Narrow	MA4								
Rotation Sym Med	MA5								
Rotation Sym Wide	MA6								

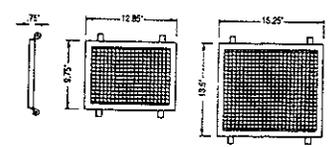
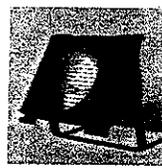
NOTE: B STYLE BODY IS ALWAYS USED FOR FLUORESCENT WITH INTEGRAL ELECTRONIC BALLAST
 B STYLE BODY IS FOR HID WITH REMOTE BALLAST
 T STYLE BODY IS ALWAYS INTEGRAL BALLAST IN RECESSED BALLAST BOX

NOTE: FLUOR. IS ALWAYS C
 HID IS EITHER 9 OR A FOR "T" BODY OR R FOR "B" BODY

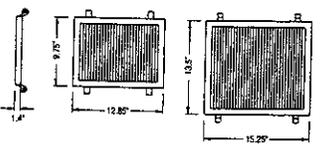
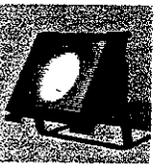
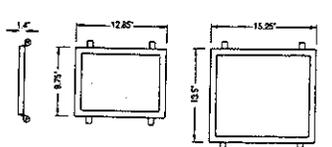
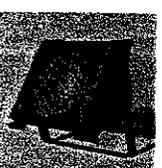
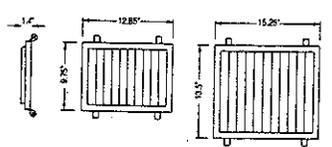
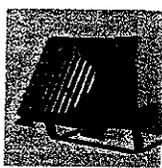
Moonshine A		Moonshine B	
Part number	Part number	Colour	Description
129 0 016 940	129 0 036 940	black	cowl c/w frame
129 0 016 960	129 0 036 950	white	
129 0 016 950	129 0 036 960	silver grey	



Moonshine A		Moonshine B	
Part number	Part number	Colour	Description
129 0 012 940	129 0 032 940	black	protection grill c/w frame
129 0 012 960	129 0 032 950	white	
129 0 012 950	129 0 032 960	silver grey	



Moonshine A		Moonshine B	
Part number	Part number	Colour	Description
129 0 014 940	129 0 034 940	black	vertical louvre c/w frame
129 0 014 960	129 0 034 960	white	
129 0 014 950	129 0 034 950	silver grey	
129 0 015 940	129 0 035 940	black	horizontal louvre c/w frame
129 0 015 960	129 0 035 960	white	
129 0 015 950	129 0 035 950	silver grey	



Moonshine A		Moonshine B	
Part number	Part number	Colour	Description
129 0 018 940	129 0 038 940	black	green filter c/w frame
129 0 018 960	129 0 038 960	white	
129 0 018 950	129 0 038 950	silver grey	
129 0 013 940	129 0 033 940	black	blue filter c/w frame
129 0 013 960	129 0 033 960	white	
129 0 013 950	129 0 033 950	silver grey	
129 0 017 940	129 0 037 940	black	red filter c/w frame
129 0 017 960	129 0 037 960	white	
129 0 017 950	129 0 037 950	silver grey	
129 0 011 940	129 0 031 940	black	yellow filter c/w frame
129 0 011 960	129 0 031 960	white	
129 0 011 950	129 0 031 950	silver grey	

Only for spotlights with narrow beam light distributions

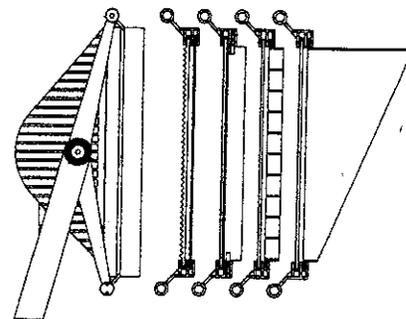
129 0 019 940	129 0 039 940	black	ribbed glass for vertical beam c/w frame
129 0 019 960	129 0 039 960	white	
129 0 019 950	129 0 039 950	silver grey	
129 0 020 940	129 0 040 940	black	ribbed glass for horizontal beam c/w frame
129 0 020 960	129 0 040 960	white	
129 0 020 950	129 0 040 950	silver grey	

The frames can carry a special glass plus another accessory.

Moonshine A		Moonshine B	
Part number	Part number	Colour	Description
129 0 051 910*	129 0 071 910*	yellow	filter
129 0 051 930*	129 0 071 930*	blue	
129 0 051 970*	129 0 071 970*	red	
129 0 051 980*	129 0 071 980*	green	

Only for spotlights with narrow beam light distributions

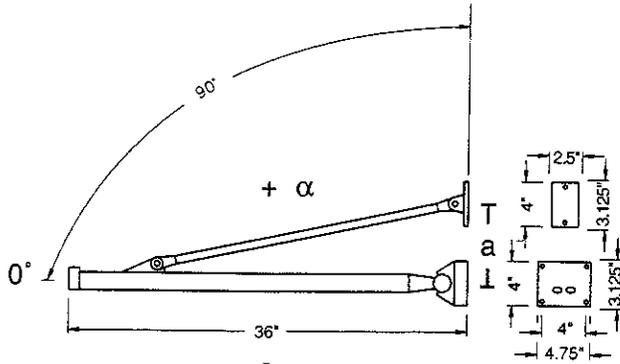
129 0 059 000*	129 0 079 000*	-	ribbed glass, vertical beam
129 0 060 000*	129 0 080 000*	-	ribbed glass, horizontal beam



Accessories such as louvres and special glasses are fitted into a supporting frame and are screwed onto the front of the floodlight. A special glass plus another accessory can be fitted to one frame.

Cantilever Wall Arm for Moonshine Series

The angle of the arm depends on two factors. First the distance between the wall plate and the fixture plate. Second, there is adjustment on the arm itself. So, for example, if the distance from the center of the wall plate to the center of the brace is 10", the arm can go from 18 degrees below horizontal to 9 degrees above horizontal. This represents a spread of 27 degrees.



The interdependence of the installation angle α to distance a

Distance a in inches	Angle α in $^\circ$	Range in $^\circ$
10	-18 - +9	27
12	-18 - +11	29
14	-18 - +13	31
16	-18 - +15	33
18	-18 - +17	35
20	-18 - +19	37
22	-18 - +21	39
24	-18 - +23	41
26	-18 - +25	43
28	+2 - +27	25
30	+14 - +29	15
32	+29 - +31	2
34	+31 - +33	2

Recessed Ballast Box

